43rd Annual Conference of Indian Association of Medical Microbiologists
Nehru Centre, Mumbai, India

NEWER DIAGNOSTICS, EMERGING DISEASES AND PREPAREDNESS

ABSTRACT BOOK
ORAL AND POSTER PRESENTATION

JOINTLY ORGANISED BY
<table>
<thead>
<tr>
<th>Abstract No</th>
<th>MICP No</th>
<th>Name of Presenter</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>CB-O1</td>
<td>MICP024</td>
<td>Vineeta Mittal</td>
<td>Scrub Typhus: An Under-Reported and Emerging Threat; Study on Seroprevalence in Acute Febrile Patients in Superspecialty Institute in North India</td>
</tr>
<tr>
<td>CB-O2</td>
<td>MICP070</td>
<td>Divyaa Elangovan</td>
<td>Diagnostic Evaluation of New Real Time PCR Assay for Spotted Fever Diagnosis</td>
</tr>
<tr>
<td>CB-O4</td>
<td>MICP045</td>
<td>Amresh Kumar Singh</td>
<td>Retrospective Analysis of Bacteremia by Gram-Negative Bacteria, its Epidemiology and Trends of Antimicrobial Resistance in a Tertiary Care Hospital</td>
</tr>
<tr>
<td>CB-O5</td>
<td>MICP268</td>
<td>Vimala Venkatesh</td>
<td>Detection of Multiple Beta-Lactamase Genes in Blood Isolates in ICUs of A Tertiary Care Hospital in Northern India</td>
</tr>
<tr>
<td>CB-O6</td>
<td>MICP241</td>
<td>Renji Francis</td>
<td>Direct Detection of ESBLs From Positive Bact/Alert Blood Cultures</td>
</tr>
<tr>
<td>CB-O7</td>
<td>MICP296</td>
<td>Goutam Sarkar</td>
<td>Minimum Inhibitory Concentration (MIC) Detection Within Minutes Without Automation</td>
</tr>
<tr>
<td>CB-O8</td>
<td>MICP082</td>
<td>Sonia Deb</td>
<td>Formulation of Enrichment And Selective Media For Isolation of Acinetobacter Species from Hospital Environment</td>
</tr>
<tr>
<td>CB-O9</td>
<td>MICP120</td>
<td>Sukanya Sudhaharan</td>
<td>Impact of Pre-Analytic Practices on Usefulness of Urine Culture in a Tertiary Care Hospital</td>
</tr>
<tr>
<td>CB-O10</td>
<td>MICP260</td>
<td>Pradnya Naik</td>
<td>A Study of Screening Tests for the Presumptive Diagnosis of Significant Bacteriuria in Urinary Tract Infections</td>
</tr>
<tr>
<td>CB-O11</td>
<td>MICP053</td>
<td>Jitendra Kumar</td>
<td>Correlation of &quot;Resistance Profile&quot; of Isolates, Derived From DJ Stents With Duration of Their Stay in Genitourinary Tract of Patients</td>
</tr>
<tr>
<td>CB-O12</td>
<td>MICP175</td>
<td>Neelima Angaali</td>
<td>Molecular Characterization of Multi Drug Resistant Gram Negative Bacteria Isolated From Blood Stream Infections in a Tertiary Care Hospital</td>
</tr>
<tr>
<td>CB-O13</td>
<td>MICP209</td>
<td>Chaitali Konwar</td>
<td>Molecular Characterisation of Carbapenem Resistance in Acinetobacter Baumannii in Clinical Isolates in a Tertiary Care Hospital in Assam</td>
</tr>
<tr>
<td>CB-O14</td>
<td>MICP142</td>
<td>Beena Antony</td>
<td>Analysis of Biofilm Production and Antibiofilm Activity in Anaerobic Microbial Community of Human Body</td>
</tr>
<tr>
<td>CB-O15</td>
<td>MICP143</td>
<td>Harish Manoharan</td>
<td>Detection and Characterization of High-Level Gentamicin Resistance Among Enterococcus Faecium And Faecalis</td>
</tr>
<tr>
<td>CB-O16</td>
<td>MICP371</td>
<td>Neetu Srivastava</td>
<td>Analysis of Enterococcal Isolates from Clinical Specimens With Special Reference to Antibiogram and Virulence Markers</td>
</tr>
<tr>
<td>CB-O17</td>
<td>MICP136</td>
<td>Lisha</td>
<td>Jha</td>
</tr>
<tr>
<td>CB-O18</td>
<td>MICP335</td>
<td>Lydia</td>
<td>Jennifer</td>
</tr>
<tr>
<td>CB-O19</td>
<td>MICP113</td>
<td>Ankita</td>
<td>Mohanty</td>
</tr>
<tr>
<td>CB-O20</td>
<td>MICP243</td>
<td>Sarumathi</td>
<td>Dhandapani</td>
</tr>
<tr>
<td>CB-O21</td>
<td>MICP062</td>
<td>Rahul</td>
<td>Ranjan</td>
</tr>
<tr>
<td>CB-O22</td>
<td>MICP193</td>
<td>Meerabai</td>
<td>Manoharan</td>
</tr>
<tr>
<td>CB-O23</td>
<td>MICP272</td>
<td>Joanna Valanie</td>
<td>Pereira</td>
</tr>
<tr>
<td>CB-O24</td>
<td>MICP223</td>
<td>Ankita</td>
<td>Chaurasia</td>
</tr>
<tr>
<td>CB-O25</td>
<td>MICP331</td>
<td>Shatabhisha</td>
<td>Chakrabarti</td>
</tr>
<tr>
<td>CB-O26</td>
<td>MICP307</td>
<td>Kanne</td>
<td>Padmaja</td>
</tr>
<tr>
<td>CB-O27</td>
<td>MICP134</td>
<td>Sangeeta</td>
<td>Gouda</td>
</tr>
<tr>
<td>CB-O28</td>
<td>MICP333</td>
<td>Monika</td>
<td>Mahajan</td>
</tr>
</tbody>
</table>

**Clinical Immunology**

| Clm-O1 | MICP043 | Nirjhar | Chatterjee | Neonatal Sepsis: Role of Interleukin-6 And Tumour Necrosis Factor-A In Rapid Diagnosis And Its Comparison With Automated Blood Culture |
| Clm-O2 | MICP206 | Kxitiza | Pandey | Correlation of Antibodies Against Nuclear Antigen Using Immunofluorescence Pattern And Line Immuno Assay Profile In Autoimmune Diseases |
| Clm-O3 | MICP318 | Abhilasha | Dalal | Association of Autoimmune Thyroiditis With Rheumatoid Arthritis |

**Emerging Diseases**
<table>
<thead>
<tr>
<th>ED-O1</th>
<th>MICP329</th>
<th>Deepti Chaurasia</th>
<th>Establishment of State Virology Laboratory In A Government Medical College; Challenges And The Road Ahead.</th>
</tr>
</thead>
<tbody>
<tr>
<td>ED-O2</td>
<td>MICP336</td>
<td>Debopriya Chakraborty</td>
<td>A Comparative Study On The Diagnosis of Orientia Tsutsugamushi Infection By Serological Test Versus Molecular Method of Testing In Kolkata</td>
</tr>
<tr>
<td>ED-O3</td>
<td>MICP217</td>
<td>Daisy Bacchani</td>
<td>Candida Auris- A New Enemy Ready To Invade.</td>
</tr>
<tr>
<td>ED-O4</td>
<td>MICP181</td>
<td>Harmanmeet Kaur</td>
<td>Viral Aetiology For Fever With Rash Syndrome In India: 2014-2019</td>
</tr>
</tbody>
</table>

### Health care associated infections

<table>
<thead>
<tr>
<th>HCAI-O1</th>
<th>MICP012</th>
<th>Jhansi Vani Devana</th>
<th>Post Operative Sternal Wound Infection Due To Nocardia After Open Heart Surgery: Two Case Reports</th>
</tr>
</thead>
<tbody>
<tr>
<td>HCAI-O2</td>
<td>MICP137</td>
<td>Renu Kumari</td>
<td>Study of Needle Stick Injuries Among Health Care Workers From A Tertiary Care Hospital</td>
</tr>
<tr>
<td>HCAI-O3</td>
<td>MICP148</td>
<td>Malabika Biswas</td>
<td>A Prospective Study of Nosocomial Infections At A Tertiary Care Hospital: A Clarion Call For Infection Control</td>
</tr>
<tr>
<td>HCAI-O4</td>
<td>MICP158</td>
<td>Sumita Boro</td>
<td>Risk Factors For Catheter Related Bloodstream Infections In Patients Attending Intensive Care Units of A Tertiary Care Centre of Assam.</td>
</tr>
<tr>
<td>HCAI-O5</td>
<td>MICP166</td>
<td>Apeksha Ghule</td>
<td>Prevalence of Microbial Biofilms In Hospital Environment In A Tertiary Care Hospital, Solapur</td>
</tr>
<tr>
<td>HCAI-O6</td>
<td>MICP194</td>
<td>Neha Samal</td>
<td>Bacteriological Profile And Antibiotic Sensitivity Pattern of Endotracheal Tube Aspirates of Patients Admitted In Intensive Care Unit</td>
</tr>
<tr>
<td>HCAI-O7</td>
<td>MICP195</td>
<td>Krati Fatehpuria</td>
<td>Prevalence of Carbapenem Resistant Enterobacteriaceae In Urinary Isolates: An Alarming Sign</td>
</tr>
<tr>
<td>HCAI-O8</td>
<td>MICP211</td>
<td>Prasad Udhoji</td>
<td>Study Determining Organism/Organisms That Colonize The Central Lines And Their Sensitivity Patterns</td>
</tr>
<tr>
<td>HCAI-O9</td>
<td>MICP242</td>
<td>Mekhala Taraphdar</td>
<td>A Study of Coagulase Negative Staphylococci (CoNS), An Emerging Pathogen Causing Blood Stream Infection At A Tertiary Care Hospital,Kolkata</td>
</tr>
<tr>
<td>HCAI-O10</td>
<td>MICP309</td>
<td>Bipanchi Mahanta</td>
<td>Extended Spectrum Beta Lactamase And Metallo Beta Lactamase Producers Causing Ventilator Associated Pneumonia In Adults: A Genotypic And Phenotypic Correlation</td>
</tr>
<tr>
<td>HCAI-O11</td>
<td>MICP311</td>
<td>Yona Manchikalapati</td>
<td>Microbes On Our Mobile Phones : The Mini Monsters . Bacteriological Profile of Mobile Phones of Interns In A Tertiary Care Hospital</td>
</tr>
<tr>
<td>HCAI-O12</td>
<td>MICP388</td>
<td>Anuniti Mathias</td>
<td>Missed CLABSI Cases: Is The Blood Culture Sending Practice Appropriate?</td>
</tr>
<tr>
<td>Conf. Code</td>
<td>MICP Code</td>
<td>First Name</td>
<td>Last Name</td>
</tr>
<tr>
<td>-----------</td>
<td>-----------</td>
<td>------------</td>
<td>-----------</td>
</tr>
<tr>
<td>HCAI-O13</td>
<td>MICP406</td>
<td>Debasis</td>
<td>Biswas</td>
</tr>
<tr>
<td>HCAI-O14</td>
<td>MICP454</td>
<td>Milind</td>
<td>Ubale</td>
</tr>
<tr>
<td><strong>Mycobacteriology</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MB-O1</td>
<td>MICP029</td>
<td>Mukesh</td>
<td>Kumar</td>
</tr>
<tr>
<td>MB-O2</td>
<td>MICP167</td>
<td>Shagufta</td>
<td>Khatoon</td>
</tr>
<tr>
<td>MB-O3</td>
<td>MICP360</td>
<td>Nishar</td>
<td>Akhtar</td>
</tr>
<tr>
<td>MB-O4</td>
<td>MICP015</td>
<td>Atindra</td>
<td>Kumar</td>
</tr>
<tr>
<td>MB-O5</td>
<td>MICP106</td>
<td>Suryasnata</td>
<td>Das</td>
</tr>
<tr>
<td>MB-O6</td>
<td>MICP174</td>
<td>Kalpana</td>
<td>Thangavelu</td>
</tr>
<tr>
<td>MB-O7</td>
<td>MICP324</td>
<td>Baijayantimala</td>
<td>Mishra</td>
</tr>
<tr>
<td>MB-O8</td>
<td>MICP444</td>
<td>Nandini</td>
<td>Sethuraman</td>
</tr>
<tr>
<td>MB-O9</td>
<td>MICP383</td>
<td>Eason</td>
<td>Lin</td>
</tr>
<tr>
<td>MB-O10</td>
<td>MICP422</td>
<td>Ashwani</td>
<td>K Pandey</td>
</tr>
<tr>
<td>MB-O11</td>
<td>MICP095</td>
<td>Pratik</td>
<td>Thosani</td>
</tr>
<tr>
<td>MB-O12</td>
<td>MICP208</td>
<td>Dharmendra</td>
<td>Singh</td>
</tr>
<tr>
<td>MB-O13</td>
<td>MICP085</td>
<td>Ashmita</td>
<td>Banik</td>
</tr>
<tr>
<td>MB-O14</td>
<td>MICP284</td>
<td>Madhurima</td>
<td>Nair</td>
</tr>
<tr>
<td>MB-O16</td>
<td>MICP102</td>
<td>Sabyasachi Mandal</td>
<td>Evaluation of Is6110 Based PCR And Microscopy In Comparison To BACTEC MGIT Culture In Diagnosis of Suspected Pulmonary Tuberculosis Cases</td>
</tr>
<tr>
<td>MB-O17</td>
<td>MICP125</td>
<td>Sabina Jahagirdar</td>
<td>Epidemiology of Mycobacterial Infections In Cancer</td>
</tr>
<tr>
<td>MB-O18</td>
<td>MICP168</td>
<td>Tarini Deshmukh</td>
<td>Screening of Health Care Workers For Latent Tuberculosis Infection Using Interferon Gamma Release Assay (IGRA)</td>
</tr>
<tr>
<td>MB-O19</td>
<td>MICP266</td>
<td>Nishtha Singh</td>
<td>Fluroquinolone Drug Resistance Among MDR-TB Patients Increases The Risk of Unfavorable Interim Microbiological Treatment Outcome: An Observational Study</td>
</tr>
<tr>
<td>MB-O20</td>
<td>MICP094</td>
<td>Namita Dsouza Davar</td>
<td>Molecular Diagnosis of Tuberculosis - 5 Years Experience</td>
</tr>
</tbody>
</table>

**Molecular Epidemiology**

| ME-O1 | MICP065 | Aditi Garg | Prevalence And Molecular Characteristics of MRSA Bacteraemia In A Tertiary Care Teaching Hospital |
| ME-O2 | MICP201 | Mahadevan Kumar | Detecton of Plasmid Mediated Resistance In Enterobacteriaeae By Replicon Typing |
| ME-O3 | MICP214 | Avinandan Saha | A Pilot Study Of The Molecular Epidemiology of Methicillin-Resistant Staphylococcus Aureus In A Tertiary Care Hospital Using Pulsed-Field Gel Electrophoresis |
| ME-O4 | MICP233 | Shubhada C M | Heteroduplex Typing of Clinical Isolates of Acinetobacter From Intensive Care Units In A Tertiary Teaching Hospital |
| ME-O5 | MICP306 | Mayuri Zende | Epidemiology of Keratoconjunctivitis In India : A Multicentric Hospital Based Study |
| ME-O6 | MICP348 | Kumari Seema | Molecular Characterization For Study of Serotypes of Dengue Viruses Circulating In Ranchi, Jharkhand |
| ME-O7 | MICP419 | Rosemol Varghese | Molecular Epidemiology of Penicillin Non Susceptible Streptococcus pneumoniae Isolates From India |
| ME-O8 | MICP118 | Nagalakshmi Kasiraj | Detection of Pap Virulence Gene Among Uropathogenic Escherichia Coli And Their Correlation With Antimicrobial Susceptibility - An Observational Study |
| ME-O9 | MICP182 | Neetu Vijay | Epidemiology of Rota Virus Gastroenteritis In India |

**Mycology**

<p>| My-O1 | MICP042 | Savitri Sharma | Pythium Insidiosum Keratitis: Development And Evaluation of A Rabbit Model |</p>
<table>
<thead>
<tr>
<th>My-O2</th>
<th>MICP071</th>
<th>Chayanika</th>
<th>Banerjee</th>
<th>Correlation of Biofilm Production of Multidrug Resistant Candida Species With Candida Score- A Futuristic Tool For Assessing Invasive Candidiasis</th>
</tr>
</thead>
<tbody>
<tr>
<td>My-O3</td>
<td>MICP161</td>
<td>Masoom</td>
<td>Nathani</td>
<td>Pneumocystis Pneumonia In Children With Hematological Malignancies</td>
</tr>
<tr>
<td>My-O4</td>
<td>MICP210</td>
<td>Pratibha</td>
<td>Kale</td>
<td>New Risk Group For Invasive Fungal Infections: Epidemiology, Risk Factors, Rapid Diagnosis And Biomarker Analysis of Fungal Pneumonia In Cirrhosis</td>
</tr>
<tr>
<td>My-O5</td>
<td>MICP019</td>
<td>Rakesh</td>
<td>Singh</td>
<td>Risk Factors Association And Antifungal Susceptibility Pattern of Candida parapisilosis Complex</td>
</tr>
<tr>
<td>My-O6</td>
<td>MICP366</td>
<td>Priyanka</td>
<td>Sharma</td>
<td>Infective Aetiology In Patients With 'Tree-In-Bud' Pattern On HRCT Chest Highlighting The Neglected Fungal Lung Infections</td>
</tr>
<tr>
<td>My-O7</td>
<td>MICP398</td>
<td>Twishi</td>
<td>Shrimali</td>
<td>Detection of Causative Agents of Infectious Keratitis In Patients From Western Rajasthan</td>
</tr>
<tr>
<td>My-O8</td>
<td>MICP417</td>
<td>Sourav</td>
<td>Das</td>
<td>Stress Responses Correlate With Fluconazole Resistance In Candida Auris</td>
</tr>
<tr>
<td>My-O9</td>
<td>MICP439</td>
<td>Harsimran</td>
<td>Kaur</td>
<td>Evaluation of A Novel Aspergillus IgG Enzyme Immunoassay For Diagnosing Allergic And Chronic Pulmonary Aspergilosis</td>
</tr>
<tr>
<td>My-O10</td>
<td>MICP320</td>
<td>Jagdish</td>
<td>Chander</td>
<td>Emergence of Rhizopus homothallicus As A Significant Human Pathogen of Mucormycosis</td>
</tr>
<tr>
<td>My-O11</td>
<td>MICP031</td>
<td>Anup</td>
<td>Ghosh</td>
<td>Emerging Dematiaceous And Hyaline Fungi Causing Keratitis In A Tertiary Care Centre From North India</td>
</tr>
<tr>
<td>My-O12</td>
<td>MICP162</td>
<td>Archana</td>
<td>Wankhade</td>
<td>Study of Subcutaneous Mycosis;Diversity of Pathogens</td>
</tr>
<tr>
<td>My-O13</td>
<td>MICP176</td>
<td>Almas</td>
<td>Upaisal</td>
<td>Correlation of Galactomannan With Clinical Profile- A Pilot Study</td>
</tr>
<tr>
<td>My-O14</td>
<td>MICP226</td>
<td>Swati</td>
<td>Mudshingkar</td>
<td>Microbiological, Clinical Profile And Antifungal Susceptibility Pattern of Dermatophytosis In A Tertiary Care Hospital From Western India.</td>
</tr>
<tr>
<td>My-O15</td>
<td>MICP264</td>
<td>Sukanya</td>
<td>Verma</td>
<td>Utility of Vitek2 In Identification And Antifungal Susceptibility Testing Of Yeasts In A Resource Constrained Setting</td>
</tr>
<tr>
<td>My-O16</td>
<td>MICP305</td>
<td>Balaji</td>
<td>Selvaraj</td>
<td>Metabolic Inhibition In Biofilms of Emerging Unusual Clinical Yeast With Triazoles And Echinocandin Class of Antifungals</td>
</tr>
<tr>
<td>My-O17</td>
<td>MICP281</td>
<td>Prativa</td>
<td>Sahu</td>
<td>Accurate Identification of Candida famata Misidentified By Vitek 2 Automated I/D System</td>
</tr>
<tr>
<td>My-O18</td>
<td>MICP289</td>
<td>Gitali</td>
<td>Bhagawati</td>
<td>“Isolation of Candida auris Among Immunocompromised Patients For Prompt Infection Control Measures ”</td>
</tr>
<tr>
<td>My-O19</td>
<td>MICP291</td>
<td>Arghadip Samaddar</td>
<td>Changing Trends In Epidemiology And Antifungal Susceptibility Patterns of Bloodstream Candida Isolates From A Tertiary Care Hospital In Western India</td>
<td></td>
</tr>
<tr>
<td>---------</td>
<td>---------</td>
<td>-------------------</td>
<td>----------------------------------------------------------------------------------</td>
<td></td>
</tr>
<tr>
<td>My-O20</td>
<td>MICP339</td>
<td>Arshad Badar</td>
<td>Candidaemia In Surgery - Where Do We Stand ? An Experience From A Tertiary Care Hospital</td>
<td></td>
</tr>
<tr>
<td>My-O21</td>
<td>MICP039</td>
<td>Ruchi Rati</td>
<td>Candidemia: A 5 Year Experience From A Tertiary Care Centre In North India</td>
<td></td>
</tr>
<tr>
<td>My-O22</td>
<td>MICP068</td>
<td>Soumya J S</td>
<td>Candida Colonization In Neonates Admitted To Pediatric Surgical ICU In Tertiary Care Center</td>
<td></td>
</tr>
<tr>
<td>My-O23</td>
<td>MICP164</td>
<td>S.Vidyaa Nayaki</td>
<td>Isolation And Speciation of Candida Species From Oral Thrush In HIV Seropositive Individuals From Tertiary Care Hospital, VIMS, Ballari</td>
<td></td>
</tr>
<tr>
<td>My-O24</td>
<td>MICP083</td>
<td>Mahuya Roy</td>
<td>A Study On Vulvovaginal Candidiasis In A Tertiary Care Centre</td>
<td></td>
</tr>
<tr>
<td>My-O25</td>
<td>MICP249</td>
<td>Manharpreet Kaur</td>
<td>Antifungal Susceptibility Testing Among Clinical And Community Environment Isolates of Aspergillus</td>
<td></td>
</tr>
<tr>
<td>My-O26</td>
<td>MICP224</td>
<td>Hena Butta</td>
<td>Aspergillus Isolates In Tertiary Health Care- Ubiquitous Mold To Ubiquitous Pathogen of Immunosuppressed And Immunocompetent Patients</td>
<td></td>
</tr>
<tr>
<td>My-O27</td>
<td>MICP077</td>
<td>Akash Panigrahi</td>
<td>A Case Report On Pheohyphomycosis Caused By Fonsecaea pedrosoi</td>
<td></td>
</tr>
</tbody>
</table>

**Newer Diagnostics**

<table>
<thead>
<tr>
<th>ND-O1</th>
<th>MICP047</th>
<th>Vijaya Lakshmi Nag</th>
<th>Detection of blaVIM, blaIMP, blaNDM, blaKPC, and blaOXA-48 In Carbapenem Resistant Enterobacteriaceae Isolates With Phenotypic And Genotypic Susceptibility Profile To Colistin</th>
</tr>
</thead>
<tbody>
<tr>
<td>ND-O2</td>
<td>MICP367</td>
<td>Raman Sardana</td>
<td>Automation In Synergy With Basic Microbiological Techniques- A Boon For Clinical Anaerobic Bacteriology And Antimicrobial Stewardship</td>
</tr>
<tr>
<td>ND-O3</td>
<td>MICP389</td>
<td>Sheetal Verma</td>
<td>Comparative Evaluation of Chromid Carba, A Novel Chromogenic Medium For Rapid Screening of Carbapenemase-Producing Enterobacteriaceae Directly From Clinical Samples</td>
</tr>
<tr>
<td>ND-O4</td>
<td>MICP413</td>
<td>Patricia Anitha Karthikeyan</td>
<td>Evaluation of Peptide Epitopes of 56 kDa Antigen of Orientia Tsutsugamushi In The Diagnosis of Scrub Typhus</td>
</tr>
<tr>
<td>ND-O5</td>
<td>MICP368</td>
<td>Deepa Sankari</td>
<td>Detection of Multiple Respiratory Pathogens By Syndromic Approach</td>
</tr>
</tbody>
</table>

**Others**

| OT-O1   | MICP292 | Sneha Kukanur     | Bacteriological Quality of Water From Wells And At Point of Consumption            |
| OT-O2 | MICP330 | Chimanjita Phukan | Capacity Building of The STI Laboratories For Rapid Detection And Implementation Plan To Control And Manage The Emerging Threat of Multidrug-Resistant N. gonorrhoeae |
| OT-O3 | MICP187 | Pooja Thakkar | What Has One Year of Antimicrobial Stewardship Program Taught Us? |

### Parasitology

| PA-O1 | MICP002 | Inam Danish Khan | Outbreak of Wilderness/Backcountry/Travelers? Diarrhea At A Himalayan Base-Camp At 4000 M/13,125 Ft |
| PA-O2 | MICP059 | Soumita Kundu | Detection of Toxoplasmosis Among HIV Infected/AIDS Patients - A Study In A Tertiary Care Hospital of Kolkata |
| PA-O3 | MICP072 | Anshu Kumar | Rare Case of Haemoptysis : Paragonimus |
| PA-O4 | MICP135 | Suranjana Chaliha Hazarika | Occurrence of Demodex Infestation In Chronic Blepharitis In A Tertiary Care Hospital In North-East India |
| PA-O5 | MICP138 | Shreshy Singh | Utility of Rapid Diagnostic Tests For Detection of Malarial Antigen And Their Comparison With Peripheral Blood Smear Examination |
| PA-O6 | MICP216 | Mohammed Ahmed | Childhood Lymphatic Filariasis (Lf) - An Appraisal From Hospital Setting |
| PA-O7 | MICP229 | Chayan Sharma | Acanthamoeba Keratitis In Mouse Model Using A Novel Approach |

### Virology

<p>| Vi-O1 | MICP096 | Manoj Kumar | Chicken Pox Outbreak Investigation &amp; Surveillance In Different Districts of Jharkhand, India |
| Vi-O2 | MICP213 | Supriya Sona | Prevalence of Influenza Virus And Its Circulating Subtypes In Patients Attending A Tertiary Care Hospital In Assam |
| Vi-O3 | MICP457 | Ranjana Thate | Hiv 1 Viral Load Testing In Patients On ART-Experience From A Tertiary Care Public Hospital, Western India |
| Vi-O4 | MICP414 | Deepiyoti Kalita | Correlation of HCV Genotypes With Viral Load And Other Biochemical Markers In Sub-Himalayan Region: A Pilot Study From Uttarakhand |
| Vi-O5 | MICP442 | Kalpana Suryavanshi | Diagnosis of The Chikungunya Infection Using Culture, Immunofluoresence,PCR, ELISA,&amp;Rapid Test At Tertiary Care Centre Laboratory |
| Vi-O6 | MICP412 | Kuhu Chatterjee | Spontaneous Hepatitis C Virus Clearance In Chronic HCV Infection: A Pilot Study From Uttarakhand |
| Vi-O7 | MICP256 | Manoj Vedpathak | Molecular Insights And Predictors of Severe Dengue Infection: A Study From A Tertiary Care Hospital In Mumbai |</p>
<table>
<thead>
<tr>
<th>Vi-O8</th>
<th>MICP285</th>
<th>Manali</th>
<th>Nilekeri</th>
<th>To Analyse The Western Blot Results of Samples Indeterminate For HIV Antibodies By Rapid Tests</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vi-O9</td>
<td>MICP255</td>
<td>Devanshi</td>
<td>Gohil</td>
<td>Evaluation of Hipura Viral RNA Purification Kit With Qiaamp Viral RNA Mini Kit For Diagnosis of Influenza A (H1N1) Pdm 09 Virus</td>
</tr>
<tr>
<td>Vi-O10</td>
<td>MICP299</td>
<td>Prasanthi</td>
<td>Kolli</td>
<td>Evaluating Comprehensive Set of HBV Markers In Assessing The Burden of Hepatitis B Infection Among Chronic Liver Disease Patients</td>
</tr>
<tr>
<td>Vi-O11</td>
<td>MICP005</td>
<td>Saishruti</td>
<td>Iyer</td>
<td>Prognostic And Pathophysiologic Role of Proinflammatory And Regulatory Cytokines In Dengue Fever</td>
</tr>
<tr>
<td>Vi-O12</td>
<td>MICP086</td>
<td>Rima</td>
<td>Das</td>
<td>A Study On The Spectrum of Infectious Etiologies of Acute Febrile Illness In A Tertiary Care Centre</td>
</tr>
<tr>
<td>Vi-O13</td>
<td>MICP063</td>
<td>Antara</td>
<td>Roy</td>
<td>Incidence of Japanese Encephalitis Amongst Acute Encephalitis Syndrome Cases In Manipur During 2016-2018</td>
</tr>
<tr>
<td>Vi-O14</td>
<td>MICP087</td>
<td>Indushree</td>
<td>M C</td>
<td>Prevalence of HIV-TB Cases, Epidemiology, Diagnosis And Its Outcome At ART RIMS Raichur District</td>
</tr>
<tr>
<td>Vi-O15</td>
<td>MICP121</td>
<td>Abhishek</td>
<td>Padhi</td>
<td>Evolutionary Stability of DEN V-3 Circulating Strains In New Delhi : A Single Hospital Based Study</td>
</tr>
<tr>
<td>Vi-O16</td>
<td>MICP157</td>
<td>Preeti</td>
<td>Garg</td>
<td>The Role of Age And Gender In Late Diagnosis of HIV Infection</td>
</tr>
<tr>
<td>Vi-O17</td>
<td>MICP171</td>
<td>Bornali</td>
<td>Sarmah Dutta</td>
<td>Occurrence of Hepatotrophic Viruses As A Cause of Acute And Chronic Hepatitis</td>
</tr>
<tr>
<td>Vi-O18</td>
<td>MICP297</td>
<td>Bharat</td>
<td>Patel</td>
<td>Incidence of Japanese Encephalitis Amongst Acute Encephalitis Syndrome Cases In A Tertiary Care Hospital of Western Odisha</td>
</tr>
<tr>
<td>Vi-O19</td>
<td>MICP250</td>
<td>Ujjwayini</td>
<td>Ray</td>
<td>Influenza Season of 2018- Experience From A Tertiary Care Centre</td>
</tr>
<tr>
<td>Vi-O20</td>
<td>MICP338</td>
<td>Soma</td>
<td>Dutta</td>
<td>Adenovirus Associated Respiratory Infection.- Study From A Tertiary Care Hospital Kolkata</td>
</tr>
<tr>
<td>Vi-O21</td>
<td>MICP352</td>
<td>Alisha</td>
<td>Acharya</td>
<td>Clinical And Epidemiological Study of H1N1 Cases In West Bengal</td>
</tr>
<tr>
<td>Vi-O22</td>
<td>MICP353</td>
<td>Rahul</td>
<td>Sikdar</td>
<td>Identification And Serotyping of Dengue Virus From CSF of Acute Encephalitis Syndrome Cases: Two Case Reports Eyeing Dengue Encephalitis</td>
</tr>
<tr>
<td>Vi-O23</td>
<td>MICP377</td>
<td>Nayana</td>
<td>Ingole</td>
<td>Comparison of CBNAAT And Taqman48 For HIV 1 Viral Load Testing</td>
</tr>
<tr>
<td>Abstract no</td>
<td>MICP No</td>
<td>Name of Presenter</td>
<td>Title</td>
<td></td>
</tr>
<tr>
<td>-------------</td>
<td>--------</td>
<td>------------------</td>
<td>-------</td>
<td></td>
</tr>
<tr>
<td>CB-P1</td>
<td>MICP006</td>
<td>Ruchi Jain</td>
<td>Incidence And Susceptibility Pattern Of Pseudomonas aeruginosa In Bacterial Pneumonia From A Tertiary Care Hospital</td>
<td></td>
</tr>
<tr>
<td>CB-P2</td>
<td>MICP090</td>
<td>Samir Kumar Sarangi</td>
<td>Bacteriological Profile Of Community Acquired Pneumonia (CAP) In Southern Odisha With Special Reference To Mycoplasma pneumoniae</td>
<td></td>
</tr>
<tr>
<td>CB-P3</td>
<td>MICP141</td>
<td>Punam Kumari</td>
<td>Bacteriological Profile And Their Antibiogram Of Patients Suffering From Ventilator Associated Pneumonia (VAP) In ICU In Tertiary Care Hospital, RIMS, Ranchi</td>
<td></td>
</tr>
<tr>
<td>CB-P4</td>
<td>MICP153</td>
<td>Dina Raja</td>
<td>Seroprevalance Of Legionella pneumophila, Chlamydia pneumoniae And Mycoplasma pneumoniae In Patients With Lower Respiratory Tract Infection Attending A Tertiary Care Hospital</td>
<td></td>
</tr>
<tr>
<td>CB-P5</td>
<td>MICP 452</td>
<td>Ashwini Mankar</td>
<td>Prevalence Of Symptomatic And Asymptomatic Bacteriuria In Pregnant Women Attending Antenatal Clinic In A Tertiary Care Hospital</td>
<td></td>
</tr>
<tr>
<td>CB-P6</td>
<td>MICP007</td>
<td>Sweety Singh</td>
<td>Aerobic Vaginitis: An Unidentified Entity In Reproductive Women Presenting With Vaginal Discharge</td>
<td></td>
</tr>
<tr>
<td>CB-P7</td>
<td>MICP430</td>
<td>Syed Abdul Wajid</td>
<td>Prevelence Of Bacterial Vaginosis Among Sexually Active Women In A Tertiary Care Hospital</td>
<td></td>
</tr>
<tr>
<td>CB-P8</td>
<td>MICP013</td>
<td>Hemali Kadu</td>
<td>Retrospective Study Of MDR Bacterial Isolates From Wound Infections In Cancer Patients</td>
<td></td>
</tr>
<tr>
<td>CB-P9</td>
<td>MICP107</td>
<td>Vidyut Prakash</td>
<td>Incidence Of Suspected Carbapenemase Producer Among Enterobacteriaceae By Using Modified Carbapenem Inactivation Method At A Tertiary Care Hospital Of Bihar</td>
<td></td>
</tr>
<tr>
<td>CB-P10</td>
<td>MICP132</td>
<td>Rinki Kumari</td>
<td>Prevalence And Antibiogram Of Extended Spectrum Beta- Lactamase(ESBL) Producing Escherichia coli From Pus Sample In A Tertiary Care Hospital</td>
<td></td>
</tr>
<tr>
<td>CB-P11</td>
<td>MICP156</td>
<td>Sarah Robert</td>
<td>Prevalence Of Extended Spectrum Beta Lactamase And Metallobeta Lactamase In Enterobacteriaceae Isolated From Clinical Samples In Dr . BRAMC, Bangalore</td>
<td></td>
</tr>
<tr>
<td>CB-P12</td>
<td>MICP189</td>
<td>Nayannika Lakra</td>
<td>Faecal Carriage Of Extended-Spectrum Beta-Lactamase Producing Enterobacteriaceae In Admitted Patients At A Tertiary Care Hospital</td>
<td></td>
</tr>
<tr>
<td>CB-P13</td>
<td>MICP231</td>
<td>Mithila Marathe</td>
<td>Phenotypic And Genotypic Detection Of Carbapenemase Production In Escherichia coli And Klebsiella pneumonia</td>
<td></td>
</tr>
</tbody>
</table>


<p>| CB-P14 | MICP236 | Preeta Mairembam | Metallo Beta Lactamase Producing Escherichia coli And Klebsiella Spp. In A Tertiary Care Hospital In North East India |
| CB-P15 | MICP239 | Amit Kumar Singh | Molecular Characterization Of Metallo Beta Lactamase In Uropathogens Among Patients At Tertiary Care Level Superspeciality Institute In North India |
| CB-P16 | MICP252 | Anuradha De | Unusual Violet Colored Pigment Produced By Burkholderia Cepacia Complex - A Report Of Five Cases |
| CB-P17 | MICP257 | Saurav Mohanty | Prevalence Of Multi-Drug Resistant Acinetobacter baumannii In Intensive Care Units Of A Tertiary Care Hospital In Western Odisha |
| CB-P18 | MICP278 | Sridevi Dinakaran | Brucella Spondylodiscitis: An Unusual Case In A Non-Endemic Area |
| CB-P19 | MICP287 | Seema Dhananjay | Phenotypic Characterisation, Antibiotic Resistance Pattern And Detection Of Metallo B-Lactamases And Amp C In Pseudomonas aeruginosa In A Tertiary Care Hospital. |
| CB-P20 | MICP288 | Ankan Chakrabarti | A Study On Metallo- B- Lactamase Production By Pseudomonas aeruginosa Isolated From A Tertiary Care Hospital In Tripura |
| CB-P21 | MICP302 | Naveen Grover | Prevalence And Molecular Characterization Of Carbapenem Resistant Non Fermentative Gram Negative Isolates In A Tertiary Care Centre |
| CB-P22 | MICP304 | Padma Das | Polymicrobial Cerebellar Abscess Due To Streptococcus constellatus And Sphingobacterium multivorum : A Case Report |
| CB-P23 | MICP315 | Ranjita Khandait | Molecular Characterization Of Carbapenem Resistant Klebsiella pneumoniae Isolates In Blood Specimen In A Tertiary Care Hospital In Assam |
| CB-P24 | MICP328 | Manodeep Sen | Phenotypic Detection Of Metallo B Lactamase In Uropathogens Among Patients At Tertiary Care Level Superspeciality Institute In North India |
| CB-P25 | MICP342 | Gopa Basu | Incidence Of Aac(6')-Ib-Cr Expression In Enterobacteriaceae Isolates |
| CB-P26 | MICP373 | Sreejith Panicker | A Case Report Of Meningococcal Septicaemia In 2 Years Old Child |
| CB-P27 | MICP435 | Anuragani Verma | Characterization Of Carbapenem Resistant Enterobacteriaceae In Intensive Care Settings At A University Hospital |
| CB-P28 | MICP443 | Harender Simar | In Vitro Efficacy Of Cefepime - Sulbactam Combination Against ESBL Producing Enterobacteriaceae Isolates. |</p>
<table>
<thead>
<tr>
<th>CB-P29</th>
<th>MICP445</th>
<th>Maheswari</th>
<th>Ramasamy</th>
<th>Phenotypic Detection Of Carbapenemase Producing Klebsiella pneumoniae From Sputum Samples In A Tertiary Care Hospital A Descriptive Study</th>
</tr>
</thead>
<tbody>
<tr>
<td>CB-P30</td>
<td>MICP014</td>
<td>Ashish</td>
<td>William</td>
<td>Epidemiology And Antibiogram Of Vibrio cholerae Isolates In A Tertiary Care Hospital In North India</td>
</tr>
<tr>
<td>CB-P31</td>
<td>MICP032</td>
<td>Debabrata</td>
<td>Dash</td>
<td>Haemophilus influenzae And Lower Respiratory Tract Infections</td>
</tr>
<tr>
<td>CB-P32</td>
<td>MICP021</td>
<td>Pawan</td>
<td>Sharma</td>
<td>Clinico-Microbiological Correlation Of Staphylococcal Wound Infection With Host Factors At Tertiary Care Hospital, Jhalawar (Rajasthan)</td>
</tr>
<tr>
<td>CB-P33</td>
<td>MICP110</td>
<td>Soofia</td>
<td>Firdaus</td>
<td>Testing For Induction Of Clindamycin Resistance In Erythromycin-Resistant Isolates Of Staphylococcus aureus</td>
</tr>
<tr>
<td>CB-P34</td>
<td>MICP190</td>
<td>Shreya</td>
<td>Pradhan</td>
<td>D Test - A Simple Method To Detect Inducible Clindamycin Resistance In Staphylococci</td>
</tr>
<tr>
<td>CB-P35</td>
<td>MICP283</td>
<td>Komal</td>
<td>Keswani</td>
<td>Phenotypic And Genotypic Characterization Of Methicillin Resistant Coagulase Negative Staphylococcal Isolates From A Tertiary Care Hospital</td>
</tr>
<tr>
<td>CB-P36</td>
<td>MICP027</td>
<td>Kundan</td>
<td>Tandel</td>
<td>Comparison Of Phenotypic And Molecular Methods For Rapid And Accurate Detection Of MRSA</td>
</tr>
<tr>
<td>CB-P37</td>
<td>MICP091</td>
<td>Sweety</td>
<td>Patel</td>
<td>A Retrospective Study Of Methicillin Resistant Staphylococcus aureus And Its Antibiotic Susceptibility Pattern In PDU Government Hospital, Rajkot</td>
</tr>
<tr>
<td>CB-P38</td>
<td>MICP185</td>
<td>Anusha</td>
<td>Rathi</td>
<td>Prevalence Of Multidrug-Resistant, Extensively Drug-Resistant And Pandrug-Resistant Staphylococcus aureus Isolates From Clinically Suspected Sepsis Cases, In A Tertiary Care Paediatric Hospital, New Delhi</td>
</tr>
<tr>
<td>CB-P39</td>
<td>MICP276</td>
<td>Shreya</td>
<td>Mahesh</td>
<td>To Study The Proportion Of mecA Gene In MRSA Positive Isolates Showing Inducible Clindamycin Resistance At A Tertiary Care Centre</td>
</tr>
<tr>
<td>CB-P40</td>
<td>MICP319</td>
<td>Akanksha</td>
<td>Bali</td>
<td>Inducible Clindamycin Resistance Among Methicillin Resistant Staphylococcus aureus Isolate From Clinical Sample</td>
</tr>
<tr>
<td>CB-P41</td>
<td>MICP022</td>
<td>Rahul</td>
<td>Soni</td>
<td>Study Of Prevalence And Antimicrobial Susceptibility Pattern Of Blood Culture Isolates From Tertiary Care Hospital At Jhalawar Medical College Jhalawar</td>
</tr>
<tr>
<td>CB-P42</td>
<td>MICP084</td>
<td>Vidushi</td>
<td>Topno</td>
<td>Assessment Of Bacterial Profile And Antimicrobial Resistance Pattern Of Bacterial Isolates From Blood Culture At RIMS,Ranchi,Jharkhand</td>
</tr>
<tr>
<td>CB-P43</td>
<td>MICP122</td>
<td>Kumar</td>
<td>Saurabh</td>
<td>Microbial Spectrum And Drug Sensitivity Profile Of Isolates Causing Bloodstream Infection At A Tertiary Care Centre In Bihar</td>
</tr>
<tr>
<td>--------</td>
<td>---------</td>
<td>----------------</td>
<td>--------------------------</td>
<td>----------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>CB-P44</td>
<td>MICP235</td>
<td>Jaina</td>
<td>Shah</td>
<td>Incidence And Microbiological Profile Of Septicaemia In Pediatric Haematology-Oncology Unit Of Tertiary Care Hospital</td>
</tr>
<tr>
<td>CB-P45</td>
<td>MICP238</td>
<td>Daniel</td>
<td>Ningthoujam</td>
<td>Bacteriological Profile And Antibiogram Of Aerobic Blood Culture Isolates From ICUs Of A Tertiary Care Hospital In Manipur</td>
</tr>
<tr>
<td>CB-P46</td>
<td>MICP308</td>
<td>Apurva</td>
<td>Rautela</td>
<td>Procalcitonin - A Biomarker For Multidrug Resistance In Neonatal Sepsis ?</td>
</tr>
<tr>
<td>CB-P47</td>
<td>MICP312</td>
<td>Swati</td>
<td>Deshpande</td>
<td>Blood Stream Infections In Patients With Hematological Disorders In A Tertiary Care Hospital</td>
</tr>
<tr>
<td>CB-P48</td>
<td>MICP322</td>
<td>Meghna</td>
<td>Palewar</td>
<td>Bacteriological Profile And Antibiogram Of Blood Culture Isolates From A Tertiary Care Hospital Of Western India</td>
</tr>
<tr>
<td>CB-P49</td>
<td>MIICP 456</td>
<td>Priyank</td>
<td>Trivedi</td>
<td>A Case Of Pulmonary Nocardiosis In An Apparently Immunocompetent Adult, With No Pre-existing Co-Morbidities</td>
</tr>
<tr>
<td>CB-P50</td>
<td>MICP375</td>
<td>Asha Sujata</td>
<td>Kerketta</td>
<td>Bacteriological Profile Of Neonatal Sepsis In A Tertiary Care Hospital Of Western Odisha</td>
</tr>
<tr>
<td>CB-P51</td>
<td>MICP393</td>
<td>Sunil</td>
<td>Jayakar</td>
<td>A 5 Year Review Of Microbiological Profile And Significance Of Different Blood Culture Media In Early Diagnosis Of Bacteraemia</td>
</tr>
<tr>
<td>CB-P52</td>
<td>MICP402</td>
<td>Md Shabbir</td>
<td>Azad</td>
<td>Isolation Of Extended-Spectrum B-Lactamases Enterobacteriaceae And MRSA From Neonatal Sepsis In NICU At IGIMS Patna, A Tertiary Care Hospital</td>
</tr>
<tr>
<td>CB-P53</td>
<td>MICP408</td>
<td>Saransh</td>
<td>Mittal</td>
<td>Bacteriological Profile And Antibacterial Susceptibility Pattern Of Isolates In Bloodstream Infections</td>
</tr>
<tr>
<td>CB-P54</td>
<td>MICP108</td>
<td>Apurva</td>
<td>Pathak</td>
<td>Correlation Of C-Reactive Protein (CRP) And Blood Culture In Diagnosis Of Neonatal Septicemia In Civil Hospital, Rajkot</td>
</tr>
<tr>
<td>CB-P55</td>
<td>MIPC 453</td>
<td>Shaheen</td>
<td>Shaikh</td>
<td>An Unusual Case Of Post-Operative Ventriculitis Due To Corynebacterium striatum In A Tertiary Care Pediatric Hospital</td>
</tr>
<tr>
<td>CB-P56</td>
<td>MICP119</td>
<td>Saniya</td>
<td>Ohri</td>
<td>Magnitude Of Vancomycin Resistant Enterococci Among Enterococci Isolated From Indoor Patients In A Tertiary Care Hospital</td>
</tr>
<tr>
<td>CB-P57</td>
<td>MICP186</td>
<td>Rashmi</td>
<td>Hadke</td>
<td>Vancomycin Resistant Enterococci: Study Of Prevalence And Antimicrobial Susceptibility Testing Pattern</td>
</tr>
<tr>
<td>CB-P58</td>
<td>MICP310</td>
<td>Poonam</td>
<td>Katoch</td>
<td>Identification And Determination Of Vancomycin Resistance In Enterococcus Species Isolated From Blood And Urine In A Tertiary Care</td>
</tr>
<tr>
<td>CB-P59</td>
<td>MICP349</td>
<td>Preeti Chaudhary</td>
<td>The Emergence Of Linezolid Resistance In Enterococci In A Tertiary Care Hospital At Jaipur, India</td>
<td></td>
</tr>
<tr>
<td>CB-P60</td>
<td>MICP159</td>
<td>Devyashree Medhi</td>
<td>Emergence Of Oxazolidinone Resistance Among Glycopeptide Resistant Enterococci Isolated From Clinical Specimens</td>
<td></td>
</tr>
<tr>
<td>CB-P61</td>
<td>MICP061</td>
<td>Srujana Mohanty</td>
<td>Urinary Tract Infection Due To Aeromonas Species: An Uncommon Causative Agent</td>
<td></td>
</tr>
<tr>
<td>CB-P62</td>
<td>MICP104</td>
<td>Betu Rama Soujanya</td>
<td>Utility Of Chromogenic Medium In Characterization Of Enterococci In Urinary Tract Infection</td>
<td></td>
</tr>
<tr>
<td>CB-P63</td>
<td>MICP114</td>
<td>Sultan Husain Abbas Husain</td>
<td>Prevalence Of Urinary Tract Infection And Antibiotic Sensitivity Pattern In Diabetic Patients In Tertiary Care Hospital Maharashtra</td>
<td></td>
</tr>
<tr>
<td>CB-P64</td>
<td>MICP123</td>
<td>Shobha KI</td>
<td>Urinary Tract Infections In Pediatric Age Group And Its Antimicrobial Susceptibility Pattern In A Tertiary Care Hospital</td>
<td></td>
</tr>
<tr>
<td>CB-P65</td>
<td>MICP146</td>
<td>Sanjay Biswas</td>
<td>Multi-Drug Resistant Gram-Negative Urinary Tract Infections And Prevalence Of Carbapenem Resistance In A Tertiary Care Cancer Centre</td>
<td></td>
</tr>
<tr>
<td>CB-P66</td>
<td>MICP173</td>
<td>Indira Verma</td>
<td>Carbapenem Resistant Gram Negative Bacteria In Urinary Isolates At A Tertiary Care Hospital In Delhi</td>
<td></td>
</tr>
<tr>
<td>CB-P67</td>
<td>MICP343</td>
<td>Arundhati Paul</td>
<td>A Study Of Antimicrobial Substances In Urine In Patients Attending Outpatient Department At A Tertiary Care Hospital</td>
<td></td>
</tr>
<tr>
<td>CB-P68</td>
<td>MICP370</td>
<td>Soumyashree Mohapatra</td>
<td>Bacteriological Profile Of Asymptomatic Bacteriuria In Antenatal Women Attending Tertiary Care Hospital, Western Odisha</td>
<td></td>
</tr>
<tr>
<td>CB-P69</td>
<td>MICP420</td>
<td>Turaga Divya</td>
<td>A Study On Fluoroquinolones Resistance Among Bacterial Isolates Of Urinary Tract Infection At A Tertiary Care Hospital.</td>
<td></td>
</tr>
<tr>
<td>CB-P70</td>
<td>MICP421</td>
<td>Akhila Gurudath</td>
<td>Microbiological Study Of Urine Infection In Preterm Labour</td>
<td></td>
</tr>
<tr>
<td>CB-P71</td>
<td>MICP437</td>
<td>Jutang Babat Ain Tiewsoh</td>
<td>Bacterial And Antimicrobial Susceptibility Pattern Of Uro-Pathogens Encountered In Pediatric UTI In A Tertiary Care Center In North India</td>
<td></td>
</tr>
<tr>
<td>CB-P72</td>
<td>MICP054</td>
<td>Sulochana Putli Bai Perumal</td>
<td>Current Ceftriaxone And Cefixime MIC Trend Of Salmonella Typhi And Paratyphi Blood Isolates Of Paediatric Enteric Fever Patients</td>
<td></td>
</tr>
<tr>
<td>CB-P73</td>
<td>MICP092</td>
<td>Bijayata Shrestha</td>
<td>Antibiotic Susceptibility Pattern Of Salmonella Isolated From Enteric Fever Suspected Patients</td>
<td></td>
</tr>
<tr>
<td>CB-P74</td>
<td>MICP184</td>
<td>Shalini Yadav</td>
<td>Epidemiological Profile And Antimicrobial Resistance Pattern Of Enteric Fever In A Tertiary Care Hospital Of Navi Mumbai - A 4 Year Retrospective Study</td>
<td></td>
</tr>
<tr>
<td>CB-P75</td>
<td>MICP271</td>
<td>Anurag Kumar Bari</td>
<td>Minimum Inhibitory Concentration Of Ceftriaxone And Azithromycin For Nalidixic Acid Resistant Isolates Of Salmonella Enterica (NARS) Causing Enteric Fever</td>
<td></td>
</tr>
<tr>
<td>CB-P76</td>
<td>MICP424</td>
<td>Shalini Kanaparti</td>
<td>A Study To Determine The Prevalence Of Enteric Fever In Association With Seasonal Dynamics</td>
<td></td>
</tr>
<tr>
<td>CB-P77</td>
<td>MICP392</td>
<td>Neelam Gulati</td>
<td>Drug Resistance In Shigella And Production Of Extended Spectrum Beta Lactamases - A Matter Of Concern</td>
<td></td>
</tr>
<tr>
<td>CB-P78</td>
<td>MICP051</td>
<td>Sheela Devi Chandrakesan</td>
<td>Incidence Of Group B Streptococcal Colonization Among Pregnant Women And Their Pregnancy Outcomes In A Tertiary Care Hospital In Pondicherry</td>
<td></td>
</tr>
<tr>
<td>CB-P79</td>
<td>MICP048</td>
<td>Bhuvan Shome</td>
<td>Antibiogram Of Klebsiella pneumoniae Strains Isolated From Urinary Samples Of Adult Patients With UTI Coming To RIMS Ranchi From January 2019 To August 2019</td>
<td></td>
</tr>
<tr>
<td>CB-P80</td>
<td>MICP111</td>
<td>Sampa Sadhukhan</td>
<td>Prevalance And Antimicrobial Resistance Pattern Of Klebsiella Species Isolated In A Tertiary Care Hospital In Kolkata</td>
<td></td>
</tr>
<tr>
<td>CB-P81</td>
<td>MICP395</td>
<td>Hagera Gulam Ahmed</td>
<td>Prevalence Of Hypermucoviscous Resistant Strains Of Klebsiella Pneumoniae(Hvkp) Among Critically Ill Patients At Tertiary Care Hospital In Hyderabad</td>
<td></td>
</tr>
<tr>
<td>CB-P82</td>
<td>MICP411</td>
<td>Chaitra Shankar</td>
<td>In-Vitro Combination Testing For Multidrug And Extensively Drug Resistant Klebsiella pneumoniae From Bacteraemia</td>
<td></td>
</tr>
<tr>
<td>CB-P83</td>
<td>MICP130</td>
<td>Martha Chhangte</td>
<td>Antibiogram Of Diarrheagenic Escherichia coli (DEC) Pathotypes</td>
<td></td>
</tr>
<tr>
<td>CB-P84</td>
<td>MICP093</td>
<td>Saheed Askar</td>
<td>Resurgence Of Corynebacterium diphtheriae : A Case Report From Tirunelveli , Tamilnadu</td>
<td></td>
</tr>
<tr>
<td>CB-P85</td>
<td>MICP203</td>
<td>Shruthi Rao</td>
<td>Isolation Of Corynebacterium diphtheriae From Suspected Clinical Cases Of Diphtheria</td>
<td></td>
</tr>
<tr>
<td>CB-P86</td>
<td>MICP177</td>
<td>Tadepalli Maitreyi</td>
<td>Microbiological Profile Of External Ocular Infections In A Tertiary Care Hospital</td>
<td></td>
</tr>
<tr>
<td>CB-P87</td>
<td>MICP227</td>
<td>Sukhjinder Singh</td>
<td>Spectrum Of Etiological Agents Of Endophthalmitis And Antimicrobial Resistance Pattern Of Bacterial Isolates</td>
<td></td>
</tr>
<tr>
<td>CB-P88</td>
<td>MICP405</td>
<td>Veetheeaveshna Gupta</td>
<td>Microbial Profile Of Infective Keratitis And Drug Susceptibility Of Bacterial Isolates In A Tertiary Care Hospital Of Sub Himalayan Region</td>
<td></td>
</tr>
<tr>
<td>CB-P89</td>
<td>MICP327</td>
<td>Bhawna</td>
<td>Rathi</td>
<td>Relationship Of Biofilm Formation And Different Virulence Genes In Uropathogenic Escherichia Coli Isolates From UTI Patients</td>
</tr>
<tr>
<td>--------</td>
<td>---------</td>
<td>----------------</td>
<td>---------------</td>
<td>----------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>CB-P90</td>
<td>MICP345</td>
<td>Kyaw Zeyar</td>
<td>Soe</td>
<td>Biofilm Of Uropathogens In Patients With Catheter Associated Urinary Tract Infections (CAUTI)</td>
</tr>
<tr>
<td>CB-P91</td>
<td>MICP355</td>
<td>Naveen Kumar</td>
<td>Devanga Ragupathi</td>
<td>Influence Of Biofilm Formation On Patient Outcome With K. pneumoniae Blood Stream Infections</td>
</tr>
<tr>
<td>CB-P92</td>
<td>MICP313</td>
<td>Mayuri</td>
<td>Pawar</td>
<td>Biofilm Forming Uropathogenic Escherichia coli And Their Antimicrobial Susceptibility Pattern</td>
</tr>
<tr>
<td>CB-P93</td>
<td>MICP293</td>
<td>Sanjana</td>
<td>Upadhyay</td>
<td>Spectrum Of Bacterial Agents And Their Antimicrobial Resistance Pattern Isolated From Sterile Body Fluids</td>
</tr>
<tr>
<td>CB-P94</td>
<td>MICP081</td>
<td>Archana</td>
<td></td>
<td>Bacteriological Profile And Their Antibigrams In Cases Of Chronic Suppurative Otitis Media At Tertiary Care Hospital</td>
</tr>
<tr>
<td>CB-P95</td>
<td>MICP258</td>
<td>Akansha</td>
<td>Goyal</td>
<td>A Study On Bacteriological Profile Of Ear Discharge And Their Antibiotic Sensitivity Pattern In Chronic Suppurative Otitis Media</td>
</tr>
<tr>
<td>CB-P96</td>
<td>MICP334</td>
<td>Kumar Prabhas Chandra</td>
<td>Padhan</td>
<td>Bacteriological Profile Of Ear Infections And Its Antibiotic Susceptibility Pattern In A Tertiary Care Hospital In Western Odisha</td>
</tr>
<tr>
<td>CB-P97</td>
<td>MICP407</td>
<td>Jyoti</td>
<td>Choudhary</td>
<td>A Retrospective Study Of Micro-Organisms And AST Pattern In Ear Swabs In Rainy Vs Summer Season In Western Rajasthan</td>
</tr>
<tr>
<td>CB-P98</td>
<td>MICP124</td>
<td>Amita Shobha</td>
<td>Rao</td>
<td>In Vitro Evaluation Of The Antimicrobial Activity Of Methanolic And Aqueous Extract Of Mucuna Pruriens Seed</td>
</tr>
<tr>
<td>CB-P99</td>
<td>MICP163</td>
<td>Anayata</td>
<td>Sharma</td>
<td>Matrix Dispersing Enzyme DNAse I As A Treatment Strategy Against Klebsiella pneumoniae Biofilms In Vitro</td>
</tr>
<tr>
<td>CB-P100</td>
<td>MICP196</td>
<td>Jyoti</td>
<td>Chaudhary</td>
<td>Comparison Of Disc Diffusion Results With MIC Of CSE -1034 For Gram Negative Bacteria</td>
</tr>
<tr>
<td>CB-P101</td>
<td>MICP219</td>
<td>Subhayan</td>
<td>Das Gupta</td>
<td>The Influence Of pH Changes On The Success Of Antibiotics In Treating Bacterial Urinary Tract Infections</td>
</tr>
<tr>
<td>CB-P102</td>
<td>MICP364</td>
<td>Karthick</td>
<td>Vasudevan</td>
<td>Identification Of Potential Drug Candidate To Design Novel Competitive NDM Inhibitors: A Combined Virtual Screening And Molecular Simulation Approach</td>
</tr>
<tr>
<td>CB-P103</td>
<td>MICP379</td>
<td>Indira</td>
<td>Roy Mukherjee</td>
<td>Susceptibility Of Fosfomycin In Clinically Isolated Uropathogens Isolated At Tertiary Care Hospital Of West Bengal</td>
</tr>
<tr>
<td>CB-P104</td>
<td>MICP384</td>
<td>Debdatta</td>
<td>Das</td>
<td>Effect Of Verapamil And Reserpine On Efflux Pump Mediated Quinolone Resistance</td>
</tr>
<tr>
<td>CB-P105</td>
<td>MICP200</td>
<td>Arati Gandhi</td>
<td>Temporal Changes In Bacterial Profile Of Burns Wound In A Tertiary Care Hospital And Risk Factors For Invasion</td>
<td></td>
</tr>
<tr>
<td>CB-P106</td>
<td>MICP178</td>
<td>Rosemary Thomas</td>
<td>Granulicatella adiacens Causing Infective Endocarditis: A Case Report</td>
<td></td>
</tr>
<tr>
<td>CB-P107</td>
<td>MICP381</td>
<td>Farha Siddiqui</td>
<td>In Vitro Antimicrobial Resistance Pattern Of Cutibacterium acnes Isolated From Acne Vulgaris Patients: First Report From Central India</td>
<td></td>
</tr>
<tr>
<td>CB-P108</td>
<td>MICP129</td>
<td>Jyotirmayee Panda</td>
<td>Bacteriological Profile And Anti-Microbial Susceptibility Of Infected Dogbite Wounds</td>
<td></td>
</tr>
<tr>
<td>CB-P109</td>
<td>MICP128</td>
<td>Shweta Singh</td>
<td>Usefulness Of Gram Staining Of Tracheal Aspirate In Initial Therapy</td>
<td></td>
</tr>
<tr>
<td>CB-P110</td>
<td>MICP205</td>
<td>Priyadarshini Patro</td>
<td>Prompt Diagnosis Leads To Successful Management Of Neonatal Meningitis Case Caused By Elizabethkingia meningoseptica : A Microbiological Enigma</td>
<td></td>
</tr>
<tr>
<td>CB-P111</td>
<td>MICP279</td>
<td>Ilanchezhiyan Nainaraj</td>
<td>Incidence Of Scrub Typhus In Non JE AES Cases In A Tertiary Care Hospital In South East Assam</td>
<td></td>
</tr>
<tr>
<td>CB-P112</td>
<td>MICP386</td>
<td>Archana Sasimohan</td>
<td>Scrub Typhus As A Cause Of Acute Febrile Illness In A Tertiary Care Hospital In South Kerala</td>
<td></td>
</tr>
<tr>
<td>CB-P113</td>
<td>MICP058</td>
<td>Abinaya Ramesh</td>
<td>Bacterial Agents Causing Breast Abscess And Their Antimicrobial Resistance Pattern In A Tertiary Care Hospital In Chennai</td>
<td></td>
</tr>
<tr>
<td>CB-P114</td>
<td>MICP325</td>
<td>Ummul Khair Noorulain</td>
<td>Microbiological Profile Of Secondary Peritonitis Due To Viscus Perforation</td>
<td></td>
</tr>
<tr>
<td>CB-P115</td>
<td>MICP374</td>
<td>Priyadarshini Debata</td>
<td>A Study On Bacterial Isolates From Bronchoalveolar Lavage (BAL) Fluid Obtained From Patients With Pulmonary Infections</td>
<td></td>
</tr>
<tr>
<td>CB-P116</td>
<td>MICP346</td>
<td>Himadri Trivedi</td>
<td>Microbiological Surveillance Of Operation Theatres:Retrospective Analysis From Tertiary Care Hospital,GG Hospital,Jamnagar</td>
<td></td>
</tr>
<tr>
<td>CB-P117</td>
<td>MICP046</td>
<td>Om Prakash Bharati</td>
<td>Bacteriological Profile Of Diabetic Foot Ulcer And Their AntiGramogram In A Tertiary Care Hospital</td>
<td></td>
</tr>
<tr>
<td>CB-P118</td>
<td>MICP151</td>
<td>Hiral Patel</td>
<td>Microbiological Profile Of Diabetic Foot Ulcers And Its Antimicrobial Susceptibility Pattern At Tertiary Care Hospital Valsad, India</td>
<td></td>
</tr>
<tr>
<td>CB-P119</td>
<td>MICP275</td>
<td>Pritam Pardeshi</td>
<td>Impact Of Pre-Analytical Processes On Urine Culture Results</td>
<td></td>
</tr>
<tr>
<td>CB-P120</td>
<td>MICP434</td>
<td>Ashaka Vansia</td>
<td>Antimicrobial Resistance Potentiality Study Of Gram-Negative Bacterial Pathogens From Companion Animals</td>
<td></td>
</tr>
<tr>
<td>CB-P121</td>
<td>MICP341</td>
<td>Sumitra Das</td>
<td>Aerobic Bacteriological Profile Of Wound Infection In Tertiary Care Hospital, Western Odisha</td>
<td></td>
</tr>
<tr>
<td>CB-P122</td>
<td>MICP100</td>
<td>Jaswinder Singh</td>
<td>Gill</td>
<td>Statistical Analysis Of Cumulative Antibiogram In Era Of Multidrug Resistance</td>
</tr>
<tr>
<td>--------</td>
<td>---------</td>
<td>-----------------</td>
<td>------</td>
<td>--------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>CB-P123</td>
<td>MICP117</td>
<td>Vidya Nerurkar</td>
<td></td>
<td>The Seasons Of Scrub Typhus: IgM Positivity Trends Across India</td>
</tr>
<tr>
<td>CB-P124</td>
<td>MICP131</td>
<td>Paripurna Baruah</td>
<td></td>
<td>Seroprevalence Of Scrub Typhus Among Febrile Patients Clinically Suspected As Dengue Fever Attending Gauhati Medical College And Hospital</td>
</tr>
<tr>
<td>CB-P125</td>
<td>MIICP455</td>
<td>Priyanka Jain</td>
<td></td>
<td>Microbial Profile From Infected Burn Wounds – A Cross Sectional Study</td>
</tr>
</tbody>
</table>

**Clinical Immunology**

<table>
<thead>
<tr>
<th>Clm-P1</th>
<th>MICP147</th>
<th>Namrata Kumari</th>
<th></th>
<th>Serological Evidence Of Scrub Typhus Among Pyrexia Of Unknown Origin Cases At A Tertiary Hospital In Bihar</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clm-P2</td>
<td>MICP179</td>
<td>Faisal Ansari</td>
<td></td>
<td>Comparative Evaluation Of Dense Fine Speckled Antinuclear Antibody Pattern In Systemic Autoimmune Rheumatic Disease And Blood Bank Donors</td>
</tr>
<tr>
<td>Clm-P3</td>
<td>MICP247</td>
<td>Rucha Ingle</td>
<td></td>
<td>A Study Of Seroprevalence And Associated Risk Factors Of Hepatitis B And Hepatitis C At A Tertiary Care Hospital</td>
</tr>
<tr>
<td>Clm-P4</td>
<td>MICP254</td>
<td>Prashant Patil</td>
<td></td>
<td>Seroprevalence Of Measles, Mumps And Rubella In Asymptomatic HIV Infected Individuals</td>
</tr>
<tr>
<td>Clm-P5</td>
<td>MICP263</td>
<td>Lipika Pradhan</td>
<td></td>
<td>Association Between Neonatal Sepsis And C-Reactive Protein: Cross-Sectional Study At Tertiary Care Hospital In Western Odisha</td>
</tr>
<tr>
<td>Clm-P6</td>
<td>MICP282</td>
<td>Neha Bagade</td>
<td></td>
<td>Burden Of Dengue And Chikungunya Co-Infection In Patients Attending Tertiary Care Hospital , Pune</td>
</tr>
<tr>
<td>Clm-P7</td>
<td>MICP344</td>
<td>Garima Jalootharia</td>
<td></td>
<td>Evaluation Of The Effect Of ART On CD4 Counts And Other Laboratory Parameters In The People Living With Hiv (PLHIV) With Different CD4 Counts At The Time Of ART Initiation’</td>
</tr>
<tr>
<td>Clm-P8</td>
<td>MICP351</td>
<td>Binesh Lal Y</td>
<td></td>
<td>Anti-Ribosomal P Protein (IgG Type) Antibodies And Their Association In Indian Patients With SLE</td>
</tr>
<tr>
<td>Clm-P9</td>
<td>MICP396</td>
<td>Sandhya Jangir</td>
<td></td>
<td>Serum Markers Of Hepatitis B Among HIV Infected Patients And Correlation With CD4 Counts: Study From A Tertiary Care Hospital</td>
</tr>
<tr>
<td>Clm-P10</td>
<td>MICP400</td>
<td>Ekta Patil</td>
<td></td>
<td>Common Molds And Pigeon Droppings As Etiology Of Hypersensitivity Pneumonitis</td>
</tr>
<tr>
<td>Clm-P11</td>
<td>MICP418</td>
<td>Sangeeta Deka</td>
<td></td>
<td>High Fungal Sensitization Of Bronchial Asthma Subjects From Uttarakhand</td>
</tr>
</tbody>
</table>

**Emerging Diseases**

| ED-P2 | MICP286 | Sujitha Elanseralathan |  | Biogenic Nanoparticles As Antimicrobials-Beginning Of A New Era! |

**Health care associated infections**
<table>
<thead>
<tr>
<th>HCAI-P1</th>
<th>MICP004</th>
<th>Riddhi</th>
<th>Natekar</th>
<th>Bacteriology Of Post Operative Wound Infections In Women Who Have Undergone Caesarean Section</th>
</tr>
</thead>
<tbody>
<tr>
<td>HCAI-P2</td>
<td>MICP 451</td>
<td>Amrita</td>
<td>Gupta</td>
<td>Device Associated Nosocomial Infection Rates And Spectrum Of Antimicrobial Resistance In Intensive Care Units</td>
</tr>
<tr>
<td>HCAI-P3</td>
<td>MICP028</td>
<td>Prashant</td>
<td>Singh</td>
<td>Role Of Hand Hygiene In Reducing Bacterial Flora On Hands Of Healthcare Workers</td>
</tr>
<tr>
<td>HCAI-P4</td>
<td>MICP034</td>
<td>Kirti</td>
<td>Lohan</td>
<td>Comparison Of Microbicidal Activity Of Various Freshly Prepared Versus Stored Disinfectants In Working Dilution:- Learnings Of A Rural Medical College</td>
</tr>
<tr>
<td>HCAI-P5</td>
<td>MICP037</td>
<td>Jyotsna</td>
<td>Agarwal</td>
<td>Comparative Analysis Of Virulence Determinants Of Uropathogenic E. coli In Community Acquired Vs Hospital Acquired Urinary Tract Infections</td>
</tr>
<tr>
<td>HCAI-P6</td>
<td>MICP049</td>
<td>Sonia</td>
<td>Mehta</td>
<td>Ventilator Associated Pneumonia In A Tertiary Care Hospital: Incidence, Risk Factors And Prevention ? A Prospective Study</td>
</tr>
<tr>
<td>HCAI-P7</td>
<td>MICP237</td>
<td>Sneha</td>
<td>Kurian</td>
<td>Isolation And Characterisation Of Closotrium difficile And Toxin Detection In Patients With Antibiotic Associated Diarrhea In A Tertiary Care Centre</td>
</tr>
<tr>
<td>HCAI-P8</td>
<td>MICP280</td>
<td>Sujit</td>
<td>Bharti</td>
<td>Health Care Associated Infections In A Tertiary Care Hospital In Northern India</td>
</tr>
<tr>
<td>HCAI-P9</td>
<td>MICP369</td>
<td>Agila Kumari</td>
<td>Pragasam</td>
<td>Chromosomally Encoded Resistance Mechanisms And Its Genetic Relatedness Among Non-Carbapenemase Mediated Carbapenem Resistant Pseudomonas aeruginosa</td>
</tr>
<tr>
<td>HCAI-P10</td>
<td>MICP391</td>
<td>Jenia</td>
<td>Bidani</td>
<td>To Study Inducible Clindamycin Resistance And Linezolid Resistance In Staphylococcus aureus Colonized In Anterior Nares Of Healthcare Workers</td>
</tr>
<tr>
<td>HCAI-P11</td>
<td>MICP436</td>
<td>Richa</td>
<td>Thakker</td>
<td>Level Of Contamination With Nosocomial Pathogens In A Medical ICU Of A Tertiary Care Hospital With Special Reference To Acinetobacter baumannii</td>
</tr>
<tr>
<td>HCAI-P12</td>
<td>MICP 449</td>
<td>Priti</td>
<td>Natekar</td>
<td>Improving Operation Theatre Infection Control Practices For Reducing Risk Of Surgical Site Infection(SSI)</td>
</tr>
<tr>
<td>HCAI-P13</td>
<td>MICP170</td>
<td>Anitha</td>
<td>Gunalan</td>
<td>Clinical And Microbial Profile Of Ventilator Associated Pneumonia With Special Reference To Non-Fermentative Gram Negative Bacilli</td>
</tr>
<tr>
<td>HCAI-P14</td>
<td>MICP067</td>
<td>Deepak</td>
<td>Gupta</td>
<td>Bacteriological Study Of Indwelling Central Venous Catheter</td>
</tr>
<tr>
<td>----------</td>
<td>---------</td>
<td>--------</td>
<td>-------</td>
<td>-------------------------------------------------------------</td>
</tr>
<tr>
<td>HCAI-P15</td>
<td>MICP192</td>
<td>Swetalina</td>
<td>Dash</td>
<td>Bacteriological Profile Of Post Operative Wound Infection In LSCS Patients In MKCG Medical College, Berhampur</td>
</tr>
<tr>
<td>HCAI-P16</td>
<td>MICP218</td>
<td>Ashok Kumar</td>
<td>Raut</td>
<td>Incidence Of Central Line Associated Blood Stream Infection In Tertiary Care Hospital Of Patna</td>
</tr>
<tr>
<td>HCAI-P17</td>
<td>MICP060</td>
<td>Sayali</td>
<td>Pande</td>
<td>Incidence And Risk Factors Of Surgical Site Infection Following Lower Segment Caesarean Section</td>
</tr>
</tbody>
</table>

**Mycobacteriology**

<table>
<thead>
<tr>
<th>MB-P1</th>
<th>MICP265</th>
<th>Namrata</th>
<th>Sonowal</th>
<th>Incidence And Clinicodemographic Profile Of Leprosy Cases Admitted In Silchar Medical College In Silchar, Assam</th>
</tr>
</thead>
<tbody>
<tr>
<td>MB-P2</td>
<td>MICP404</td>
<td>Chanchal</td>
<td>Kumar</td>
<td>Sloppy Molecular Beacon: A Rapid Tool To Detect Streptomyacin Resistance In Mycobacterium tuberculosis</td>
</tr>
<tr>
<td>MB-P3</td>
<td>MICP145</td>
<td>Padma</td>
<td>Patel</td>
<td>Isolation, Identification And Speciation Of NTM Isolates From Various Clinical Samples( Except Respiratory Samples)</td>
</tr>
<tr>
<td>MB-P4</td>
<td>MICP298</td>
<td>Sivasankar</td>
<td>Das</td>
<td>Prevalence Of Nontuberculous Mycobacteria In Suspected Pulmonary And Extrapulmonary Tuberculosis Cases: A Pilot Study From Eastern India</td>
</tr>
<tr>
<td>MB-P5</td>
<td>MICP403</td>
<td>Salman</td>
<td>Khan</td>
<td>Genotyping Of Non-Tuberculous Mycobacterial Isolates From Suspected Cases Of Tuberculosis Attending A Tertiary Hospital In Western Rajasthan</td>
</tr>
<tr>
<td>MB-P6</td>
<td>MICP433</td>
<td>Rina</td>
<td>Chandravadiya</td>
<td>Incidence Of Multidrug Resistance Tuberculosis By Mutation Pattern Among Pulmonary Tuberculosis In Tertiary Care Hospital, Jamnagar</td>
</tr>
<tr>
<td>MB-P7</td>
<td>MICP050</td>
<td>Shiva</td>
<td>Shankari L</td>
<td>Use Of Genexpert Mtb/Rif Assay In Diagnosing Extra Pulmonary Tuberculosis And Rifampicin Resistance</td>
</tr>
<tr>
<td>MB-P8</td>
<td>MICP099</td>
<td>Geetanjali</td>
<td>Sakhare</td>
<td>Diagnostic Accuracy Of Xpert Mtb/Rif Assay For Detection Of Extrapulmonary Tuberculosis</td>
</tr>
<tr>
<td>MB-P9</td>
<td>MICP259</td>
<td>Kinjal</td>
<td>Chauhan</td>
<td>Prevalance Of Positivity Of Gene Expert (CBNAAT) And Rifampicin Resistance In Extra Pulmonary Tuberculosis</td>
</tr>
<tr>
<td>MB-P10</td>
<td>MICP261</td>
<td>Sutapa</td>
<td>Rath</td>
<td>Utility Of Cartridge-Based Nucleic Acid Amplification Test In Diagnosis Of Pulmonary And Extrapulmonary Tuberculosis In Eastern India</td>
</tr>
<tr>
<td>MB-P11</td>
<td>MICP321</td>
<td>Shobha</td>
<td>Parsekar</td>
<td>Role Of Cartridge Based Nucleic Acid Amplification Test (CBNAAT) In Diagnosis Of</td>
</tr>
<tr>
<td>MB-P12</td>
<td>MICP326</td>
<td>Snehal Patil</td>
<td>Role Of Gene Xpert Mtb/Rif Assay As A Diagnostic Tool In Detection Of MDR Tuberculosis</td>
<td></td>
</tr>
<tr>
<td>MB-P13</td>
<td>MICP079</td>
<td>Fathima Shereen</td>
<td>Prevalence Of Rifampicin Resistant Pediatric Tuberculosis At A Tertiary Care Centre Using Cartridge Based Nucleic Acid Amplification Test: A Cross Sectional Study</td>
<td></td>
</tr>
<tr>
<td>MB-P14</td>
<td>MICP139</td>
<td>Ahmed Abdul Muqtadir</td>
<td>Application of CBNAAT (Cartridge Based Nucleic Acid Amplification Test) And BAL (Bronchoalveolar Lavage) Ziehl-Neelsen Staining In The Diagnosis Of Sputum Smear-Negative Patients With Suspected Tuberculosis</td>
<td></td>
</tr>
<tr>
<td>MB-P15</td>
<td>MICP221</td>
<td>Monalisa Mohanty</td>
<td>A Prospective Study On Comparison Of Xpert Mtb/Rif And Histopathology For Diagnosis Of Gastrointestinal Tuberculosis In A Tertiary Care Hospital</td>
<td></td>
</tr>
<tr>
<td>MB-P16</td>
<td>MICP140</td>
<td>Muskan Khullar</td>
<td>A Study On Comparative Evaluation Of Different Staining Techniques Ziehl Neelsen, Kinyoun And Fluorescent Staining In Diagnosis Of Pulmonary Tuberculosis</td>
<td></td>
</tr>
<tr>
<td>MB-P17</td>
<td>MICP188</td>
<td>Monika Sharma</td>
<td>Comparison Of Ziehl Neelsen Staining, Auramine Staining And CBNAAT For The Diagnosis Of Pulmonary Tuberculosis</td>
<td></td>
</tr>
<tr>
<td>MB-P18</td>
<td>MICP244</td>
<td>Madhumalti Madavi</td>
<td>Comparision Of Fluorescent Staining And Conventional Ziehl Neelsen Staining For Diagnosis Of Pulmonary Tuberculosis In SRTR Medical College, Ambajogai</td>
<td></td>
</tr>
<tr>
<td>MB-P19</td>
<td>MICP357</td>
<td>Zakiuddin Mohammed</td>
<td>Comparison Of Xpert Mtb/Rif, Genotype MTBDRPlus Line Probe Assay And Culture In Diagnosing Pulmonary Tuberculosis On Bronchoscopic Collections</td>
<td></td>
</tr>
<tr>
<td>MB-P20</td>
<td>MICP056</td>
<td>Indranil Aich</td>
<td>Study Of Clinico-Pathological Profile Of Tuberculosis Patients Attending Medical College And Hospital, Kolkata With Real-Time PCR</td>
<td></td>
</tr>
<tr>
<td>MB-P21</td>
<td>MICP220</td>
<td>Rohon Das Roy</td>
<td>Rifampicin: A Good Surrogate For Diagnosing Multidrug Resistant Tuberculosis?</td>
<td></td>
</tr>
<tr>
<td>MB-P22</td>
<td>MICP234</td>
<td>Kuntal Vashistha</td>
<td>MPT 64 Antigen Detection For Rapid Confirmation Of M.tuberculosis Isolates</td>
<td></td>
</tr>
<tr>
<td>MB-P23</td>
<td>MICP033</td>
<td>Sweta Muni</td>
<td>Postmenopausal Pyometra Caused By Endometrial Tuberculosis? A Case Report</td>
<td></td>
</tr>
<tr>
<td>MB-P24</td>
<td>MICP198</td>
<td>Rakesh Kumar</td>
<td>Primary Tuberculosis Of Anterior Chest Wall - A Case Report From Tertiary Care Hospital Of Patna</td>
<td></td>
</tr>
<tr>
<td>MB-P25</td>
<td>MICP 458</td>
<td>Anju Kagal</td>
<td>Evaluation Of Genexpert Mtb/Rif Assay In The Diagnosis Of Osteo-Articular Tuberculosis</td>
<td></td>
</tr>
<tr>
<td>Molecular Epidemiology</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>------------------------</td>
<td>--------------------------</td>
<td>--------------------------</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ME-P1</td>
<td>MICP154</td>
<td>Muqtadir</td>
<td>Malik</td>
<td>Molecular Detection Of Extended Spectrum Beta Lactamases In Multi Drug Resistant Gram-Negative Bacteria</td>
</tr>
<tr>
<td>ME-P2</td>
<td>MICP362</td>
<td>Jobin</td>
<td>John Jacob</td>
<td>Molecular Typing As A Replacement For Traditional Serotyping Of MDR Non Typhoidal Salmonella For Accurate Identification And Epidemiological Studies</td>
</tr>
<tr>
<td>ME-P3</td>
<td>MICP380</td>
<td>Amala</td>
<td>Arumugam</td>
<td>Identification Of Antimicrobial Resistance Gene Using Sequence Similarity Network</td>
</tr>
</tbody>
</table>

<p>| Mycology |  |  |  |
|-----------|--------------------------|--------------------------|
| My-P1 | MICP011 | Shukla | Das | Toll Like Receptor (TLR)-2 Expression And Th17/Tregs Response Induced By Aspergillus flavus In Chronic Rhinosinusitis With Nasal Polyposis (CRSWNP) Patients |
| My-P2 | MICP246 | Yamini | Anandan | Allergic Fungal Rhinosinusitis Due To Myriodontium keratinophilum-A Rare Case Report |
| My-P3 | MICP038 | Drishti | Sagar | Cunnighamella bertholletiae Fungal Corneal Ulcer: A Case Report |
| My-P4 | MICP066 | Kavitha | Veluchamy | A Case Report On Chromoblastomycosis |
| My-P5 | MICP103 | Srividhya | Mathiyalagan | A Rare Case Report Of Iliopsoas Abscess Caused By Aspergillus fumigatus |
| My-P6 | MICP115 | Namita | Das | Subcutaneous Mycosis Due To Fungus Syncephalastrum racemosum : A Case Report |
| My-P7 | MICP199 | Neetu | Biyani | Case Report Of Blood Stream Infection By Candida auris |
| My-P8 | MICP248 | Priyanka | Pandit | Recurrent Pneumonia Due To Syncphastrum racemosum In An Immunocompromised Patient |
| My-P9 | MICP314 | Shiny | Queensty | Invasive Pulmonary Paecilomyces lilacinus Infection In Diffuse Large B-Cell Lymphoma: A Rare Case Report |
| My-P10 | MICP376 | N. Naga | Lakshmi | A Case Report Of Black Grain Mycetoma |
| My-P11 | MICP446 | Jaydeb | Haldar | Cutaneous Histoplasmosis In An Immunocompetent Patient With Rheumatoid Arthritis |
| My-P12 | MICP 447 | Priyanka | Thorat | Cerebral Phaeohyphomycosis In Immunocompetent Patient By Cladophialophora bantiana : A Case Report |
| My-P13 | MICP040 | Aditi | Minhas | Evaluation Of Various Slide Culture Methods For Morphological Identification Of Fungi |
| My-P14 | MICP144 | Urvashi | Limbachia | Isolation And Identification Of Candida Species From Various Clinical Specimens At V.S.G.H Hospital, Ahmedabad |
| My-P15 | MICP251 | Shubhangi | Arbad | Characterisation And Antifungal Susceptibility Of Candida Species Isolated From Clinical Cases Of Vulvovaginitis At A Tertiary Care Hospital In |</p>
<table>
<thead>
<tr>
<th>My-P16</th>
<th>MICP350</th>
<th>Shailja Agrawal</th>
<th>Mumbai</th>
<th>Prevalence Of Non Albicans Candida In Various Clinical Samples In A Tertiary Care Hospital, Jaipur</th>
</tr>
</thead>
<tbody>
<tr>
<td>My-P17</td>
<td>MICP358</td>
<td>Lonika Lodha</td>
<td>Mumbai</td>
<td>Diagnosis Of Cryptococcosis From Range Of Clinical Specimens: A Case Series</td>
</tr>
<tr>
<td>My-P18</td>
<td>MICP387</td>
<td>Tabassum Sultana</td>
<td>Mumbai</td>
<td>Candida utilis In Neonatal Sepsis Cases In Our Hospital</td>
</tr>
<tr>
<td>My-P19</td>
<td>MICP390</td>
<td>Yamini Tawde</td>
<td>Mumbai</td>
<td>Prevalence And Development Of Rapid Detection Of Fungal Keratitis From A Tertiary Care Center In North India</td>
</tr>
<tr>
<td>My-P20</td>
<td>MICP 448</td>
<td>Shalabh Malik</td>
<td>Mumbai</td>
<td>Prevalence Of Yeasts Species Isolated From The Diverse Samples At Dr Lal Path Labs, Delhi, India</td>
</tr>
<tr>
<td>My-P21</td>
<td>MICP052</td>
<td>Nidhi Singla</td>
<td>Mumbai</td>
<td>Prevalence Of Oculomycosis In And Around Chandigarh</td>
</tr>
<tr>
<td>My-P22</td>
<td>MICP078</td>
<td>Hema Krishnamurthy</td>
<td>Mumbai</td>
<td>Orbital Apex Syndrome Due To Rhizopus homothallicus-A Case Report</td>
</tr>
<tr>
<td>My-P23</td>
<td>MICP225</td>
<td>Amber Prasad</td>
<td>Mumbai</td>
<td>A Rare Case Of Corneal Ulcer Caused By Bipolaris Spicifera- A Case Report</td>
</tr>
<tr>
<td>My-P24</td>
<td>MICP401</td>
<td>Ajay Kumar Prabhat</td>
<td>Mumbai</td>
<td>Spectrum Of Mycotic Keratitis In Bihar : Study From A Tertiary Care Hospital</td>
</tr>
<tr>
<td>My-P25</td>
<td>MICP088</td>
<td>Shaik Taheruddin</td>
<td>Mumbai</td>
<td>Mycological Profile Of Dermatophytosis Isolated From Clinical Samples In MKCG MCH, Berhampur</td>
</tr>
<tr>
<td>My-P26</td>
<td>MICP112</td>
<td>Anita Raj</td>
<td>Mumbai</td>
<td>Prevalence And Species Identification Of Dermatophytosis In Tertiary Care Hospital, RIMS, Ranchi, Jharkhand</td>
</tr>
<tr>
<td>My-P27</td>
<td>MICP267</td>
<td>Md Iqbal Ahmed</td>
<td>Mumbai</td>
<td>Occurrence Of Dermatophytes, Yeasts And Other Fungi In Clinically Suspected Cases Of Onychomycosis</td>
</tr>
<tr>
<td>My-P28</td>
<td>MICP317</td>
<td>Kriti Maurya</td>
<td>Mumbai</td>
<td>E-Test For Dermatophytes: Should We Or Should We Not?</td>
</tr>
<tr>
<td>My-P29</td>
<td>MICP101</td>
<td>R. Priyadadharshini</td>
<td>Mumbai</td>
<td>Non Albicans Candida Causing Urinary Tract Infections-An Emerging Threat</td>
</tr>
<tr>
<td>My-P30</td>
<td>MICP300</td>
<td>Azka Iram</td>
<td>Mumbai</td>
<td>Epidemiology Of Invasive Candidiasis From Tertiary Care Hospital</td>
</tr>
<tr>
<td>My-P31</td>
<td>MICP316</td>
<td>Tulika Majumder</td>
<td>Mumbai</td>
<td>Non-Albicans Candidemia In Children: A New Threat</td>
</tr>
<tr>
<td>My-P32</td>
<td>MICP230</td>
<td>Neetu Mehrotra</td>
<td>Mumbai</td>
<td>Cryptococcus neoformans Causing Chronic Endophthalmitis: A Case Report</td>
</tr>
<tr>
<td>My-P33</td>
<td>MICP277</td>
<td>Purabi Baruah</td>
<td>Mumbai</td>
<td>Major Serotypes Of Cryptococcus neoformans In HIV Infected Individuals Attending A Tertiary Care Centre In Assam</td>
</tr>
<tr>
<td>My-P34</td>
<td>MICP385</td>
<td>Manish Agarwal</td>
<td>Study Of Fungal Rhinosinusitis At A Tertiary Care Hospital</td>
<td></td>
</tr>
<tr>
<td>--------</td>
<td>---------</td>
<td>----------------</td>
<td>----------------------------------------------------------</td>
<td></td>
</tr>
<tr>
<td>My-P35</td>
<td>MICP441</td>
<td>Susmita Ray Kundu</td>
<td>Pneumocystis jirovecii Pneumonia- Atypical Clinical Case Presentation</td>
<td></td>
</tr>
<tr>
<td>My-P36</td>
<td>MICP332</td>
<td>Sunandini Kapoor</td>
<td>Fusarium Spp. Across Clinical Syndromes At A Tertiary Care Hospital</td>
<td></td>
</tr>
<tr>
<td>My-P37</td>
<td>MICP105</td>
<td>Jharana Mahanta</td>
<td>Fungal Contamination Of Surfaces And Articles In Operation Theatres In A Tertiary Care Hospital</td>
<td></td>
</tr>
</tbody>
</table>

**Newer Diagnostics**

<table>
<thead>
<tr>
<th>ND-P1</th>
<th>MICP098</th>
<th>Navaneeth P. P.</th>
<th>Diarrhea Causes An Ailing Heart</th>
</tr>
</thead>
<tbody>
<tr>
<td>ND-P2</td>
<td>MICP359</td>
<td>Aruna Poojary</td>
<td>Evaluation Of A Rapid Multiplex Syndromic Approach Based Lower Respiratory Panel Polymerase Chain Reaction Test</td>
</tr>
<tr>
<td>ND-P3</td>
<td>MICP399</td>
<td>Asha Choudhary</td>
<td>Diagnosis Of Tuberculosis And MDR-TB By Genexpert Mtb/Rif At Tertiary Care Hospital In Western Rajasthan: A Retrospective Study</td>
</tr>
</tbody>
</table>

**Others**

<table>
<thead>
<tr>
<th>OT-P1</th>
<th>MICP003</th>
<th>Deepak Narang</th>
<th>Periodontitis And Prostate Cancer?? A Myth Or Reality ! Role Of Microbes</th>
</tr>
</thead>
<tbody>
<tr>
<td>OT-P2</td>
<td>MICP035</td>
<td>Kanwaljit Kaur</td>
<td>Susceptibility Profile Of Multidrug Resistant Gram Negative Bacteria Against Antibiotic Adjuvant CSE1034</td>
</tr>
<tr>
<td>OT-P3</td>
<td>MICP036</td>
<td>Badrunnesa Khatun</td>
<td>Importance Of Implementation Of Antibiotic Stewardship Programme In Tertiary Care Hospital In Navi Mumbai</td>
</tr>
<tr>
<td>OT-P4</td>
<td>MICP075</td>
<td>Sudhansu Priyadarsini Biswal</td>
<td>Pathogenic Bacteria And Parasites Causing Diarrhoea In A Tertiary Care Hospital: A Retrospective Study</td>
</tr>
<tr>
<td>OT-P5</td>
<td>MICP165</td>
<td>Dharati Shah</td>
<td>Evaluation Of Educational Intervention On Knowledge, Attitude And Practice Regarding Standard Precautions Among Health Care Workers</td>
</tr>
<tr>
<td>OT-P6</td>
<td>MICP191</td>
<td>Ritika Rampal</td>
<td>In Vitro Activity Of A Novel Benzoquinolizine Antibiotic, Levonadifloxacin (WCK 771) Against Blood Stream Gram Positive Isolates From A Tertiary Care Hospital</td>
</tr>
<tr>
<td>OT-P7</td>
<td>MICP215</td>
<td>Manali Kedia</td>
<td>Burden Of Reproductive Tract Infections/ Sexually Transmitted Infections Among Patient Attendees Of RSTRRL, Mumbai</td>
</tr>
<tr>
<td>OT-P8</td>
<td>MICP240</td>
<td>Suhani Gondha</td>
<td>A Study Of Pseudomonas aeruginosa In Various Clinical Samples And Its Antibiotic Resistance Pattern In PDU Govt.Hospital, Rajkot</td>
</tr>
<tr>
<td>OT-P9</td>
<td>MICP253</td>
<td>Kunalsen Jagatdeo</td>
<td>Candidaemia In Non-ICU Settings With Species Distribution And Antifungal Resistance In A Tertiary Care Hospital - An 8 Year Retrospective Study</td>
</tr>
<tr>
<td>OT-P10</td>
<td>MICP290</td>
<td>Khyati</td>
<td>Bhardwaj</td>
</tr>
<tr>
<td>OT-P11</td>
<td>MICP301</td>
<td>Dhiviya Prabaa</td>
<td>M S</td>
</tr>
<tr>
<td>OT-P12</td>
<td>MICP323</td>
<td>J.Shiva</td>
<td>Prasad</td>
</tr>
<tr>
<td>OT-P13</td>
<td>MICP340</td>
<td>Anindita</td>
<td>Ballav</td>
</tr>
<tr>
<td>OT-P14</td>
<td>MICP361</td>
<td>Saranya</td>
<td>Vijayakumar</td>
</tr>
<tr>
<td>OT-P15</td>
<td>MICP365</td>
<td>Yamuna</td>
<td>Devi Bakthavatchalam</td>
</tr>
<tr>
<td>OT-P16</td>
<td>MICP431</td>
<td>Shakeera</td>
<td>Banu</td>
</tr>
<tr>
<td>OT-P17</td>
<td>MICP432</td>
<td>Senthilraja</td>
<td>Ramalingam</td>
</tr>
</tbody>
</table>

### Parasitology

<p>| PA-P1  | MICP020 | Abhishek | Mewara | Seroprevalance Of Anti-Toxoplasma gondii Antibodies In North India |
| PA-P2  | MICP026 | Durgesh | Deshmukh | Ophthalmyiasis In A Young Boy From Rural Region Of Central India: A Case Report |
| PA-P3  | MICP064 | Thilagavathi | Subramanian | A Study On Prevalance Of Intestinal Nematode Infection And Its Correlation With Anaemia Among Pregnant Women In A Tertiary Care Hospital |
| PA-P4  | MICP197 | Rajesh Kumar | Sahu | A Rare Case Of Strongyloides Hyperinfection Syndrome In A Patient Of Chronic Steroid Abuse |
| PA-P5  | MICP202 | Umesh | Varshney | Demodex Blepharitis-A Case Report From Uttarakhand |
| PA-P6  | MICP245 | Harleen | Kaur | Seroprevalence Of Toxoplasmosis And Echinococcosis In HIV Positive Individuals Attending ART Clinic Of A Tertiary Care Hospital |
| PA-P7  | MICP295 | Pramod | Bhoye | Ophthalmyiasis Externa- A Case Report |
| PA-P8  | MICP303 | Savitha | Dharavath | Auramine Rhodamine Staining Method For Identification Of Intestinal Coccidian Parasites In Faecal Samples - A Better Screening Tool? |
| PA-P9  | MICP354 | Rohini | Gaikwad | A Study For Comparison Of Modified Centrifuged Buffy Coat Smear And Peripheral Blood Smear In Diagnosis Of Malaria |</p>
<table>
<thead>
<tr>
<th>Virology</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Vi-P1</td>
<td>MICP025</td>
<td>Prashant</td>
<td>Meshram</td>
</tr>
<tr>
<td>Clinical And Laboratory Parameters</td>
<td>Predicting</td>
<td>Severity Of</td>
<td>Dengue Infection</td>
</tr>
<tr>
<td>Vi-P2</td>
<td>MICP228</td>
<td>Kamini Singh</td>
<td>Ranawat</td>
</tr>
<tr>
<td>Prevalence And Seasonal Variation Of</td>
<td>Dengue</td>
<td>Infection</td>
<td>Among Patients Attending A Tertiary Care Hospital</td>
</tr>
<tr>
<td>Vi-P3</td>
<td>MICP172</td>
<td>Md Nazish</td>
<td>Ayubi</td>
</tr>
<tr>
<td>Epidemiological Study Of Dengue Fever</td>
<td>At A</td>
<td>Tertiary Care</td>
<td>Centre Of Bihar</td>
</tr>
<tr>
<td>Vi-P4</td>
<td>MICP363</td>
<td>Chiranjeevi</td>
<td>Kondra</td>
</tr>
<tr>
<td>A Case Report Of Speedy Recovery In An</td>
<td>Atypical Case</td>
<td>Of Dengue</td>
<td>Fever With Bleeding Manifestations And Malaena By Immediate Supportive Care</td>
</tr>
<tr>
<td>Vi-P5</td>
<td>MICP382</td>
<td>Alisha</td>
<td>Aggarwal</td>
</tr>
<tr>
<td>The Clinical, Serological And Molecular</td>
<td>Diagnosis Of</td>
<td>Dengue Infection</td>
<td>At A Tertiary Care Institute In Western Rajasthan</td>
</tr>
<tr>
<td>Vi-P6</td>
<td>MICP394</td>
<td>Deepali</td>
<td>Danave</td>
</tr>
<tr>
<td>Dengue : A Five Year Comprehensive Study</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vi-P7</td>
<td>MICP416</td>
<td>Durga</td>
<td>Prasad</td>
</tr>
<tr>
<td>A Study Of Different Serological Parameters Of Dengue Infection At Tertiary Care Center In Western Rajasthan: A Prospective Study</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vi-P8</td>
<td>MICP372</td>
<td>Dhivya</td>
<td>Murugan</td>
</tr>
<tr>
<td>“Seroprevalence Of Chikungunya And Its</td>
<td>Associated</td>
<td>Laboratory</td>
<td>Parameters”</td>
</tr>
<tr>
<td>Vi-P9</td>
<td>MICP397</td>
<td>Vineeta</td>
<td>Vini</td>
</tr>
<tr>
<td>Serological Detection Of Hantavirus</td>
<td>Infection</td>
<td>In Patients</td>
<td>With Acute Febrile Illness At A Tertiary Care Center In South Kerala</td>
</tr>
<tr>
<td>Vi-P10</td>
<td>MICP055</td>
<td>Somenath</td>
<td>Acharya</td>
</tr>
<tr>
<td>Evaluation Of A Diagnostic Strategy Based</td>
<td>On Two</td>
<td>Sequential</td>
<td>Anti HCV Antibody Detection Tests Against Gold Standard RTPCR</td>
</tr>
<tr>
<td>Vi-P11</td>
<td>MICP294</td>
<td>Ashish</td>
<td>Verma</td>
</tr>
<tr>
<td>A Study On Observation Of Various</td>
<td>Genotypes</td>
<td>Of Hepatitis</td>
<td>C Virus In Patients Presenting To Superspeciality Institute In Uttar Pradesh</td>
</tr>
<tr>
<td>Vi-P12</td>
<td>MICP152</td>
<td>Srestha</td>
<td>Mitra</td>
</tr>
<tr>
<td>Prevention Of Hepatitis B In Health Care</td>
<td>Workers: Need</td>
<td>Of The Hour</td>
<td></td>
</tr>
<tr>
<td>Vi-P13</td>
<td>MICP347</td>
<td>Aneesh Sethu</td>
<td>Madhavan</td>
</tr>
<tr>
<td>Awareness And Vaccination Status Of</td>
<td>Hepatitis</td>
<td>B Among Health</td>
<td>Care Workers In A Tertiary Care Teaching Hospital Of Central India</td>
</tr>
<tr>
<td>Vi-P14</td>
<td>MICP409</td>
<td>Richa</td>
<td>Pandey</td>
</tr>
<tr>
<td>Seroprevalence Of Hepatitis B Surface</td>
<td>Antigen</td>
<td>In Hospital</td>
<td>Attending Population Of A Tertiary Care Centre</td>
</tr>
<tr>
<td>Vi-P15</td>
<td>MICP410</td>
<td>Sharon</td>
<td>Varasimirithi</td>
</tr>
<tr>
<td>Prevalence Of Blood Borne Viral Infections In Hemodialysis Patients At A Tertiary Care Hospital</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vi-P16</td>
<td>MICP423</td>
<td>Mahima</td>
<td>Lall</td>
</tr>
<tr>
<td>Sociodemographic Profile Of HIV Positive</td>
<td>Women With</td>
<td>Genital Human</td>
<td>Papillomavirus Infection</td>
</tr>
<tr>
<td>Vi-P17</td>
<td>MICP074</td>
<td>Santosh</td>
<td>Karade</td>
</tr>
<tr>
<td>Low Oral Human Papilloma Virus Carriage</td>
<td>In Non-</td>
<td>Cancerous</td>
<td>Individuals</td>
</tr>
</tbody>
</table>

26
<table>
<thead>
<tr>
<th></th>
<th>Code</th>
<th>Name</th>
<th>Last Name</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vi-P18</td>
<td>MICP222</td>
<td>Chandni</td>
<td>Saini</td>
<td>Prevalence Of Hepatitis A &amp; E Viruses In The Patients Presenting With Acute Viral Hepatitis In A Tertiary Care Hospital</td>
</tr>
<tr>
<td>Vi-P19</td>
<td>MICP232</td>
<td>Kavitha</td>
<td>Muthusamy</td>
<td>Detection And Genotyping Of Rotavirus In Children Suspected With Viral Diarrhea In A Tertiary Care Hospital In Chennai</td>
</tr>
<tr>
<td>Vi-P20</td>
<td>MICP160</td>
<td>Monika</td>
<td>Advani</td>
<td>Assessment Of CD4 Cell Count And Viral Load Test In HIV - Infected Adults</td>
</tr>
<tr>
<td>Vi-P21</td>
<td>MICP023</td>
<td>Anupriya</td>
<td>Yadav</td>
<td>Seropositivity Of Rubella Antibodies In Women Of Reproductive Age Group In Tertiary Care Hospital</td>
</tr>
<tr>
<td>Vi-P22</td>
<td>MICP017</td>
<td>Dhara</td>
<td>Shah</td>
<td>Cytomegalovirus Reactivation, Associated Risk Factors And Clinical Outcomes Among Non-Immunosuppressed Critically Ill Cirrhotic Adults: A Prospective (Longitudinal) Observational Study</td>
</tr>
</tbody>
</table>
SCRUB TYPHUS: AN UNDER-REPORTED AND EMERGING THREAT; STUDY ON SEROPREVALENCE IN ACUTE FEBRILE PATIENTS IN SUPERSPECIALTY INSTITUTE IN NORTH INDIA.

Vineeta Mittal, Peetam Singh
Department of Microbiology, Dr. Ram Manohar Lohia Institute of Medical Sciences (Dr. RMLIMS), Lucknow

Introduction: Scrub typhus is a zoonotic rickettsial disease which is caused by Orientia tsutsugamushi. It is transmitted by the bite of larval stage (chiggers) of trombiculid mites. Scrub typhus is the commonest and most widespread zoonotic disease among the diseases caused by rickettsial organisms both in India and globally and has been documented as an emerging pathogen in different parts of India.

Aims and Objectives: Aim of this study was to know the seroprevalence of scrub typhus in north India in patients of acute febrile illness presenting to a super specialty tertiary level institute. The main objective of this study was to know the association of geographical, environmental and epidemiological factors with scrub typhus.

Methods: This prospective hospital based study was conducted in the Department of Microbiology, Dr. Ram Manohar Lohia Institute of Medical Sciences (Dr. RMLIMS), Lucknow for a period of one year, from August 2018 to July 2019. About 2-5 ml of blood samples along with clinical, epidemiological and demographic data from a total of 125 patients presenting with acute febrile illness to Out-Patient, In-Patient and ICU departments were collected. The sera from blood samples were tested for IgM antibodies against scrub typhus by ELISA testing (Scrub Typhus IgM ELISA by InBiOS).

Results: During the study period, out of total 125 samples collected, 20% were found positive for IgM antibodies against scrub typhus. Among all participants, 57% were males and 43% were females, while 60% were males and 40% females among positive patients.

Conclusion: In this study we observed that the seroprevalence of scrub typhus was almost similar to previous studies from north India as well as from south India. There are studies from various parts of India showing spike in scrub typhus cases during post-monsoon season, we also observed a similar spike.

DIAGNOSTIC EVALUATION OF NEW REAL TIME PCR ASSAY FOR SPOTTED FEVER DIAGNOSIS

Divyaa E1, K.P.P. Abhilash 2, Winsley Rose 3, John Antony Jude Prakash 1
1Department of Clinical Microbiology, Christian Medical College, Vellore
2Department of Medicine IV & Emergency Medicine
3Department of Child health –III
**Introduction:** Spotted fever is an important cause of acute undifferentiated febrile illness (AUFI) with rash and is re-emerging in India. Laboratory confirmation of spotted fever is required for the diagnosis.

**Objective:** The objectives of the study were to evaluate the utility of ompA real time PCR (qPCR) and determine the performance characteristics of ompA qPCR and IgM ELISA for spotted fever diagnosis.

**Methods:** In this prospective study, 97 patients with AUFI with rash were recruited from December 2017 to May 2019 after obtaining informed consent. IgM ELISA for both scrub typhus and spotted fever were performed on the serum samples. DNA extracted from buffy coat was subjected to 47Kda qPCR for scrub typhus, ompA qPCR and gltA nested PCR for spotted fever. The performance characteristics and agreement of IgM ELISA with molecular assay for spotted fever were assessed with an expert derived case definition. Two gltAnPCR amplified products (citrate synthase gene) underwent Sanger sequencing.

**Results:** Among the 97 suspected cases, 80 were considered probable cases and 47 as confirmed cases of spotted fever as per case definition. The sensitivity of IgM ELISA, gltAnPCR and ompA qPCR were 87.2%, 19.1% and 40.4% respectively. The gltA nPCR and ompA qPCR demonstrated a specificity of 100% whereas it was 84.8% for SF IgM ELISA. There was poor agreement between SF IgM ELISA and ompA qPCR (kappa coefficient 0.096). The BLAST analysis of two gltA nPCR (NCBI Genbank accession number MN480240 and MN 399865) sequence showed a homology of 100% similarity with our previously reported gltA sequence (GQ260637).

**Conclusion:** Our findings suggest that SF IgM ELISA and ompA qPCR are both needed for optimal diagnosis of spotted fever. Further molecular studies using skin biopsy of the rash are needed to confirm these findings.
(doubled) in 2010 and 2011, respectively. A decreasing trend for bacteraemia was observed after the introduction of care bundles in 2013 and reached below baseline levels in 2017. In contrast, incidence of coliforms from paediatric patients decreased in 2009, and the NF-GNB remained at similar level. The implementation of infection control care bundles was associated with >50% reduction in *Pseudomonas aeruginosa* and *Acinetobacter baumannii*. *Klebsiella pneumoniae* caused more bacteraemia than *Escherichia coli*. Non-susceptibility to 3rd generation cephalosporins, co-amoxiclav, piperacillin/tazobactam, and ciprofloxacin increased from 22% to 31%, 51% to 54%, 14% to 21%, and 17% to 27%, respectively. In contrast, NF-GNB (excluding *S. maltophilia*) has been associated with an increase in non-susceptibility against cephalosporins, piperacillin/tazobactam, ciprofloxacin, gentamicin, and carbapenem from 35% to 54%, 25% to 50%, 20% to 45%, 21% to 43%, and 18% to 46%, respectively.

**Conclusion:** The continuous surveillance of antimicrobial trends is vital to guide physicians in the effective empirical antimicrobial treatment for bacteraemia and continued surveillance on organisms and antibiotics susceptibilities are needed for an informed appropriate empirical therapy.

**MICP 268**

**DETECTION OF MULTIPLE β -LACTAMASE GENES IN BLOOD ISOLATES IN ICU OF A TERTIARY CARE HOSPITAL IN NORTHERN INDIA**

Vimala Venkatesh¹, Piyush Tripathi¹, Aditi Garg¹
¹Department of Microbiology, King George’s Medical University, Lucknow, Uttar Pradesh

**Introduction:** Gram negative isolates from intensive care units at our centre, show high rates of phenotypic resistance to the β -lactam antibiotics. The present study was done to determine the profile of extended spectrum β -lactamase and carbapenemase genes in *E. coli*, *K. pneumonia*, *Pseudomonas aeruginosa*and*Acinetobacter spp.* isolates recovered from blood culture of ICU patients at our teaching hospital.

**Material and Methods:** A total of 89 *E. coli*, *K. pneumonia*, *Pseudomonas aeruginosa*and*Acinetobacter spp.* strains isolated from blood cultures over a period of 6 months, were screened for selected β-lactamase genes- *blaCTX-M1*, *blaCTX-M2*, *blaCTX-M8*, *blaCTX-M9*, *blaCTX-M25*, *blaTEM*, *blashv*, *blaveb*, *blaper*, *blacMY*, *blact*, *bladha*, *blaACC*, *blact*, *blaFOX*, *blakPC*, *blages*, *blaimp*, *blavIM*, *blaspM*, *blandM*, *blaOXA-48*, *blaOXA-23*, *blaOXA-24*, *blaOXA-58* including ESBLs and carbapenemases, using a combination of single-plex and multiplex PCR reactions.

**Results:** 56/89 (62.9%) isolates, 24/33 (68.6%) *K. pneumonia*, 11/22 (50%) *E. coli*, 16/24(66.7%) *Acinetobacter spp*. and 5/10(50%) *Pseudomonas aeruginosa* strains carried at least one β -lactamase gene. All *K. pneumonia* and *E. coli* isolates carried at least one ESBL gene. 80.9% of *Acinetobacter spp.* and *Pseudomonas aeruginosa* strains carried carbapenemase genes. *blaCTX-M1* was the most common (88.6%) β -lactamase gene detected in *K. pneumonia* and *E. coli* isolates. *blaOXA-58* was the most common (61.9%) gene in *Acinetobacter spp.* In *Pseudomonas aeruginosa* strains *blaveb* was the most common (33.3%) detected gene. Multiple β -lactamase genes were present in 60.7% of isolates. One *Acinetobacter spp.* strain carried 5 genes-*blaper*, *blaCTX-M1*, *blaveb*, *blaOXA-23* and *blaOXA-58*. 
Discussion: The presence of multiple β-lactamase genes in bacteremia isolates from the ICU setting highlights the urgent need for optimizing antibiotic use and the need for implementation of stringent infection control practices.

DIRECT DETECTION OF ESBLS FROM POSITIVE BACT/ALERT BLOOD CULTURES

Dr Renji Francis N, Dr Ambica R, Mrs Kusuma G. R.
Bangalore Medical College and Research Centre, Bangalore, Karnataka

Introduction: Bacterial Sepsis by Extended spectrum β-Lactamases[ESBL] producing Gram negative bacilli[GNB] is one of the major causes of mortality and morbidity in hospitals. Early detection of ESBLs by direct disc diffusion can reduce costs and mortality. The phenotypic detection of ESBLs is difficult as they may be masked by the co production of additional enzymes like AmpC and carbapenamases. Therefore, an accurate method to detect ESBLs is important for epidemiological purposes and to prevent the spread of resistance mechanisms.

Aims and objectives: To detect ESBLs directly from the positive blood cultures by using an improved disc diffusion method and to detect the genes coding for ESBL enzymes by conventional PCR

Methods: The present prospective study was conducted from May – October 2019. All blood culture samples were processed by using BacT/ALERT 3D automated blood culture system. A total of 80 positive blood cultures showing Gram negative bacilli on Gram’s stain were subjected to direct detection of ESBLs by CLSI recommended inhibitory based methods and an improved method by using Aztreonam discs with and without clavulanate [Ao/Cl]. PCR was carried out to detect CTX –M gene. Detection of SHV and TEM genes were performed.

Results: Out of 80 positive blood cultures showing GNB on Gram’s stain, 32 were positive by direct disc diffusion method for ESBL production. Out of 32, 23[71%] were positive by both CLSI and Ao/Cl method. 07 were positive only by Ao/Cl and 02 isolates were positive only by CLSI method. CTX-M gene was detected in 14 [40%] ESBLs. A total of 30[94%] ESBL producers were detected by Ao/Cl and 25[78%] detected by CLSI method.

Conclusion: Early detection of ESBLs by direct disk diffusion helps to prevent the dissemination of resistant pathogens in the hospital and the Ao/CI method need to be further evaluated as it has the potential to provide simple and inexpensive test.

MINIMUM INHIBITORY CONCENTRATION (MIC) DETECTION WITHIN MINUTES WITHOUT AUTOMATION

Dr. Goutam Sarkar, Dr. S. Kumar, Dr. M. Bandyopadhyay, Dr. M. Chatterjee, Dr. M K. Bandyopadhyay
RG Kar Medical College and Hospital

Introduction: Information about the MIC of the pathogen, responsible for causing an infection can help to determine the adequate treatment protocol. The traditional methods are
laborious and time consuming. Automated systems and rapid methods of MIC detection require expensive instruments.

**Aim and Objectives:** To develop a rapid diagnostic method for MIC detection which can be performed in a resource limited setting.

**Methods:** Total 117 different isolates of *Escherichia coli*, *Klebsiella spp*, *Enterobacter spp*, *Proteus mirabilis*, *Staphylococcus aureus*, *Pseudomonas spp* and *Acinetobacter spp* were treated with different drugs containing aqueous indicator solution on a piece of filter paper. Amikacin, Ceftriaxone, Piperacillin-Tazobactum, Cefoxitin, Imipenem and Levofloxacin were taken for preparation of the solutions. The concentration of the drug in the solutions was taken according to sensitive MIC (SMIC) break point and resistant MIC (RMIC) breakpoint of individual drug as per CLSI 2019 standards.

**Results:** All isolates of Enterobacteriaceae and *Staphylococcus aureus* showed MIC values for each of the tested antibiotics within 10 minutes by filter paper method which corresponded with agar dilution method on the next day. The result was given by non fermenters (*Pseudomonas spp* and *Acinetobacter spp*) in 60 minutes.

**Conclusion:** Filter paper method using a drug containing indicator solution is effective in rapidly determining the MIC for Penicillin, Cephalosporin, Carbapenem, Fluoroquinolone and Aminoglycoside group of antibiotics for most Enterobacteriaceae and *Staphylococcus aureus*. The limitation was delayed working for the non fermenters (*Pseudomonas spp* and *Acinetobacter spp*). The method is inexpensive, time saving and can be performed in resource limited settings.

---

**MICP 82**

**CB-O8**

**FORMULATION OF ENRICHMENT AND SELECTIVE MEDIA FOR ISOLATION OF ACINETOBACTER SPECIES FROM HOSPITAL ENVIRONMENT**

Dr. Sonia Deb, Dr. Swagata Ganguly Bhattacharjee, Prof.(Dr.) Nishith Kumar Pal, Prof. (Dr.) Chitrita Chattopadhyay
N.R.S. Medical College, Kolkata

**Introduction:** *Acinetobacter species* play a significant role in Health-care associated Infections (HAI) in the contemporary world and is linked with high morbidity and mortality. Hospital epidemiology demands typing and matching of clinical isolates with those from hospital environmental colonisers to trace the source of infection. Amongst myriads of bacterial genera colonising the hospital environment, *Acinetobacter species* demand a selective medium and optimum environment to facilitate its growth.

**Aims and objectives:** To formulate a composition of Acinetobacter selective medium and To test efficacy of the proposed medium to select Acinetobacter species in pure form from enrichment broth from a cocktail of commonly isolated nosocomial pathogenic bacteria.

**Methods:** A laboratory based experiment was conducted from January 2018 to June 2018 where an inoculum of $10^4$/ml of *K. pneumoniae*, *E.coli* and *S. aureus* and $10^3$/ml of Acinetobacter was used along with ATCC reference strains. Two enrichment broths, one containing citrate and other containing acetate and three sets of solid media were proposed based on the chemolithotropic property of Acinetobacter. The change in turbidity after incubation at 37°C and at 42°C was observed every 24 hours followed by subculture onto proposed selective media. Colonies were identified phenotypically.

**Results:** Citrate containing media could inhibit growth of *Escherichia coli* and *Staphylococcus aureus* but not *Klebsiella spp*. After incubation beyond 48 to 96 hours in
acetate containing media, predominant growth of Acinetobacter was obtained.  

**Conclusion:** Citrate containing enrichment broth was able to control growth of *Escherichia coli* and *Staphylococcus aureus* but not *Klebsiella spp.* which can utilize citrate as sole source of carbon. When acetate replaced citrate, predominant isolation of *Acinetobacter* was obtained after prolonged incubation of enrichment broths.

**IMPACT OF PRE-ANALYTIC PRACTICES ON USEFULNESS OF URINE CULTURE IN A TERTIARY CARE HOSPITAL**

Dr. Sukanya Sudhaharan, Dr. Umabala Pamidimukkala, Dr. Shivaprasad J, Dr. Sabaa Naaz.  
Department of Microbiology, Nizam’s Institute of Medical Sciences, Hyderabad

**Introduction:** Urine cultures often make up the largest portion of workload for a hospital-based microbiology laboratory. Several pre-analytic factors adversely affect the diagnostic accuracy and contamination rates of urine cultures; for e.g., pan culturing of urine cultures without proper indication, improper collection of specimens leads to false positive results leading to antibiotic overuse in hospitals.  

**Aims & objectives:** The aim of our study was to analyze & calculate the percentage of the factors affecting the results of urine culture  

**Methods:** A retrospective study was conducted from January-June 2019 on urine cultures showing discrepant results. This included 225 samples showing growth of a single pathogen with Gram’s stain showing no pus cells. The details regarding the type of sample, repeat cultures sent, complete urine analysis (CUE), were analyzed. In addition, 58 samples with discrepant results were analyzed prospectively regarding the method of collection, labeling and transport.  

**Results:** Of 225 samples, 208/225(92.4%) were clean catch and 17/225(7.5%) catheter catch. CUE was sent along with cultures in 186/225(82.6%) patients. CUE was normal in 107/225(47.5%), high in 80/225 (35.5%) and was not sent in 39/225(17.3%) patients. In 44/225(19.5%) patients repeat cultures were sent. Culture were sent on the same day of admission in 30/225(13.9%), ≤7 days in 158/225(70.2%) patients, > 7 days in 37/225(16.4%) patients. *E. coli* was the predominant organism in 137/225(60.8%) followed by *K. pneumoniae* in 29/225(12.8%) patients.93/225(41.3%) were ESBL, 59/225(26.2%) MDRO’s. In the prospective study, 55/58(95.8%) patients were asymptomatic. Sample was improperly collected in 35/58(60.35%)of patients, wrongly labelled as clean catch in 32/58(55.1%) & delayed transport in 5(8.6%) patients. *E. coli* was the predominant organism in 17/58(29.3%) followed by *K. pneumoniae* in 10/58(17.2%) patients 12/58(20.6%) were ESBL and 20/58(34.4%) MDRO’s.  

**Conclusion:** From this study we conclude that majority of the urine cultures were sent without proper indication and many of the samples are collected improperly. Hence, managing the pre-analytic factors for urine cultures helps in generation of meaningful culture which leads to proper patient diagnosis and management

**A STUDY OF SCREENING TESTS FOR THE PRESumptIVE DIAGNOSIS OF SIGNIFICANT BACTERIURIa WITH SPECIAL REFERENCE TO LeUCOCYTE ESTERASE TEST**
Introduction: Microscopy of urine is of diagnostic value and culture is still the gold standard for isolation of bacteria. However, presumptive approach with non-culture based rapid screening tests is more practical and cost-effective to manage UTI. The various screening methods would reliably and economically separate specimens, which contain evidence of clinical infection from those which do not. Thus, this can help to avoid culture of all irrelevant specimens.

Aims: To evaluate the usefulness of rapid screening tests viz. wet mount examination for pyuria and bacteriuria; Gram’s staining; Griess nitrite test; TTC (Triphenyl Tetrazolium Chloride) test; Catalase test; urinary dip stick screening test – Leucocyte Esterase (LE) and to compare these with semi quantitative culture evaluation of UTI.

Methods: The study was undertaken in the Department of Microbiology, Goa Medical College. The material for the study included two hundred samples that were collected randomly from patients, attending the Out Patient Department of this institution with a provisional diagnosis of urinary tract infection and without prior antimicrobial treatment. Clean catch urine specimens were collected and processed for semi quantitative culture and non-culture screening tests.

Results: Out of 200 samples processed by semi-quantitative loop method, significant bacteriuria was observed in 124 cases i.e. 62%. While doubtful bacteriuria with bacterial counts between $10^4$ to $10^5$ org/ml was encountered in 3 cases i.e.1.5%. Growth of contaminants were seen in 20.5% cases (41/200) while sterile cultures were obtained in 16% cases. The sensitivity of LE dipstick test was highest (92.7%), followed by Griess Nitrite test (88.7%) and wet mount for pyuria (88.7%). The negative predictive value was highest with the Leucocyte esterase test i.e. 88.5% and least with catalase test (69.2%). The values were calculated with respect to culture. However, the difference in sensitivity of the various tests was not significant.

Conclusion: The present study revealed that sensitivity, NPV and specificity was highest with LE test. Rapid detection of significant bacteriuria can have profound effect on patient care as well as laboratory economics.

MICP 53 CB-O11

CORRELATION OF "RESISTANCE PROFILE" OF ISOLATES DERIVED FROM DJ STENTS WITH DURATION OF THEIR STAY IN GENITOURINARY TRACT OF PATIENTS

Jitendra Kumar, Manoj Kumar, Ashok Kumar, Amber Prasad, Kumari Seema
Dept of Microbiology, RIMS, Ranchi

Introduction: DJ stent is a type of urinary catheter made of polyurethane, c-flex, urosoft or silicone¹ used to overcome upper genitourinary tract obstruction like urinary calculus, renal mass, fibrosis, stricture etc and helps in effortless and patent urinary flow. It is also implicated in acute renal failure, chronic renal failure, vesicovaginal fistula, vesicoureteric fistulas etc. It's length 12-30 cm and luminal diameter 1.5-6 mm is associated with complications like infections, pain, discomfort, pyuria, hematuria, malposition, encrustations and biofilm formation depending on device duration.
Aim and objectives: To correlate resistance pattern of DJ stent isolates with their duration of insertion in genitourinary tract of patients.

Methods: 82 DJ stents brought from Urology, RIMS (49 from males and 33 from females) were processed and studied in Microbiology, RIMS between Feb 2019 to Sept 2019. Data entry and analysis was done by M.S EXCEL. Cell suspension from internal luminal surface of stent was inoculated in BHI broth, incubated overnight and further inoculated on BA, MA and NA for identification by growth pattern, colony morphology, motility and biochemical properties. Once pure colony was isolated and identified, antibiotic susceptibility test was done with 14 antibiotics by placing 6 disks in each plate.

Results: 95.1% stents showed colonization with Pseudomonas aeruginosa (44.87%) followed by Enterococcus (17.94%), Klebsiella (15.38%) etc. 74.28% of all Pseudomonas spp. were MDR whereas all isolates of Enterococcus & Acinetobacter were resistant. 29.48% of all 78 isolates were pan resistant in which Pseudomonas predominated with 43.47%. Pan resistant isolates were isolated maximally (62.5%) from > 60 days stent stay followed by 33.33% isolates from 50-60 days stay, 35.29% from 40-50 days stay, 10.52% from 30-40 days with no pan resistant isolates from <30 days stay.

Conclusion: This study indicates resistance among isolates, enhanced with duration of stay of stent in genitourinary tract of patients and also leading to multiple complications.

MICP 175 CB-O12

MOLECULAR CHARACTERIZATION OF MULTI DRUG RESISTANT GRAM NEGATIVE BACTERIA ISOLATED FROM BLOOD STREAM INFECTIONS IN A TERTIARY CARE HOSPITAL

Neelima.A, Saba Hashmiya, Savita, Vijay Dharma Teja
Nizam’s Institute of Medical Sciences, Hyderabad, Telangana

Introduction - Bloodstream infections (BSI) are associated with high morbidity and mortality. This scenario worsens with the emergence of drug-resistant pathogens, resulting in infections which are difficult to treat or even untreatable with conventional antimicrobials.

Aims and Objectives - to detect multi drug resistant organisms and associated genes.

Methods - This was a prospective study done at Nizam’s Institute of Medical Sciences over a 6 month period i.e. from January 2019-June 2019. The blood cultures were performed on BacT/ALERT 3D and microbial identification and antimicrobial susceptibility testing was performed by VITEK2. Resistant genes were identified by multiplex PCR. The risk factors associated with emergence of multi drug resistant organisms (MDROs) was done using cox regression analysis.

Results - A total of 3090 blood samples were received, of these 73.46% were from 1 set and 26.5% from 2 sets. About 209 were culture positives (6.76%). of this 91.3% were primary BSI and 8.6% secondary BSI. The risk factors found in this study were male sex, age>60, creatinine>2, leucocytosis, leucopenia, thrombocytopenia. Among the culture positives gram negative bacteria (GNB) were isolated in 145 (69.37%), gram positive bacteria (GPB) - 21.5% and fungi (9%). Escherichia coli was the predominant isolate (29.6%) among GNB, Staphylococcus aureus (9.56%) among GPB and Candida tropicalis (4.3%) among fungi. MDRO's detected in 28.2% of which Methicillin Resistant Staphylococcus aureus (MRSA) were 3 (5.26%), Extended spectrum beta lactamas (ESBL) (21%), Carbapenamases (63%). CTX - 7, CTX-19 genes were detected among ESBL producers and NDM, OXA- 48 among the carbapenemase producers. No antifungal resistance was reported.
**Conclusion:** Early detection of MDRO’S helps in choosing appropriate antibiotic. The labs should be strengthened to detect MDRO which guides in proper intervention and antibiotic policy.

**MOLECULAR CHARACTERISATION OF CARBAPENEM RESISTANCE IN ACINETOBACTER BAUMANNII IN CLINICAL ISOLATES IN A TERTIARY CARE HOSPITAL IN ASSAM**

Dr Chaitali Konwar, PGT; Dr Gargi Choudhury (Associate Prof, Dept of Microbiology); Dr Reema Nath (Prof and Head, Dept of Microbiology, AMCH)

**Introduction:** *Acinetobacter baumannii* has emerged as one of the most significant opportunistic pathogens in health care-associated infections. Carbapenem resistance in *A.baumannii* is mainly due to class D and class B carbapenemases of Ambler’s classification of β-lactamases. Majority of resistance is due to class D carbapenemases such as blaOXA-23, blaOXA-24 and blaOXA-58.

**Aims and Objectives:** To detect the presence of carbapenem resistance genes in clinical isolates of *A.baumannii*.

**Methods:** The study was done in the laboratory of Assam Medical College and Hospital over a period of 4 months. Isolation and identification of *Acinetobacter* species were performed according to standard techniques of bacteriology. Antimicrobial susceptibility testing of the isolates was performed by the Modified Kirby Bauer disk diffusion method as well as MIC (Minimum Inhibitory Concentration) determination by VITEK2 automated system (bioMerieux France). Out of these isolates, 18 were from blood and 2 were tracheal aspirate. DNA was extracted from the isolates and PCR was performed using primers for Ambler class B β-lactamase-encoding gene blaNDM as well as Ambler class D carbapenemase-encoding genes blaOXA-23 and blaOXA-24.

**Results:** 16 out of 20 isolates showed high MIC of ≥ 16 to Meropenem and Imipenem. blaOXA-23 was detected in 15 isolates (75%) and blaNDM was detected in 5 isolates (25%). In 3 isolates both blaNDM and blaOXA-23 were positive. None of the isolates showed blaOXA-24.

**Conclusion:** Presence of *Acinetobacter* can contribute adversely to the prognosis of patients and multidrug resistance in such isolates is associated with prolonged hospitalization and increased mortality. Frequent use of carbapenems for the treatment of such multidrug-resistant *Acinetobacter* infections can further contribute to mortality. In view of such findings, there is urgent need for resistance surveillance of such organisms as well as prudent use of antimicrobial agents.

**ANALYSIS OF BIOFILM PRODUCTION AND ANTIBIOFILM ACTIVITY IN ANAEROBIC MICROBIAL COMMUNITY OF HUMAN BODY**

Beena Antony,1 Hilda Pinto,2 Zomuanpuii Colney3

**Introduction:** Anaerobes exist in the human oral cavity, gastrointestinal tract and vagina as normal flora as well as significant pathogens. Virulence factors which contribute to the pathogenesis are many and complex in nature. Biofilm formation is one such virulence factor which plays an important role in initiation of colonization. Bacteria in biofilms are known to be more resistant. Clinical biofilm infections are marked by symptoms that recur even after repeated treatment. Apart from the scanty literature from the Western countries, no Indian studies are available regarding the biofilm production and antibiofilm activity in anaerobes.

**Aim & Objectives:** To investigate the biofilm production in anaerobes and Antibiofilm activity of various herbal extracts against anaerobes.

**Aims & Objectives:** To investigate the biofilm production in anaerobes and Antibiofilm activity of various herbal extracts against anaerobes.

**Methods:** In the present study of 2 years duration (2017 & 2018), 550 specimens suggestive of anaerobes were processed. Randomly selected 78 strains were subjected to MALDI TOF Analysis and 86 for Biofilm detection. Antimicrobial action of various herbal extracts was tested on 123 Anaerobes. 54 strong and moderate biofilm producers were investigated for antibiofilm activity against essential oil of lemon grass, nutmeg & clove based on the antimicrobial susceptibility.

**Results:** 472 aerobes, 381 anaerobes and 48 microaerophilic bacteria were isolated in the study. *B. fragilis* group was the most common anaerobic isolate. Among the 86 members tested, 38 were strong biofilm producers and 16 moderate biofilm producers. The results of antimicrobial action revealed that lemon grass exhibited best action followed by nutmeg. Lemon grass, nutmeg & clove also exhibited antibiofilm activity against the 32 strains of *B. fragilis* group, 9 Peptostreptococci and 1 Porphyromonas.

**Conclusion:** Biofilm formation is an important virulence factor in anaerobes. Many herbal extracts were found to be active against anaerobes. Essential oil of lemon grass, clove and nutmeg exhibited good antibacterial and antibiofilm activity. Further research can be extended to develop these herbal extracts as candidate agents in preventing biofilm formation in Medical devices.

**MICP 143**

**DETECTION AND CHARACTERIZATION OF HIGH-LEVEL GENTAMICIN RESISTANCE AMONG ENTEROCOCCUS FAECIUM AND FAECALIS**

Harish M1, Shanthi M1, Uma Sekar1

Department of Microbiology, Sri Ramachandra Institute of Higher Education and Research, Chennai

**Introduction:** In enterococci, high level resistance to aminoglycosides is mediated by acquisition of plasmid mediated genes encoding for aminoglycoside modifying enzymes (AMEs). High level gentamicin resistance (MIC ≥ 500 μg /mL) is predominantly mediated by aac(6′)-Ie-aph(2′)-Ia, encoding the bifunctional aminoglycoside modifying enzyme AAC(6′)-APH(2′). This enzyme eliminates the synergistic activity of gentamicin when combined with a cell wall active agent. Other AME genes such as aph(2′)-Ib, aph(2′)-Ic, aph(2′)-Id and ant(4′)-Ia have also been detected in enterococci.

**Aims and Objectives:** To detect high level gentamicin resistance in Enterococci phenotypically by disc diffusion method and to determine the Minimum Inhibitory concentration (MIC ) and To detect the presence of AMEs mediating high level gentamicin resistance by Polymerase chain reaction.
Methods: Study isolates- 150 non-repetitive Enterococci isolated from hospitalized patients. Identification up to species level was done by conventional /automated methods. Minimum inhibitory concentration (MIC) for gentamicin was done by agar dilution method. Antibiotic susceptibility testing was performed by disc diffusion method to ampicillin, gentamicin, erythromycin, vancomycin and linezolid. Ciprofloxacin and nitrofurantoin susceptibility was tested for urinary isolates. PCR for AME genes aac(6')-1e-aph(2'')-1a, aph(2'')-1b, aph(2'')-1c, aph(2'')-1d, aph(3'')-111a and ant(4')-1a was carried out.

Results: Of the 150 isolates, 86.6% were E. faecalis and 13.3% were E. faecium. They were from exudates 63.3%, urine 34.6% & blood 2%. Antibiotic susceptibility: Ampicillin-75%, Ciprofloxacin-47%, Vancomycin-98%, Linezolid-100%, Gentamicin-48.7%, Erythromycin-24.6% and Nitrofurantoin-3.84%. MIC revealed high level gentamicin resistance in 51.3% isolates. PCR IDENTIFICATION OF HLGR GENES: 17(11.3%) isolates had aac(6')-1e-aph(2'')-1a gene alone, 28(18.6%) isolates had aph(3'')-111a gene alone and 66(44.1%) isolates had both aac(6')-1e-aph(2'')-1a and aph(3'')-111a. The other AME genes were not detected.

Conclusion: Though 77(51.3%) of the isolates were phenotypically resistant to gentamicin, 13(8.6%) did not harbour the AME genes. In contrast, 47(31.3%) harboured the AME genes but phenotypically appeared susceptible to gentamicin.

MICP 371

ANALYSIS OF ENTEROCOCCAL ISOLATES FROM CLINICAL SPECIMENS WITH SPECIAL REFERENCE TO ANTIBIOGRAM AND VIRULENCE MARKERS

Department of Microbiology, All India Institute of Medical Sciences, Raipur, Chattisgarh

Introduction: Enterococci are commensal organisms of the gastrointestinal and urogenital systems but can cause complicated UTIs, bacteraemia, endocarditis, wound and soft tissue infections, neonatal sepsis, and meningitis. They have various virulence factors.

Aims: To detect antibiotic resistance and virulence factor in Enterococcal isolates from various clinical specimens; To identify Enterococcus species from various clinical specimens and to study the antibiogram; To detect Vancomycin resistance and linezolid resistance by phenotypic and genotypic methods; To determine the virulence factors (Haemolysin, Aggregation substance & Enterococcal surface protein).

Methods: Cross-sectional study of 30 Enterococcal isolates was done in Department of Microbiology AIIMS Raipur. Identification was by standard methods followed by VITEK-2. Antibiotic sensitivity testing was done by Kirby-Bauer disk diffusion test and also by VITEK-2. Vancomycin resistant strains were tested for VanA and VanB gene and linezolid by 23s rRNA gene containing the G2576T mutation by PCR. Virulence factors like haemolysin was detected on 5% sheep blood agar. Other virulence factor like esp and agg were detected by PCR.

Results: Out of 30 isolates, 66.66% were E. faecalis, 23.33% E. faecium, 6.66% E. durans and 3.33% E. gallinarum. Only 10% of E. faecalis showed ampicillin resistance whereas it was 100% in E. faecium. High level resistance to gentamicin (120µg) and streptomycin (300µg) were found to be 65.17% and 56.25% respectively. All enterococcal isolates were sensitive to vancomycin except one which expressed VanA resistance gene and 23s rRNA gene mutation in G2576T region encoding Linezolid resistance and one E. gallinarum with intrinsic resistance to vancomycin. Reserved drugs like Teicoplanin and Tigecycline showed 85% and 100% sensitivity as determined by manual disc diffusion and automated VITEK.
ID/AST system. Haemolysis was seen in 33.33%, esp gene was detected in 77.42% and agg gene was present in 45.16% of isolates.

**Conclusion:** There is gradual increase in antibiotic resistance in enterococcal isolates with increased incidence of VRE and LRE. Uncommon enterococcal isolates are also exhibiting change in resistance.

**MICP 136**

**STUDY ON ANTIMICROBIAL SUSCEPTIBILITY PATTERN IN CLINICAL ISOLATES OF BACTEROIDES FRAGILIS – PILOT STUDY**

Dr. Lisha Jha, Dr. V. Balaji, Dr. John Antony Jude Prakash, Dr. Binesh Lal. Y

Department of Clinical Microbiology, CMC Vellore

**Introduction:** *Bacteroides fragilis* is the commonest and ubiquitous gram negative obligate anaerobe causing life-threatening, intra-abdominal and systemic infections.

**Aim and objectives:** To determine the MIC (Minimum Inhibitory Concentration) breakpoints of metronidazole, clindamycin, meropenem, piperacillin-tazobactam and To determine the frequency of *nim* genes (Metronidazole) and *ermF* gene (clindamycin) in *Bacteroides fragilis* isolates

**Methods:** Totally 37 *Bacteroides fragilis* isolates were studied. Susceptibility testing was performed by agar dilution method and MICs were interpreted as per the CLSI guidelines. Conventional PCR was performed on all isolates to detect resistance genes (*nim*: Metronidazole, *ermF*: Clindamycin)

**Results:** Overall, we observed resistance in metronidazole (51%), clindamycin (45%), meropenem (8%), piperacillin-tazobactam (2.7%). Metronidazole MIC was >64 μg/mL for 16 isolates and 32 μg/mL for 3 isolates. *Nim* gene (for metronidazole) was present in only 37.8% isolates. Clindamycin MIC for all resistant isolates were >16 μg/mL except one which showed MIC of 8 μg/mL. *ermF* gene was present in 32.4% isolates. Only 1 isolate for piperacillin-tazobactam showed MIC of 256 μg/mL. Others were susceptible.

**Conclusion:** Our study shows that *Bacteroides fragilis* shows resistance to different classes of antibiotics. Among 19 metronidazole resistant isolates *nim* gene was present only in 9 isolates (47.3%). Among 17 clindamycin resistant isolates *ermF* gene was present in only 5 isolates (29.4%). All phenotypically detected clindamycin isolates does not harbour resistance gene. Presence of *nim* gene does not correlate with phenotypic resistance. Therefore, phenotypic methods are reliable for detection of metronidazole and clindamycin resistance in *B. fragilis.*

**MICP 335**

**A PROSPECTIVE STUDY TO DETERMINE BASELINE TREND OF DIPHTHERIA AND PERTUSSIS ANTIBODY LEVEL IN MOTHERS AND NEWBORNS COHORT**

Lydia Jennifer, Shalini Anandan, Annie Regi, Manisha Madhai Beck, Niranjan Thomas, Veeraraghavan Balaji

1Christian Medical College, Vellore

**Introduction:** Diphtheria and pertussis are highly contagious vaccine preventable disease. Maternal immunization has been shown to reduce mortality and morbidity in children
including neonates. In India, there is a need to assess the level of protective immunity among pregnant mothers and newborns.

**Aims and objectives**: The aim of the study was to estimate the proportion of newborns and mothers with protective level of antibodies against diphtheria and pertussis.

**Methodology**: This is a prospective cross sectional study conducted in Vellore from June 2018 to July 2019. A total of 310 mother and newborn cohort were enrolled in the study. IgG antibody response against Diphtheria Toxoid (DT) and Pertussis Toxin was estimated by Enzyme Linked Immunosorbent Assay. Concentration of IgG Anti-diphtheria toxoid and Anti- Pertussis Toxin (PT) IgG higher than 0.1 IU/mL and 5IU/mL are protective against diphtheria and pertussis infection, respectively.

**Results**: In mothers, protective Anti-DT and Anti-PT level were observed in 33 (10.64%) and 141 (45.48%). In newborns, protective Anti-DT and Anti-PT level were observed in 47 (15.15%) and 166 (53.54%).

**Conclusion**: Mother and child cohort with un-protective levels of antibodies against diphtheria and pertussis are vulnerable to infection. Hence, data generated from the present study is an important evidence to formulate policies and recommendation for maternal vaccination.

**MICP 113**

**CB-O19**

**RE-EMERGENCE OF DIPHTHERIA IN A METROPOLITAN CITY**

Mohanty A, Randive M, Baveja S

LTMMC and LTMGH, Mumbai

**Introduction**: Diphtheria is an acute, highly infectious and previously endemic disease. Due to the vaccine preventable nature of the disease and initial steady decline, not much attention had been given towards this disease. Recent increase in the number of clinically suspected and laboratory confirmed cases of diphtheria have been observed in our laboratory.

**Aims and objectives**: To study the status of resurgence of the disease in a tertiary care hospital of Mumbai.

**Methods**: 64 throat swabs and 1 slough material from 47 clinically suspected cases of diphtheria over a period of one year from July 2018 onwards were obtained and were processed for microscopy and identification of Corynebacterium species by standard microbiological techniques.

**Results**: Fifteen (23.07%) out of 65 samples yielded Corynebacterium species on culture; 9 out of 47 suspected patients were culture confirmed diphtheria (19%). None of the patients were less than 5 years of age, 33% were between 5 and 9 years and 67% were above 10 years of age with a total female preponderance of 78%. The immunization status was unclear in 44% cases. All the smear and/or culture positive cases were informed immediately to the clinicians so that the patients could be transferred to the Infectious disease hospital for further management.

**Conclusion**: This study has shown an increase in the number of Diphtheria cases in a metropolitan city, which is a cause of concern in healthcare. There is also a shift in age to older children (> 5 years). The study also highlights the need for confirmation of toxin production to facilitate early information to the treating clinicians.

**MICP 243**

**CB-O20**
COMPARISON OF ANTIMICROBIAL SUSCEPTIBILITY TESTING METHODS FOR COLISTIN AGAINST CARBAPENEM RESISTANT ENTEROBACTERIACEAE IN A TERTIARY CARE HOSPITAL OF SOUTH INDIA

Dr. Sarumathi D, Deepashree R, Dr.Apurba Sankar Sastry
JIPMER, Pondicherry

Introduction: The emergence of multidrug resistant organisms is a major concern in healthcare settings, associated with increased morbidity and mortality. Colistin is being considered as last resort antibiotics, however resistance has been emerged. This requires urgent need for standardised in-vitro susceptibility testing for colistin for patient care and epidemiological purposes. According to CLSI and EUCAST guidelines, only valid method to test MIC of colistin is the Brothmicrodilution (BMD) which is too laborious to be done in clinical laboratory. Therefore, a reliable and easy to perform as well rapid method is needed to assess the colistin susceptibility.

Aim and objective: Comparison of phenotypic methods such as commercial broth microdilution method, Rapid polymyxin NP test against gold standard inhouse broth microdilution method for Carbapenem resistant Enterobacteriaceae.

Methods: This is a comparative study to determine the degree of agreement between commercial Microbroth dilution method (MIKROLATEST® MIC Erba Mannheim) and Rapid polymyxin NP test with the gold standard in-house microbroth dilution method for colistin sulphate for carbapenem resistant Enterobacteriaceae organism. Organisms from Enterobacteriaceae family showing intrinsic resistance to colistin such as Proteus, Serratia, Morganella, Providencia were excluded and repeated isolates from same patient were not included in study. A total of 294 isolates were collected and susceptibility testing results were compared with reference inhouse BMD method. Categorical agreement, very major errors, major errors and Essential agreement were determined.

Results: Susceptibility results of 294 isolates included E.coli (n=67), K.pneumoniae (n=195), Enterobacter sp. (n=23), Citrobacter sp. (n=9) were evaluated for three methods according to EUCAST published clinical breakpoints. Overall, categorical agreement of commercial BMD with reference in-house method was 91.1%. The categorical disagreement was found in 8.8%, majority of which were major error (ME,6.1%) and very major error (ME,2.7%). The essential agreement of commercial MBD with reference method was 83.3% and 16.6% disagreement. With Rapid colistin NP test, categorical agreement was 92.5% and categorical disagreement was 7.4% which includes major error of 6.1% and very major error of 1.3%.

Conclusion: This study helps in introducing faster and reliable susceptibility method for colistin which will help clinicians in early administration of colistin so that mortality and mortality will be reduced drastically.
Introduction: A reliable colistin susceptibility testing is needed to guide treatment of carbapenem resistant *Enterobacteriaceae* (CRE) infections.

**Aims and Objectives:**
1. To determine the colistin susceptibility and compare E-test with broth-microdilution (BMD) for bloodstream CRE infections and treatment options for the same.
2. To analyse the clinical profile and outcome of CRE infections.

**Methods:** Antimicrobial susceptibility testing was performed for 47 blood culture CRE isolates over a 2 year period by disk diffusion. Gradient diffusion and BMD were performed to determine colistin MICs and interpreted using EUCAST guidelines. Essential agreement (EA), categorical agreement (CA), very major error (VME) and major error (ME) were worked out between BMD and E-test. Clinical profile of patients was analysed.

**Results:** The most common isolate was *Klebsiella pneumoniae* [35/47(75%)] followed by *E.coli* [10/47(21%)] and *Klebsiella oxytoca* [2/47(4%)]. 42.5%[20/47] were post solid organ transplantation followed by liver diseases [12/47(25.5 %)], kidney diseases [6/47(12.8%)], polytrauma [3/47(6.4 %)], cholangiocarcinoma [2/47(4.3 %)] and others [4/47(8.5 %)]. 3 out of 47 CRE isolates were colistin resistant by both BMD and E-test. EA and CA between BMD and E-test was 72% and 100% respectively. No VME or ME was detected with E-test. Susceptibility of these isolates to tigecycline was 4.3%(2/47), chloramphenicol 4.3%(2/47), amikacin 14.9%(7/47), gentamicin 12.8%(6/47), netilmicin 6.4%(3/47) and tobramycin 6.4%(3/47). One of the three patients with colistin resistant infection survived. Overall survival rate in patients with invasive CRE infection was 43% (20/47).

**Conclusion:** CRE infections have a guarded outcome. Our study shows that colistin susceptibility by gradient diffusion method had a good CA with no VME/ME. However the results should be interpreted with caution given the less number of isolates. More work needs to be done on blood culture isolates with respect to colistin susceptibility.

**MICP 193 CB-O22**

**STUDY OF VIRULENCE FACTORS IN STAPHYLOCOCCUS HAEMOLYTICUS WITH SPECIAL REFERENCE TO BIOFILM FORMATION**

Meerabai Manoharan, Sujatha Sistla
Department of Microbiology, JIPMER, Puducherry

**Introduction:** Unlike *Staphylococcus aureus*, *S.haemolyticus* rarely produces toxins. However, like *S. epidermidis*, it also demonstrates the ability to form biofilms. Studies have shown differences in the composition of biofilms formed by these two species.

**Aims & Objectives:**
1. To study biofilm formation by *S. haemolyticus* isolates using different methods and to determine the composition of the biofilm matrix.
2. To detect the presence of toxin genes by PCR

**Methods:** 356 clinical isolates of *S. haemolyticus* were included in the study. Biofilm production was determined using phenotypic assays - Congo red agar (CRA) and Tissue culture plate method (TCP). Detachment assays with NaI4 (degrades polysaccharides), proteinase K & DNase treatment were carried out for the TCP positive isolates. PCR was performed to determine the toxin genes.

**Results:** Out of 356 isolates tested, 48(13.5%), 44(12.4%) displayed strong and moderate biofilm production in TCP assay. Only 8 of these isolates were positive by CRA method, while 4 CRA positive isolates were negative by TCP(k-value= 0.1; “poor agreement”). All the isolates were tested in triplicate.NaI4, proteinase K & DNase showed strong detachment for
98.9%, 95.6% & 18.5% of the isolates respectively. Majority of the biofilm forming isolates (79.3%) showed intermediate detachment with DNase treatment. 96.6% of the isolates were positive for α-toxin gene while none of the isolates were found positive for pvl, tsst. Enterotoxin genes were detected in only two isolates-one with sec & the other with sei gene.

**Conclusion:** In the present study biofilm was formed by only a small percentage of the isolates with Congo red agar showing poor agreement with TCP. Biofilm of *S. haemolyticus* appears to have polysaccharides & proteins as major components while DNA was present in only a few isolates as minor component. This may have implications in drug development targeting biofilm formation. Other than α-toxin, genes for toxin production were almost completely absent.

**MICP 272**  
CB-O23

**TO EVALUATE THE ACCURACY OF THE AVAILABLE METHODS OF FOSFOMYCIN SUSCEPTIBILITY TESTING TO CARBAPENEM RESISTANT *KLEBSIELLA PNEUMONIAE* AND *ESCHERICHIA COLI***

Joanna Pereira, Rashmi Kokare, Anurag Kumar Bari, Seema Rohra, Aruna Poojary  
Dept. of Pathology & Microbiology, Breach Candy Hospital Trust, Mumbai

**Introduction:** The emergence of Extensively drug resistant (XDR) pathogens, has limited the therapeutic options for treating them. Fosfomycin a broad-spectrum antibiotic, with unique mechanism of action, has emerged as a potential treatment option. As in vitro susceptibility testing methods of fosfomycin are prone to errors, it becomes crucial to evaluate and understand their accuracies to ensure reliable and accurate AST reporting.

**Aims & Objectives:** To determine the susceptibility pattern of Carbapenem Resistant (CR) *K. pn* and *E. coli* to fosfomycin and to evaluate the discrepancies of the alternative methods.

**Methods:** This was a retrospective study. The susceptibility pattern of fosfomycin to CR *K. pn* and *E. coli* were determined by Agar Dilution (AD-reference method), Broth Microdilution (BMD), E-test (bioMerieux, France) and Ezy MIC test (HiMedia, Pune). *Escherichia coli* ATCC 25922 and *Klebsiella pneumoniae* BAA 1705 (CR *K. pn*) were the standard strains tested.

**Results:** 177 CR *K. pn* and 58 CR *E. coli* clinical isolates were included in the study. Susceptibility breakpoints were considered as per the EUCAST guidelines and the accuracy of the methods was determined as per CLSI guidelines. 31.63% of CR *K. pn* were susceptible and 68.36% were found to be resistant by the reference method. While for CR *E. coli*, 96.55% were susceptible and only 3.44% were resistant. For 177 CR *K. pn*, Categorical Agreement (CA) was 80.79%, 76.83% and 87.57%, Very Major Errors (VMEs) were 6.61%, 27.27% and 10.74% and Major Errors (MEs) were 48.21%, 14.28% and 16.07% by BMD, E-test and Ezy MIC respectively. In the case of CR *E. coli*, 100% CA was seen by both BMD and Ezy MIC while 86.20% was shown by E-test. No VMEs were seen. ME was only shown by E-test i.e. 14.28%.

**Conclusion:** Overall, for CR *K. pn*, the alternative methods were in poor agreement with the reference method while for CR *E. coli*, BMD and Ezy MIC showed reliable results.
CEREBROSPINAL FLUID SHUNT INFECTIONS IN INFANTS AND CHILDREN: RISK FACTORS, CAUSATIVE PATHOGENS, AND OUTCOMES.

Dr. Ankita Chaurasia, Dr. Alka Shinde, Dr. Sujata Baveja
Department of Microbiology, Lokmanya Tilak Municipal Medical College and General Hospital, Sion, Mumbai.

Introduction: Cerebrospinal fluid shunt (CSF) infections are the most frequent and disabling complications with infection rates range from 20 to 40%. Early and prompt intervention of shunt infections can prevent shunt failure, reinfection, long-term neurological outcome and can reduce mortality.

Aims and objectives: To determine the incidence of CSF shunt infections in children undergoing ventriculoperitoneal (VP) shunt; associated risk factors; common bacterial pathogens isolated, their antibiotic susceptibility pattern and therapeutic outcome.

Methods: A one-year prospective study of 90 patients with CSF shunt was included in the study. Shunt fluid was collected at the time insertion of shunt, removal (tip) and whenever clinically suspected infection. Shunt fluids were processed using standard microbiological techniques. Demographic, clinical and microbiological data for initial CSF shunt placement and all subsequent shunt revisions were recorded and analysed statistically.

Results: Out of 90 patients, 20 developed shunt infection, with an overall infection rate of 22.22%. Maximum children infected were less than 2 years old. The commonest underlying condition amongst all the infected cases was congenital malformations 13 (65%). Neurological signs (80%) and fever (45%) were consistent findings among shunt infected patients. Out of 20 clinically infected patients, 10 (50%) were culture positive. The most common organisms isolated were Acinetobacter baumannii 03 and Enterococcus faecalis 2. Out of 20 clinically infected patients shunt revision was done in 12 cases. Reinfection was found only in one patient. The shunt related mortality was 1.11%.

Conclusion: CSF shunt infections can lead to shunt failure, reinfection, adverse neurological outcome, and death. This study signifies the importance of periodic and regular follow up of these patients. Early and prompt intervention of shunt infections can significantly prevent morbidity and mortality.

MICP 331
CB-O25

QUICK SCREENING METHOD OF DETECTING DRUG INTERACTION: A RAY OF HOPE FOR MDR PATIENTS

Dr. Shatabhisha Chakrabarti, Dr. Simit Kumar, Dr. Maitrayee Bandopadhyay, Dr. Reena Ray (Ghosh), Dr. Mitali Chatterjee
R G Kar Medical College and Hospital

Introduction: Many a times the clinicians opt for an antibiotic combination for the treatment of multidrug resistance (MDR) organisms without actually knowing the pros and cons of the therapy. Present day laboratory methods of detecting drug interactions are too tedious to help the clinicians Aim and objectives: a). Generate a simple and quick screening method for detecting antibiotic interactions. b). Identify the commonest antibiotic combinations showing synergism as well as antagonism.
Material and Methods: This is a prospective study carried out in the Department of Microbiology R.G.Kar Medical College and Hospital, Kolkata from April 2019 to September 2019.

Total 100 isolates of different Multi Drug Resistant strains (Acinetobacter spp, Escherichia coli, Pseudomonas aeruginosa, Klebsiella spp) were taken. Each of them was lawn cultured over 3 Muller Hinton Agar plates containing (1) no antibiotic, (2) ½ MIC of Ceftriaxone (c) ½ MIC of Meropenem in the plate respectively. Routine antibiotic susceptibility test was performed by Modified Kirby-Bauer disk diffusion method as per CLSI guideline 2019. The same isolates and antibiotic combinations were subjected to time kill assay and the results were compared.

Results: Out of 100 isolates
(a) Fifty eight (58) showed significant increase in the zone of inhibitions in the plates containing antibiotics suggesting synergism (b) PB+MRP(19%) and AK+CTR(15%) became the commonest synergistic combinations followed by MRP+TGC(13%), MRP+AK(10%), CTR+TGC(8%), MRP+AZM(8%), CTR+C (7%) respectively. (c) Twenty five (25) isolates showed decrease in the zone of inhibitions suggesting antagonism among which CTR+TGC(38%) being the commonest followed by CTR+PB > CTR+COT> CTR+AZM> CTR+C> MRP+PB respectively. All the results were confirmed by Time Kill Assay.

Conclusion: The above method can be a useful screening method for detecting drug interactions, in critical cases infected with MDR organisms and waiting for effective and urgent antibiotic treatment, because of its easy methodology and earliest results.

UTILITY OF BONEMARROW EXAMINATION (BME) IN THE DIAGNOSIS OF INFECTIOUS DISEASES

Dr. Kanne Padmaja*, Dr.Syeda Saba Hashmiya *, Dr. Sukanya Sudhaharan*, Dr.P.Umabala*, Dr.A.Neelima*, Dr.V.D.Teja* Dr.Neha Singh*, Dr.T.Roshni Paul,** Dr.ShantveerUppin**
Dept of Microbiology* & Dept of Pathology**
Nizams Institute of Medical Sciences, Hyderabad, Telangana

Introduction: Bone marrow examination (BME) is an useful tool in the diagnosis of haematological and non-haematological diseases. It plays an important role in early diagnosis of underlying cause of Pyrexia of unknown origin (PUO) and can influence the management of the patients. It is one of the tests recommended in diagnosis of PUO cases along with other diagnostic modalities such as radiological, serological and microbiological evidences.

Aims & Objectives: (1) To review the indications for microbiological evaluation of Bone marrow aspirates (BMA), (2) To assess the usefulness of BMA analysis as a diagnostic tool, (3) To correlate the microbiology results with the findings of Histopathology examination (HPE)

Methods: It is a prospective study conducted from January 1st 2017 to September 30th 2019 (2 years nine months) in the Dept of Microbiology on the Bone marrow aspirates received from various clinical departments from patients of all age groups. Based on modified Durack and Streets criteria all the samples received were classified and analysed. All the isolates were diagnosed by standard methods.

Results: A total of 148 bone marrow aspirates were included in the study. Clinical indications were categorized based on Durack & Streets criteria as classical PUO (n=81/148, 54.7%), Nosocomial PUO (n=4/128, 2.7%) Neutropenic PUO (n=18/148, 12.1%) Immunocompromised PUO (n=45/148, 30.4%) among which SLE cases n=8/45 (22.2%),
HIV n=10/45 (17.7%), and Renal Transplant cases n=27/45 (18.2%). Males were predominant than females in all categories except in SLE cases. A total of 33 BMAs were positive out of which bacterial pathogens were (n=14, 42.4%), Mycobacterial (n=12, 36.3%), fungal (n=4, 12.1%), viruses (n=3, 9%). Histopathological examination (HPE) findings of BMAs were correlated with serological and imaging findings wherever available.

**Conclusion:** This study helped us in highlighting the role of Bone marrow examination as an important diagnostic modality for the etiological diagnosis of infectious diseases along with HPE findings and provides early diagnosis and better management of such cases.

**MICP 134**

**MICROBIOLOGICAL SPECTRUM OF BRAIN ABSCESSION AT A TERTIARY CARE HOSPITAL IN ODISHA**

S Gouda, D Mohapatra, N Chayani
Dept. OfMicrobiology, SCB Medical College, Cuttack

**Introduction:** Intracranial abscesses are a serious life-threatening condition and include brain abscess, subdural empyema and intracranial epidural abscess. A brain abscess is a focal, intracerebral infection that begins as a localized area of cerebritis and develops into a collection of pus surrounded by a well-vascularized capsule.

**Aims & Objectives:** To analyse the microbiological findings in the purulent aspirates obtained from brain abscesses and discuss the changing and evolving spectrum of infectious agents.

**Methods:** Specimen collected from a brain abscess processed in the microbiology laboratory, Gram’s stain and ZN stain were carried out on all specimens for bacteria & acid fast bacilli. Aerobic cultures were performed on 7% sheep blood agar and McConkey agar and incubated at 37°C for 48 hours, before being declared as sterile. All positive cultures were further processed for identification and antibiotic susceptibility patterns. Anaerobic culture was performed on 7% sheep blood agar plates and incubated in the Dynamic micro GASPACK system with Metronidazole disc (5μg). In the pus specimen that showed the presence of fungal filaments on Gram stain, KOH (10%) mount was prepared, and observed under low and high power. The pus specimen further inoculated On Sabouraud dextrose agar with and without antibiotic, at room temperature and at 37°C. Colonies obtained were subjected to slide cultures and morphology was studied using laco phenol cotton blue stain.

**Results:** Pus culture was positive in 57.89% of cases. Anaerobic organism was found in 0.9%, Fungi in 0.9%. Staphylococcus was the commonest offending organism followed by Streptococcus and Pseudomonas. Pseudomonas was the most resistance organism.

**Conclusion:** Brain abscesses though rare in developed countries but still common in developing countries and are serious & life threatening infections that pose a diagnostic challenge both to neurosurgeons & microbiologists.

**MICP 333**

**ARE WE MISSING MYCOBACTERIAL BLOOD STREAM INFECTIONS? VISION OF A TERTIARY CARE HOSPITAL FROM NORTH INDIA**

CB-O27

CB-O28
**Monika Mahajan, Prakriti Gupta, Sudesh Rana, Archana Angrup, Pallab Ray**
PGIMER, Chandigarh

**Introduction:** Nontuberculous mycobacteria are considered as emerging pathogens and cause outbreaks and pseudo-outbreaks. The infections are caused in both immuno-compromised and immuno-competent patients in clinical syndromes ranging from mild skin and soft tissue infections to severe ones like osteomyelitis, lymph node infections and disseminated blood stream infections (BSI). They also have a propensity to create biofilms and colonize intravascular catheters. Despite this BSI by NTM are reported rarely.

**Aims and Objectives:** The data regarding mycobacterial BSI and antimicrobial susceptibility testing originates from developed countries. Early detection and speciation help clinicians decipher targeted therapy. Henceforth, there is a need to review the possibility of picking up mycobacteremia.

**Material and Methods:** The study was conducted in the Department of Medical Microbiology from April 2018 to July 2019. Automated Blood culture systems; BACTEC™ 9240, BACTEC™ FX 40 were used. All the signal positive bottles were sub-cultured on blood agar and MacConkey agar. From suspected dry, scanty colonies, Gram stain and Ziehl-Neelson staining was done. Identification of acid-fast bacilli (AFB) was done using MALDI-TOFMS following on plate formic acid extraction. The isolates which gave non-reliable identification were identified by sequencing.

**Results:** Eighteen isolates showed faintly purple Gram positive bacilli on Gram stain and AFB on ZN staining and also grew atypical mycobacteria. Fourteen grew *Mycobacterium abscessus* and four grew *Mycobacterium mucogenicum, M. fortuitum, Mycobacterium brisbanense*.

**Conclusion:** *Mycobacterium abscessus* was the commonest species isolated. Reporting of mycobacteria in BSI is multifactorial; which is attributed to high index of suspicion and technical expertise. Moreover, blood culture processing protocols need revision in terms of longer incubation period. Before discarding an isolate as insignificant from the smear resembling diphtheroids, one should think of mycobacteria and carry AFB staining. Resource constrained settings lack infrastructure for speciation. Nonetheless, AFB should be reported and confirmation can be done at reference laboratories. Accurate and timely reporting of mycobacterial BSI will be a step forward towards antimicrobial stewardship.

**MICP 43**

**NEONATAL SEPSIS: ROLE OF INTERLEUKIN-6 AND TUMOUR NECROSIS FACTOR-A IN RAPID DIAGNOSIS AND ITS COMPARISON WITH AUTOMATED BLOOD CULTURE**

Nirjhar Chatterjee, Anuradha De, Sushma Malik, Jayanthi Shastri
Departments of Microbiology & Pediatrics, T. N. Medical College, Mumbai

**Introduction:** Neonatal sepsis is a clinical syndrome of bacteremia characterized by systemic signs and symptoms of infection in the first month of life. A delay in instituting therapy affects outcome. Rapid diagnosis and treatment is the absolute need of the hour. Blood culture has a long turnaround time. Taking this into perspective, the present study was undertaken to find out the importance of two inflammatory markers in the rapid diagnosis of neonatal sepsis.
**Aim and Objectives:** To compare the utility of Interleukin-6 and Tumour necrosis factor-α with automated blood culture in rapid diagnosis of neonatal sepsis.

**Methods:** This prospective cross-sectional study was carried out in the Neonatal Intensive Care Unit (NICU) of this institute for one year (from September 2017 to August 2018). Sixty neonates with clinically suspected sepsis were included in this study and their blood cultures were processed in automated system BACTEC 9120. Enzyme Linked Immunosorbent Assay (ELISA) was performed according to the kit insert for IL-6 and TNF-α. Values were compared to blood culture positivity.

**Results:** In this study, sensitivity and negative predictive value of both IL-6 and TNF-α was 100% as compared to blood culture. IL-6 was shown to be a better marker than TNF-α in the rapid diagnosis of neonatal sepsis, both in early- and late-onset. This study also proved that both IL-6 and TNF-α jointly have a high sensitivity and are comparable in specificity to blood culture, as compared to any of these two markers done independently.

**Conclusion:** Inflammatory markers namely IL-6 and TNF-α are excellent predictors of neonatal sepsis and have a rapid turnaround time. This study highlights the importance of cytokine estimation for rapid diagnosis of neonatal sepsis, enabling effective management and better prognosis.

**MICP 206**

**CORRELATION OF ANTIBODIES AGAINST NUCLEAR ANTIGEN USING IMMUNOFLUORESCENCE PATTERN AND LINE IMMUNO ASSAY PROFILE IN AUTOIMMUNE DISEASES**

Dr. Kshitiza Pandey, Dr. Sulekha Nautiyal, Dr. Geetika Rana, Dr. V.K. Kataria
SGRR Medical College & HS, Dehradun

**Introduction:** Autoimmunity is a condition characterized by a specific humoral or cell mediated immune response against constituents of the body’s own tissues. Diagnosis of AD is based on clinical presentation, laboratory diagnosis and radiological diagnosis. Laboratory diagnosis involving detection of antibodies directed against nuclear and cytoplasmic components of the cell. Gold standard test to detect antibodies against nuclear antigen is IFA which detects the presence of ANA in serum. Other tests that can be used for ANA detection are ELISA, anti-extractable nuclear antigen, line immune assay etc.

**Aim & Objectives:** To study the ANA–IFA pattern in patients with suspected Autoimmune diseases, To determine the Autoantibody profile by LIA in patients with suspected Autoimmune diseases, To study the correlation between ANA-IFA pattern and Autoantibody profiles

**Methods:** It is a prospective comparative study done in our tertiary care hospital over a period of 1 year. Serum was collected and used within 72hrs. ANA was detected by Immunofluorescence assay using HEp-20-10/liver cell. All the samples which came out to be positive or negative by IFA were further evaluated by Line Immuno Assay.

**Results:** Out of total 178 subjects, 118 suspected cases were included in study group and 60 healthy individuals in control group. Female preponderance was noted in both groups with maximum cases belonging to 31-50 year of age group. IFA was positive in 49.15% samples in study group & 21.6% in control group. Most common pattern observed in IFA was Nuclear homogenous. LIA was positive in 45.7% cases in which maximum antibodies were detected against dsDNA antigen. In study group of the 49% IFA positive samples 40.6% samples were also positive for antibodies by LIA and 5% additional cases which were negative by IFA.

**CIIm-O2**
were found positive by LIA. Statistically strength of correlation between patterns in IFA & bands in LIA is established.

**Conclusion:** A combination of IFA & LIA can serve as a better tool for early and accurate diagnosis of autoimmune disease. In control group 25% were observed as positive for ANA using both IFA and/or LIA. Thus there remains a possibility of such individuals developing autoimmune diseases in the future.

**MICP 318**

**ASSOCIATION OF AUTOIMMUNE THYROIDITIS WITH RHEUMATOID ARTHRITIS**

Dr. Abhilasha Dalal, Dr. Anuradha K
Department of Microbiology Mysore Medical College and Research Institute, Mysore

**Introduction:** Autoimmune thyroid diseases (AITD) can be regarded as the most common autoimmune endocrine disease. The prevalence of AITD in the general population varies between countries. Rheumatoid arthritis (RA), in turn, is a chronic, complex, and heterogeneous Autoimmune Disease, most common inflammatory arthropathy worldwide.

**Aim and Objective:** To determine the association of autoimmune thyroiditis with Rheumatoid arthritis

**Methods:** Serum samples which showed high TSH were included for the study. These samples were subjected for ANA and Anti TPO by ELISA and RF test by Latex agglutination.

**Results:** A total of 76 samples, 38 each of clinical & subclinical hypothyroidism with normal and low T3, T4 respectively were collected. Out of 76 samples positive results were seen for ANA 6 (7.8%), anti TPO 21 (27.6%) and RF 2 (2.6%). All the 6 samples which were positive for ANA were positive for anti TPO. Among the clinical cases ANA and anti TPO positivity was found in 1 & 11 cases respectively. Whereas in subclinical cases ANA was positive in 5 and anti TPO in 9. The subclinical 2 (2.6%) cases which were positive for RF test were also positive for ANA and Anti-TPO.

**Conclusion:** There is 2.6% association between thyroid autoimmune disease and Rheumatoid arthritis. So those who have thyroid dysfunction can be looked for early detection of RA so that early management will reduce the joint destruction and morbidity. Those with only anti TPO positive has AITD may need follow up to look for development of ANA indicative of systemic AID The study needs to be done in a larger group to give statistical significance

**MICP 329**

**ED-O1**

**ESTABLISHMENT OF STATE VIROLOGY LABORATORY IN A GOVERNMENT MEDICAL COLLEGE; CHALLENGES AND THE ROAD AHEAD**

Dr Deepti Chaurasia, Dr Jaya Lalwani, Dr Garima, Dr RK Shrivastava, Dr Deepak Dubey, Dr Aseem Rangnekar
Gandhi Medical College, Bhopal
Introduction: In the view of epidemics and outbreaks of viral diseases in the state of Madhya Pradesh, a Biosafety Level 2+ State virology laboratory was proposed under the 13th finance commission in the Department of Microbiology, Gandhi Medical College, Bhopal in the year 2010. At that time, there was no virology laboratory in the entire state, and the samples for viral diagnostics were sent to distantly placed virology laboratories, resulting in logistic and technical problems. Also, there was a significant delay in reporting of results because of over burden in the national laboratories. Therefore, an urgent need for a state viral diagnostic facility was felt.

Aims and Objectives: To develop a road map for viral diagnostic laboratory in the state, to develop serological and molecular diagnostic facilities, establishment of virus culture facilities for viral diagnosis and research, provide training and support to peripheral and district laboratories.

Methods: Introspective analysis of every aspect was done at each step of implementation. The process of establishment of the State virology laboratory included development of infrastructure, trained manpower and procurement of equipment and consumables etc. The entire journey starting from scratch to making a fully functional laboratory was full of administrative, technical, and non-technical difficulties and was a great learning experience.

Results and Conclusion: In a phased manner, the laboratory has started molecular and serology testing for Influenza, Systemic Febrile Illness, Encephalitis, Exanthematous Fever, TORCH and Hepatitis, along with outbreak investigations for Measles & Rubella. The laboratory has been enrolled with various national and global level programs in strengthening disease surveillance and outbreak control, thus helping the nation and the state in tackling emerging viral diseases.

MICP 336

ED-O2

A COMPARATIVE STUDY ON THE DIAGNOSIS OF ORIENTIA TSUTSUGAMUSHI INFECTION BY SEROLOGICAL TEST VERSUS MOLECULAR METHOD OF TESTING IN KOLKATA

Debopriya Chakraborty, Srima Adhikary, Bhaswati Bandyopadhyay
Department of Microbiology, School of Tropical Medicine, Kolkata

Introduction: Scrub typhus is caused by *Orientia tsutsugamushi*. In the recent past, scrub typhus has been reported from different parts of India based on Weil–felix or ELISA testing. Molecular tests are applied only by a few researchers in few institutions.

Aims and Objective: Evaluation of conventional DNA-PCR testing and comparing it with commonly used IgM ELISA testing during July 2018 – July 2019.

Methods: Blood samples of patients suspected with scrub typhus were tested which were referred from other hospitals in Kolkata. IgM ELISA was carried out and all the ELISA reactive samples were subjected to conventional DNA-PCR.

Results: 476 out of 1170 samples (40.68%) were REACTIVE by ELISA testing. 177 out of 476 samples (37.1%) were positive by DNA-PCR testing for *Orientia tsutsugamushi* 56kDa type specific gene. Scrub typhus cases were mainly seen in pediatric age groups (80%). The DNA-PCR positive cases were mainly in patients who presented with fever less than 7 days. The reasons for PCR positive and ELISA non-reactive cases may be attributed to poor sample collection/transportation, cross-reactivity with other seasonal febrile illnesses and poor patient
compliance in providing paired samples. Kato and Karp strains were mainly predominant in this part of the country.

**Conclusion:** Molecular diagnosis of scrub typhus should be carried out within first week of febrile illness in suspected cases. Due to reasonable levels of sensitivity and specificity of scrub typhus IgM ELISA kit, its continued usage may be unavoidable until DNA-PCR becomes easily available and affordable. Use of both PCR and ELISA would identify more number of true positive scrub typhus cases.

**MICP 217**

**ED-O3**

**CANDIDA AURIS: A NEW ENEMY READY TO INVADE**

Dr Daisy Bacchani, Dr Ved Prakash Mamoria, Dr Mohit Agrawal
Department of Microbiology, Mahatma Gandhi Medical College, Jaipur

**Introduction:** Worldwide *Candida auris* (*C. auris*) has been identified as an emerging pathogen which was first reported in Japan in 2008 and since then it has been reported in 30 other countries including India. Despite the implementation of enhanced infection prevention and control measures, it is particularly concerned with nosocomial outbreak in intensive care settings. The increase in prevalence of infections by non *Candida albicans* is because of irrational use of anti-fungal agents. Recently the first ever MDR case of *C. auris* was detected in Canada in 2017, having a two-year history of ear complaints after returning from India. It is important to know about this yeast and its changing pattern because it is highly resistant and is often misidentified leading to improper treatment.

**Aims & Objectives:** To check the incidence of *C. auris* that are isolated out of all the yeast samples in a study of 1 year from 01.09.2018 to 26.09.2019 in all positive Bactec blood cultures.

**Methods:** *C. auris* was isolated from Vitek 2 compact systems and it was then put on CHROM agar for colony characterisation. Antifungal antibiotics were also added to check resistance.

**Results:** Out of total 617 samples in one year, 34 of them were yeast, and out of that 7 were *C. auris*, i.e., 20.59% of all the yeasts isolated & 1.13% of total Bactec samples in a year.

**Conclusion:** *C. auris* has the potential to significantly impact morbidity, mortality in patients and also the quality of health care infrastructure. There are still several unanswered questions regarding its natural environment, sudden emergence, population prevalence, transmission dynamics, acquisition of antifungal resistance, effectiveness of IPC measures and about impact on mortality.

Biofilm formation is an important factor in nosocomial spread, various strict measures must be taken to prevent its spread. Whether this fungi is here to stay, or will it disappear as quickly as it seems to have appeared, only time will tell.

**MICP 181**

**ED-O4**

**VIRAL AETIOLOGY FOR FEVER WITH RASH SYNDROME IN INDIA: 2014-2019**
Introduction: Understanding the etiological factors responsible for fever with rash syndrome is challenging for developing countries such as India. With India’s goal of Measles and Rubella elimination by 2023, significance of strengthening sensitivity of the surveillance system to detect multiple aetiologies of fever and rash syndrome has further escalated.

Aims and Objectives: In order to strengthen the laboratory capacity across the country, the Department of Health Research have established a network of Viral Research & Diagnostic Laboratories (VRDLs). This study involves analysis of the data generated by 61 VRDLs during March 2014 till August, 2019 to describe the proportionate aetiology due to four different viruses responsible for fever with rash syndrome.

Methods: VRDL network performs the diagnosis of emerging/re-emerging viral diseases through a syndromic approach. One of the syndrome – fever with rash involves diagnosis of four viral aetiologies – measles, rubella, dengue and chikungunya. The diagnostic test applied for detecting the four viruses are both molecular and serological depending upon the duration of onset of illness. Standard algorithm for detecting aetiologies of fever and rash syndrome has been developed and disseminated to the VRDLs. Data generated by 61 VRDLs in five different zones of the country has been analysed to describe the region-wise overall positivity and peak age group for positivity.

Results and Conclusion: Between March, 2014-August, 2019, 22.8% (61779/270680) cases of fever with rash tested for dengue were positive. The proportion of positivity was higher in the age group of 10-20 years (27.4%). 20.8% (6564/31621) samples were positive for Chikungunya, with the northern region reporting the maximum proportion of Chikungunya cases. The most affected age group for chikungunya virus was 40-60 years (29.3%). 29.8% (623/2092) and 42.4% (1366/3221) cases were positive for measles and rubella respectively. Age group of 0-5 years (27%) and 10-20 years (33.7%) were the most common for measles and rubella positivity respectively. Laboratory testing at VRDLs demonstrates substantial proportion of fever with rash due to viral etiologies across the country. However, the data has limitations: (i) VRDLs mostly test for referred samples from field and hospital. The samples represent a wide geographic area; (ii) Non-viral aetiologies of fever and rash have not been considered.

MICP 12

POST OPERATIVE STERNAL WOUND INFECTION DUE TO NOCARDIA AFTER OPEN HEART SURGERY: 2 CASE REPORTS

Jhansi Vani MD(Micro)¹, Ramasubramayam MS, Mch²
1. Department of Microbiology, CARE hospital, Road No.1, Banjara Hills, Hyderabad, Telangana
2. Department of Cardiothoracic Surgery, CARE hospital, Road No.1, Banjara Hills, Hyderabad, Telangana

Surgical site infection (SSI) is second most common nosocomial infection in healthcare facilities. Open heart surgery is a clean surgery and sternal wound infection after open heart surgery has a great impact on the patient both psychologically and financially. Surgical site
infections are preventable infections if stringent infection control practices are followed. Although post-operative bacterial surgical site infections are common, SSI due to Nocardia is rare. Nocardia species are aerobic Actinomycetes ubiquitously found in soil and aquatic habitats. Nocardia are beaded gram positive, branching rods that are partially acid-fast. We present two cases of post-operative sternal wound infection caused by Nocardia after open heart surgery. Both patients had positive culture which was identified as *Nocardia cyriacigeorica*. One patient was initially treated with Linezolid, but he developed drug side effects. Then linezolid was stopped and Trimethoprim-sulfamethoxazole was prescribed. Second patient had received Trimethoprim-sulfamethoxazole. Both patients were responded well to the treatment.

MICP 137

STUDY OF NEEDLE STICK INJURIES AMONG HEALTH CARE WORKERS FROM A TERTIARY CARE HOSPITAL

Renu Kumari, Amiyabala Sahoo, Shalini Malhotra, NJK Bhatia, Nandini Duggal
Department of Microbiology, Dr. RammanoharLohia Hospital, New Delhi

**Introduction**: Needle stick injuries (NSIs) are the injuries that are caused by several types of needles used in various departments. As a result, HCWs are at risk of occupational acquisition of blood borne pathogens such as HIV, hepatitis B and C, and other diseases by these NSI. These injuries not only potentiate health consequences but also cause emotional distress in health care workers which results in missed workdays and directly affects the health care services and resources.

**Aims and objectives**: To study the pattern of needle stick injury among the health care workers and importance of PEP and follow up after these injuries in health care setting.

**Methods**: This was a retrospective study conducted from Jan 2017 to August 2019. The population under study included senior residents, junior residents, interns, nursing staff, lab technicians and sulabh workers exposed to needle stick injury. Data were analyzed for the type of needle stick injury, status of source, receiving of PEP and further follow up of health care workers.

**Results**: A total of 175 health care workers were accidently exposed to needle stick injury out of which the status of HIV/HBV/HCV of 10 sources were unknown and 2 source samples were HIV positive and 2 were HBV positive. Amongst 175 exposed HCW 30 received PEP. The baseline testing of all exposed HCW revealed nil positivity for HIV/HBV/HCV except for one exposed HCW who was found to be reactive for HCV on baseline testing. Further follow up of these health care workers was undertaken according to NACO guidelines.

**Conclusion**: Preventing NSIs is the most effective way to protect healthcare providers from the infectious diseases that are transmitted by accidental exposure to needle stick injuries. Once exposed adequate & timely PEP & follow up of these HCW till 6 months is important.

MICP 148

A PROSPECTIVE STUDY OF NOSOCOMIAL INFECTIONS AT A TERTIARY CARE HOSPITAL: A CLARION CALL FOR INFECTION CONTROL
Introduction: The most common adverse event in hospitalized patients is hospital-acquired infections. It affects millions of patients each year leading to significant mortality and financial loss. The endemic burden is also high in low and middle income countries particularly in intensive care units. Insipite of this, little has been done over the decades to address such a potent problem.

Aims and Objectives: To identify and compare the rates of nosocomial infections in various wards in the hospital and isolation and identification of microorganisms responsible for the same along with their antimicrobial susceptibility patterns.

Methods: This is a prospective, observational, tertiary care hospital based study carried out from January 2019-September 2019 at the Carmichael Hospital For Tropical Diseases, a 162 bedded hospital. All patients, admitted for more than 48 hours were included in the study. Nosocomial infections were identified using the CDC surveillance guidelines. Patient records were collected and analysed accordingly. After proper collection of relevant samples, isolation of pathogen was done by following standard laboratory guidelines. Antimicrobial susceptibility testing was performed using CLSI guidelines. For both identification and susceptibility testing, Vitek 2 was also used.

Results: During the study period, 2230 patients were admitted, out of which 115 patients were identified to be affected with nosocomial infections. 56% of the patients thus identified were admitted in the Intensive Care Unit. The most prevalent infection was found to be catheter associated urinary tract infection (43.4%) followed by nosocomial pneumonia (29.5%) and bloodstream infections (14.7%). The most common organisms responsible for same was Klebsiella pneumoniae most frequently isolated from patients with hospital acquired pneumonia, followed by Acinetobacter baumaniiplx. The most common fungal isolate was Candida albicans, that was most commonly isolated from catheter-associated urinary tract infections. All bacterial isolates were multidrug resistant.

Conclusion: The present prevalence rate of nosocomial infections (5.1%) with the widespread prevalence of multidrug resistant organisms is a call to implement proper infection control guidelines and antibiotic stewardship measures.
Aims & Objectives: To determine the incidence of CRBSI and risk factors associated with it, in ICU patients and to determine the bacteriological profile and antimicrobial susceptibility pattern of the isolates.

Methods: 80 samples comprising of blood and catheter tips were collected from patients admitted in ICUs. Samples were collected in BACT/ALERT blood culture bottles and after getting positive signals in BACT/ALERT, subcultures were made in Blood and MacConkey agar. Distal 5 cm of intravenous catheter tips were cut, processed as per Maki roll method in Blood agar media. Isolates were processed as per standard protocols.

Results: CRBSI rate of 4.1 per thousand catheter days and incidence of 11 (13.75%) was observed. The incidence of CRBSI was higher in catheters which were kept in place for more than ten days in 8 (72%) of CRBSI cases. CRBSI rate was higher in catheters inserted via femoral vein in comparison with jugular and subclavian vein (p = 0.0025). Mortality rate was also higher with CRBSI cases. Acinetobacter baumannii predominates among the isolates, followed by budding yeasts (Candida auris) and CONS. Isolate of Klebsiella pneumoniae was an ESBL producer. Acinetobacter baumannii were MBL producers.

Conclusions: Duration of catheterization and catheter insertion site were independent risk factors for catheter related bloodstream infection. The judicious use of antibiotics, stringent precautions while inserting, handling intravenous catheters will improve the overall infection related morbidity and mortality. This study revealed trends of prevailing bacteria and their susceptibility pattern to routinely used antibiotics and the prevailing high level of resistance.

MICP 166

PREVALENCE OF MICROBIAL BIOFILMS IN HOSPITAL ENVIRONMENT IN A TERTIARY CARE HOSPITAL, SOLAPUR

Dr. Apeksha Ghule, Dr. Mangala Ghatole
Ashwini Rural Medical College, Hospital & Research Centre, Kumbhari, Solapur

Introduction: Prevalence of Healthcare infections caused by multidrug resistant pathogens are increasing, biofilms are emerging as an important predisposing factor. According to a recent public statement from the NIH, more than 65% of all HAI infections are caused by biofilms. The present study is planned to study the prevalence of biofilms in different areas of the hospital so that it will be helpful to take appropriate cleaning measures to prevent health care associated infections.

Aims and Objective: To detection of biofilms in the hospital environment, identify the organisms forming these biofilms and study their antibiotic profile.

Methods: This is a prospective study carried out in a tertiary care centre. A total of 115 swabs were collected from different inanimate objects like bed railings, dressing trolley, etc from ICU, operation theater and wards. Swabs were cultured on BA, McConkey agar, isolates identification and AST (CLSI) was done by standard protocol. The isolated organisms were subjected to Biofilm detection by qualitative Tube method described by Christensen et al.

Result: In the present study from 115 swabs collected 139 organisms were isolated, of which Coagulase negative staphylococci were predominant (30.2%) followed by Klebsiella aerogenes (22.3%) followed by CONS (20.8%). These organisms when subjected to biofilm production Klebsiella aerogenes (51.6%) was the predominant biofilm producer followed by CONS (33.3%). Grading of biofilm production showed that CONS (57.1%) and Klebsiella aerogenes (56.3%) were strong biofilm producers.
Antibiotic susceptibility pattern of the isolates showed all the organisms were resistant to 2-4 antibiotics.

**Conclusion:** Hospital environments are colonised with biofilm producing bacteria. These bacteria were CONS, *Klebsiella aerogenes*, *pseudomonas aeruginosa* etc. Predominant biofilm producers were, *Klebsiella aerogenes* and CONS.

**MICP 194**

**HCAI-O6**

**BACTERIOLOGICAL PROFILE AND ANTIBIOTIC SENSITIVITY PATTERN OF ENDOTRACHEAL TUBE ASPIRATES OF PATIENTS ADMITTED IN INTENSIVE CARE UNIT**

Samal N, Padhi S, Paty B, Sahu S, Narasimham M. V., Mohanty I, Parida B
Department of Microbiology, MKCG Medical College, Berhampur, Odisha

**Introduction:** Mechanical ventilation is a life saving process, but it comes at a high risk of acquiring respiratory tract infection. This is due to the complex interplay between the endotracheal tube, host immunity and virulence of the invading bacteria. To initiate empirical antimicrobial therapy, knowledge of microbial profile & local antimicrobial resistance pattern is essential.

**Aim & Objective:** To isolate and identify the aerobic bacteria from endotracheal tube aspirates, study their AST and test biofilm production and to detect prevalence of VAP

**Methods:** Prospective study, conducted for a period of 4 months including 56 patients under mechanical ventilation for more than 48 hours. Endotracheal tube aspirates were processed for gram staining and culture on MacConkey agar & Blood agar. The isolated bacteria were identified by standard identification method. Antimicrobial susceptibility pattern of the isolated organism was performed & they were tested for biofilm production by Congo red agar method.

**Results:** Among 56 ET aspirates, 48 samples (85.7%) were found to be culture positive. Predominant isolate was *Acinetobacter* spp.(45.8%), followed by *Pseudomonas* spp. & *Klebsiella* spp. (16.6%) each. Biofilm was produced in 81.8% of *Acinetobacter* spp., 75% of *Pseudomonas* spp. & 100% of *Staphylococcus aureus*. Most of the *Acinetobacter* spp. were resistant to 1st line antimicrobials and 81.8% were sensitive to imipenem. 75% of *Pseudomonas* spp. & 25% of *Klebsiella* spp. were sensitive to imipenem. All of the *Staphylococcus aureus* were sensitive to linezolid & resistant to cefoxitin.

**Conclusion:** The commonest organism isolated was *Acinetobacter baumannii* followed by *Pseudomonas* spp. A local antibiogram for each hospital, based on bacteriological patterns & susceptibilities is essential not only to initiate empirical therapy but also to prevent poor outcomes in intubated patients & framing the appropriate institutional antibiotic policy.

**MICP 195**

**HCAI-O7**

**PREVALENCE OF CARBAPENEM RESISTANT ENTEROBACTERIACEAE IN URINARY ISOLATES: AN ALARMING SIGN**

56
Introduction-The evolution of resistant strains is a natural phenomenon that occurs when microorganisms replicate themselves erroneously or when resistant traits are exchanged between them. The use and misuse of antimicrobial drugs accelerates the emergence of drug-resistant strains. Carbapenems are broad spectrum β-Lactam antibiotics & are the last resort to control infections caused by gram negative bacteria. The increasing resistance to these antibiotics is an alarming sign. CRE (Carbapenem resistant Enterobacteriaceae) is reported due to acquisition of carbapenemase genes or association with decreased outer membrane permeability with β-lactamases with weak carbapenemase activity. The carbapenem resistant trait being non-transferable compared to carbapenemase genes making carbapenemase non-producers less important from public health perspective.

Aims & Objectives-To detect prevalence of carbapenem resistance among members of Enterobacteriaceae family by Modified Hodge Test (MHT) & Modified Carbapenem Inactivation Method (mCIM)

Methods-The study was conducted in the Department of Microbiology, Gajra Raja Medical College, Gwalior from January 2019 to June 2019. Total 185 culture positive urine samples were included in which carbapenem resistance was identified using Kirby Bauer disc diffusion method and the resistant strains were assessed for carbapenemase production by MHT & mCIM simultaneously.

Results-Out of total 1596 urine samples received, 185 were members of Enterobacteriaceae family. The maximum isolates were Escherichia coli 86 (46.49%) followed by Klebsiella pneumoniae 31 (16.76%), Klebsiella oxytoca 13 (7.02%), Klebsiella aerogenes 10 (5.40%), Proteus vulgaris 12 (6.48%), Proteus mirabilis 7 (3.78%), Citrobacter freundii 21 (11.35%), Citrobacter koseri 5 (2.70%). Carbapenem resistance was seen in 32 (17.30%) isolates mostly affecting elderly age group and there was no gender association. The positivity rate for MHT was 22 (68.75%) while for mCIM was 32 (100%).

Conclusion-Prevalence of Carbapenem resistance in our hospital is 15.27%. Thus, simple, rapid, cost effective tests to identify & distinguish resistant pathogens for improving patient outcome, facilitating efficient infection control & decreasing escalation of resistance.

MICP 211  HCAI-O8

STUDY DETERMINING ORGANISM/ORGANISMS THAT COLONIZE THE CENTRAL LINES AND THEIR SENSITIVITY PATTERNS

Dr. Sanjith Saseedharan*, Dr. Prasad Udhoji#
*Head- ICU, #Critical care fellow. Raheja hospital

Introduction: Central lines, frequently needed in ICU, can contribute to patient mortality and morbidity if deemed the source for blood stream infection. Biofilm formation (secondary to microbial contamination with fungus or bacteria) around catheters can cause release of planktonic cells, causing blood stream infection. This colonisation and biofilm formation on catheter surfaces is known to occur as early as 24 hours after insertion. It is highly likely that this coloniser (microorganism) may be responsible for the future central line related blood stream infection.
Aims and objectives: The authors of this paper decided to study the organisms colonised in central line and their association with time of central line insertion, apache score, nutritional status and comorbidities.

Methods: In observational study at S.L. Raheja hospital, 50 consecutive central lines from adult (>18 years) patients were included and the terminal 5 cm of the central lines inserted by trained ICU Registrar, was cut aseptically and cultured in microbiology laboratory (Maki’s and subculture method of lumen) and colony counts determined by microbiologist. Growth of ≥ 1 microorganism in a quantitative or semiquantitative culture of catheter tip was defined as colonization. Organism isolation and susceptibility testing done as per CLSI guidelines 2017.

Results and conclusion: Incidence of colonization of central line tip was 32% or 31.13 per 1000 catheter days. 50% organisms were gram positive bacteria, 27.8% were gram negative and 22.2% candida species. This study revealed a clinical relationship between the duration of central line in situ and the colonization while initial disease severity as detected by APACHE score had no effect on colonization rate. There was no relationship between the presence of comorbidities and the colonization of central line.

MICP 242

HCAI-O9

A STUDY OF COAGULASE NEGATIVE STAPHYLOCOCCI (CONS), AN EMERGING PATHOGEN CAUSING BLOOD STREAM INFECTION AT A TERTIARY CARE HOSPITAL, KOLKATA

Mekhala Taraphdar, Banya Chakraborty, Malabika Biswas
Calcutta School of Tropical Medicine, Kolkata

Introduction: Coagulase negative staphylococci (CoNS) have become major healthcare problem, especially in intensive care unit, elderly and immunocompromised patients. Recent years have seen a rise of coagulase-negative staphylococci (CoNS) from common contaminants to agents of nosocomial blood stream infections (BSI’s).

Aims & Objectives: We aim for isolation of clinically significant CoNS among blood stream infections and identification of different species of CoNS and their antibiotic susceptibility pattern.

Methods: A hospital-based cross-sectional study was conducted, wherein 786 blood samples were received and 33 patients with BSI due to CoNS were evaluated over a period of September 2018-August 2019. CoNS were identified by standard textbook guidelines and by Automated VITEK 2D. Susceptibility of isolates was done by Kirby-Bauer disc diffusion method as per CLSI guidelines 2019 and by vancomycin screen agar for vancomycin & determination of MIC done by “E strips” method and by Automated VITEK 2D.

Results: A total 786 blood culture samples were screened among which 33 cases of CoNS blood stream infection were identified, comprising 3.8% of blood culture samples. Among 33 isolates, the most common species was Staphylococcus haemolyticus (33.33%) followed by Staphylococcus epidermidis (27.27%), Staphylococcus hominis (18.18%), Staphylococcus caprae, Staphylococcus warneri and Staphylococcus lentus. All 33 BSI for CoNS were nosocomial and all patients were immunocompromised of which 66.67% HIV+ve, 33.33% have type 2 diabetes mellitus followed by prolonged corticosteroid use, tuberculosis, chronic disease, malignancy and spleenectomy. 100% susceptibility was noted towards linezolid and vancomycin. Methicillin resistant CoNS (MRCoNS) were 70% and MRCoNS were fluoroquinolone resistant.
Conclusion: Antibiotic resistance in CoNS is increasing towards penicillin, fluoroquinolones day by day. From our study, it is seen that MRCoNS is common in hospital setting. Vancomycin, linezolid showed good susceptibility. So that, they should be preserved as reserve drug and their use should be judicious enough to make guidelines for antibiotic policy.

MICP 309

EXTENDED SPECTRUM BETA LACTAMASE AND METALLO BETA LACTAMASE PRODUCERS CAUSING VENTILATOR ASSOCIATED PNEUMONIA IN ADULTS: A GENOTYPIC AND PHENOTYPIC CORRELATION

Dr. Bipanchi Mahanta, Dr. Achinta Kumar Borthakur, Dr. Anup Kumar Das, Dr. Jagadish Mahanta
1Jorhat Medical College, Dibrugarh, Assam, 2Dept of Microbiology, Assam Medical College, 3Dept of Medicine, Assam Medical College, 4Ex Director, Distinguished Scientist Chair, Regional Medical Research Center for Northeast, ICMR

Introduction: Ventilator-associated pneumonia (VAP) is the most frequent ICU acquired infection. More than 60% of VAP is caused by aerobic Gram negative bacilli and their drug resistance patterns vary from place to place. Reports of VAP from Northeast India are scanty. Emergence of Extended spectrum beta lactamase (ESBL) and Metallo beta lactamase (MBL) producers is high in ICUs. Therefore, early detection is important to control their rapid spread.

Aims and Objectives: To know the burden of ESBL and MBL producers causing VAP among ICU admitted adult patients in Assam Medical College and to estimate the concordance between genotypic and corresponding phenotypic expression.

Methods: This prospective study was carried out in Assam Medical College from June 2017 to May 2018. Endotracheal aspirates were collected from all clinically suspected adult cases of VAP admitted to the Central ICU and Medicine ICU. Culture sensitivity tests were done following CLSI guidelines. Identification of ESBL and MBL production was confirmed by PCR. All molecular confirmed MBL producers were correlated for phenotypic expression by double disc method.

Results: Out of 95 cases, 28(29.47%) patients developed VAP with Clinical Pulmonary Infection Score (CPIS score) >6. Total 39 bacterial isolates were obtained and all were multidrug resistant. Klebsiella pneumoniae (28.2%) was highest followed by Acinetobacter baumannii (25.6%). More than 90% isolates were ESBL positive and 70% was Carbapenem resistant with presence of MBL encoding genes. Only Colistin and Tigecycline were 100% sensitive. Phenotypic test for MBL production was concordant with blaVIM for Acinetobacter baumannii, blaNDM for Pseudomonas aeruginosa and both the genes for Klebsiella pneumoniae.

Conclusion: The high multidrug resistance, calls for urgent infection control protocol in ICUs. Combination of β-lactamase inhibitors and Carbapenems can be used empirically. In low resource settings, screening tests can be used in lieu of genetic analysis as these tests were not significantly different.

MICP 311

MICROBES ON OUR MOBILE PHONES: THE MINI MONSTERS BACTERIOLOGICAL PROFILE OF MOBILE PHONES OF INTERNS IN A TERTIARY CARE HOSPITAL
**Introduction:** Mobile phones have become an integral part of our lives in this modern era. Health care professionals are no different in using mobile phones without restriction. Mobile phones being an indispensable means of communication in hospitals and the community are used unhindered without the knowledge of their microbial load. Hence mobile phones could be a potential cause of Hospital-acquired infections. Interns/House surgeons are a core group of health professionals that cover major critical and non-critical areas of the hospital. So, the present study was taken up.

**Aims and Objectives:** To isolate and identify aerobic bacteria from various surfaces of mobile phones of Interns and to study the antibiotic susceptibility pattern of the isolated organisms.

**Methods:** A cross-sectional study was done from June-August 2019. A total of 132 samples were collected from mobile phones of interns. Specimens were collected and subjected to culture and antibiotic susceptibility testing, according to CLSI guidelines.

**Results:** Seventy (70%) of mobile phones were found to be contaminated with bacteria (93 out of 132 isolates). Coagulase-negative staphylococcus (40) was the most commonly isolated organism followed by Methicillin-resistant staphylococcus aureus (MRSA) 18 isolates and MSSA (14) isolates. Among Gram-negative bacteria, Escherichia coli (9) was the most common, followed by Klebsiella species (5) and Pseudomonas species (4).

**Conclusion:** Isolation of pathogenic microorganisms from mobile phones of interns working in both critical and non-critical areas of the hospital strikes an alarm about hospital-acquired infections. Presence of drug-resistant bacteria is a matter of grave concern. Awareness of Hand hygiene and routine decontamination of mobile phones is the key to contain the spread of nosocomial infections, via mobile phones or any inanimate object acting as fomites for that matter.

LET’S BEWARE OF THE MINI MONSTERS ON OUR MOBILE PHONES AND BUG THEM OUT.

---

**MICP 388**

**HCAI-12**

**MISSED CLABSI CASES: IS THE BLOOD CULTURE SENDING PRACTICE APPROPRIATE?**

Anuniti Mathias, U Gaikwad, P Das, A Bhargava, P Agarwala, P Patro, K Vikram, S Salila, P Sharma

**AIIMS Raipur**

**Introduction:** Central line-associated bloodstream infection (CLABSI) is a major hospital acquired infection (HAI) associated with high mortality and morbidity. Laboratory confirmation by positive blood cultures is a key step in identifying CLABSIs, hence, missing opportunities to send blood cultures or sending inappropriately when indicated, leads to missed CLABSI episodes and underreported CLABSI rates.

**Aims & Objective:** To determine missed opportunities for sending blood culture when indicated in patients with central line for diagnosing CLABSI.

**Methods:** A retrospective analysis of HAI surveillance data collected during January to June 2019 from medical ICU was done. Clinical & laboratory findings of patients with CL...
insertions for >2 days after admission in MICU were obtained. The data was analysed month wise for presence of symptoms (fever/hypotension/chills), blood culture sending practices, growth obtained and outcome at the end of hospitalization. Simultaneously CLABSI rates were calculated both for patients with positive blood culture and the probable missed cases.

**Results:** A total of 42 patients had CL placement for >2 days, out of which 13 were symptomatic and 29 asymptomatic. After ruling out other infections among the symptomatic, 9 patients were suspected of CLABSI and hence, had indication for sending blood culture. Out of these, blood culture was sent in five (55.55%) patients with pathogen isolated in four. In remaining four (44.44%), blood culture was not sent despite indications, hence, missed CLABSI. Three of these patients expired. CLABSI rate was 18.1/1000 CL days for instances where blood culture was sent. Assuming blood culture positivity in the four missed cases, CLABSI rate could have been 27.15/1000 CL days.

**Conclusion:** Missing opportunities to send blood cultures can lead to underreporting of CLABSI. This can have implications in false representation of surveillance rates in Indian settings and impending avoidable morbidity and mortality associated with it.

**MICP 406**

**HCAI-O13**

**PRELOADING OF BONE CEMENT WITH COMBINATION OF ANTIBIOTICS AND SILVER NANOPARTICLES DELAYS FORMATION OF STAPHYLOCOCCAL BIOFILMS**

Shraddha Rajak, Anirudh K. Singh, Debasis Biswas
Department of Microbiology, All India Institute of Medical Sciences, Bhopal

**Introduction:** Medical implant related infection is one of the major threats to patients visiting hospitals. *Staphylococcus aureus*, especially Methicillin-resistant *S. aureus* (MRSA) is a dominant cause of prostheses infection owing to the ability of this bacteria to form biofilms. As most of the therapeutic antimicrobials fail to clear bacteria in these infections due to protective environment of the biofilms, a prophylactic measure presents an attractive alternative.

**Aims & Objectives:** To evaluate the ability of antibiotics and silver nanoparticles to prevent formation of staphylococcal biofilm on orthopedic implant material, bone cement. We hypothesized that bone cement devices preloaded with antibiotics or silver nanoparticles will prevent biofilm formation.

**Methods:** Biofilm forming ability of isolates were evaluated by Microtiter assay using crystal violet staining. The effect of antibiotics and silver nanoparticles on biofilm was studied by using viable cell counts. Extracellular DNA and protein content in biofilm were quantified by Qubit assay.

**Results:** We observed that 45% of all the *S. aureus* isolates formed strong biofilms. Significantly higher number of MRSA isolates (68.8%), formed strong biofilm as compared to MSSA (31.11%). We then tested if preloading bone cement with antibiotics and silver nanoparticles will inhibit MRSA and MSSA biofilm formation. Using viable counts observed that antibiotics and silver nanoparticles alone inhibited biofilm growth up to 48 hours. However, a combination of these agents extended the inhibition up to 120 hours. This was further confirmed alteration in biofilm contents like extracellular DNA and protein. We did not observe any difference in the effect of antibiotics and silver nanoparticles when we compared MRSA and MSSA.
Conclusion: Our study suggests that implant material preloaded with silver nanoparticles in combination with antibiotics may prevent or delay the biofilm formation reducing the morbidity.

**MICP 454**
**O14**

**“COLD PLASMA BASED AIR PURIFIER SYSTEM” IS IT EFFECTIVE?**

Dr. Milind Ubole, Dr. Karan Sarvaiya, Dr. Rajvi Mehata, Dr. Aarti Wandre, Dr. Vaibhavi Nanoty
Rajiv Gandhi Medical College & Chhatrapati Shivaji Maharaj Hospital Kalwa, Thane

**Introduction:** Cold plasma based dielectric barrier discharge (CP-DBD) technology based air purifier systems claims to be reducing microbial load in control setting, however its effectiveness in real-time setting is not evaluated in Indian scenario. Hence study was plan to see effectiveness of CP-DBD in Obstetric operation theater (OBOT)

**Aims & Objectives:** To evaluate effectiveness of CP-DBD technology based air purifier system.

**Methods:** OBOT was chosen for study, as it is 24X7 functional areas. Air sampling of OBOT was done prior to installation (Pre-I) of air purifier. Post installation (post-I) periodic air sampling at 0, 2, 4 hours were taken on all intervention days i.e. on 0, 7, 14 & 21 days. After wash out period of 7 days (after switching off air purifier), on Day 30 air sampling was done. Number of personnel present during each intervention was noted. Blood agar plates and Sabouraud’s Dextrose agar plates were used for air sampling & incubated at 370 C for 48 hours and 30 days respectively.

**Results and Conclusion:** Results of colony counts were tabulated and compared. There was significant reduction in bacterial colony count / ml in post-I compared to pre-I air sampling. Fluctuation in post-I colony count at 0, 2, 4 hours was observed during each intervention day that is on 0, 7, 14, 21 days. However in all intervention days the 4 hours reading showed reduction in bacterial colony counts as compared to 0 hour colony count. At day 30, there was increase in colony counts at every reading (0, 1, 2, 4 hours) as compared readings taken on day 0, 7, 14, 21 days when air purifier was operational. The results indicate that continuous usage of cold plasma based air purifier system can consistently keeps low microbial load.

**MICP 29**
**MB-O1**

**PREVALENCE & MICROBIOLOGICAL OBSERVATION OF LEPROSY AMONG PATIENTS ATTENDING DERMATOLOGY CLINIC AT A REFERRAL CENTER IN SOUTH WEST BIHAR**

Dr. Mukesh Kumar, Shakira Ansary, Dr. Prabhatkumar
NMCH, Sasaram
**Introduction:** India has succeeded with the implementation of Multi-drug therapy in bringing the national prevalence of Leprosy down to less than 1/10,000 in 2005 and even further down to 0.66/10,000 in 2016. Despite these successes, the fact remains that India continues to account for 60% of new cases of leprosy reported globally each year. In India Leprosy Case Detection Campaign (LCDC), resulted in the detection of 34,000 new cases in 2016 which accounted for 25% of annual new cases indicating continued transmission of leprosy in the community. Leprosy cases in Bihar had a prevalence rate of 0.79 in 2015-16 which has increased to 1.18 in 2017-18.

**Aims & Objective:** The aim of this study was to determine the prevalence of leprosy among patients attending dermatology clinic at a tertiary care centre in South-West Bihar.

**Methods:** This was a cross-sectional observational study carried out over a period of 1 year from August 2018 to July 2019 in NMCH Jamuhas Sasaram. Slit skin smear were obtained from 86 clinically suspected leprosy patients out of 16,308 patients who attended the dermatology department. Slit skin smear were stained with modified ZN staining.

**Result:** In our study clinically suspected cases of leprosy were 86 (53/10,000) out of 16,308 patient whereas laboratory confirmed cases were 22 (25.5%) out of 86 clinically suspected leprosy i.e. an overall prevalence of 13 per 10,000 patient attending the health facility of which 12 slit skin smear showed Bacteriological Index of 6+, followed by 7 of 1+ and 1 each of 2+, 4+, and 3+.

**Conclusion:** We report prevalence of microbiologically confirm cases of leprosy in our hospital population is 13 per 10,000 patient attending the health facility which indicates that leprosy transmission is still very active in our community.

**MICP 167**

**DIAGNOSTIC UTILITY OF PCR IN DETECTION OF CLINICAL CASES AND CONTACTS OF LEPROSY: FIRST CROSS SECTIONAL STUDY FROM CHHATTISGARH**

Shagufta Khatoon, Sanjay Singh Negi, Anudita Bhargava, Padma Das, Namrata C Sharma, Ujjwala Gaikwad, Archana W Keche, Priyanka Singh
AIIMS RAIPUR

**Introduction:** The major source of infection in the community is a hidden case of leprosy lying undetected in the community, who transmits the disease agent to other people. Percentage of new cases of grade II (Gr.II) disability among new cases have been increased, which indicate cases are being detected late in the community. Presently microscopy is the mainstay of laboratory diagnosis but having low sensitivity. In view of above context present study have been conducted to evaluate PCR as a more promising tool for early detection of cases and their contacts.

**Aims & Objectives:** To evaluate PCR as a more promising tool for early detection of lepra bacilli in both cases and their contacts.

**Methods:** A total of 100 subjects including 50 clinically diagnosed new cases of leprosy (who have been never treated) and their respective 50 contacts were enrolled from October 2018 through August 2019. Both case and their contacts subjected to slit skin smear (SSS) microscopy followed by PCR, using primer for RLEP gene (129 bp). Clinical diagnosis was considered as gold standard.

**Results & Conclusions:** Among clinically diagnosed new cases (n=50), Positivity for SSS microscopy and PCR was 34% (17/50) and 68% (33/50) respectively (p<0.001). A total 48%
(16/33) of SSS microscopy negative sample becomes positive by PCR. Percentage of Gr.II disability was 18% (9/50) which is very far to national value of 3.87%. PCR was instrumental in detecting 9 contacts out of 50, showing positivity of 18%. None of these contacts were positive by microscopy.

Thus, it is concluded that PCR is an extremely sensitive tool for early detection of leprosy. It will help in early treatment and prophylaxis for cases and contacts respectively. Thereby decreasing disability and transmission of infection in close contacts and will guide to policy maker.

**MICP 360**

**CLINICO-DEMOGRAPHIC PROFILE OF LEPROSY PATIENTS IN A TERTIARY-CARE HOSPITAL IN KOLKATA, WEST BENGAL**

Dr. Nishar Akhtar, Dr. Nupur Pal, Prof. Raja Ray – Dept. of Microbiology; IPGMER; Kolkata

**Introduction:** Leprosy or Hansen Disease (HD) is one of the oldest bacterial disease known to mankind. Leprosy, although eliminated from the world, still remains a disease of public health hazard in India. Report of new cases indicates presence of an active person-to-person transmission of the disease.

**Objective:** Present study was carried to estimate the incidence and to ascertain the clinico-demographic profile of suspected Leprosy cases attended dermatology OPD of a tertiary-care institute.

**Methods:** This prospective observational study was conducted at our mycobacteriology lab over a period of 15 months (01/01/2018 – 31/03/2019). Total 513 cases were recruited for this study. Acid-Fast Bacilli detection by modified Ziehl-Neelsen technique of staining from Slit-skin smear preparation confirmed the diagnosis of Leprosy among suspected cases. Bacteriological Index(BI) and Morphological Index(MI) calculated to know the bacillary-load.

**Results:** Out of total 513 clinically suspected cases attending our Dermatology OPD 53 cases were found to be positive for acid-fast bacilli. They were not diagnosed previously neither had received any anti-leprosy treatment. Majority belonged to the middle age group (approx. 50%) and male preponderance (90%) were observed. Multibacillary(MB) Leprosy cases at 56% outnumbers Paucibacillary(PB) cases.

**Conclusion:** Although there is appreciable reduction in prevalence rate globally, incidence of new cases is on the rise as an active transmission chain exists between infected person and the contacts. Only through detecting cases early in time, we can prevent transmission of the disease and drastically reduce occurrence of disability – the *sine qua non* of our deep concern about Leprosy. Hence we should strive hard towards the goal set by WHO and NLEP of reducing new cases with grade 2 disability to less than one per million population by 2020.

**MICP 15**

**A CASE REPORT OF PULMONARY DISEASE DUE TO MYCOBACTERIUM MASSILIENSE IN A PREVIOUSLY TREATED MDR-TB PATIENT**
Introduction - We report a case of MDR PTB who was treated with 2nd line ATD, following which she was found to be culture negative for M. Tuberculosis. However recurrence of symptoms and smear positivity prompted re-evaluation with CBNAAT which was found to be negative. Speciation and Drug sensitivity of NTM was done.

Aims and Objectives - To go for speciation and drug susceptibility of the said NTM causing pulmonary disease in a previously treated MDR-TB patient.

Methods - Sputum smear was found to be positive for AFB by both fluorescent stain and ZN stain. MTB was not detected in CBNAAT, and liquid culture by MGIT 960 yielded growth of a rapid grower. Speciation was done by DNA sequencing utilising 16s r RNA & hsp 65 gene targets. Drug susceptibility testing was done.

Results - The rapid grower was found to be Mycobacterium massiliense, a close relative of M. abscessus. The isolate was found to be susceptible to second line drugs along with few others. Patient was treated accordingly and was cured.

Conclusion - In a developing country like India, pulmonary tuberculosis caused by MTB is a huge burden in itself and the scenario is being threatened by increasing number of MDR-TB (2%-6%) and XDR-TB (3.2%) cases. NTM’s are also being increasingly reported as causative agents with M. fortuitum and M. chelonii being the commonest isolates. Gene sequencing analysis have brought out 40 newer species among NTM. Among these comes M. massiliense named after Massilia, the Latin name of Marseille, which have been recovered from lung secretions, blood, surgical wounds etc and causing a lung infection in the case presented here.

MICP 106

LESSONS LEARNT FROM CASES OF MYCOBACTERIUM ABSCESSUS BACTEREMIA IN IMMUNOCOMPETENT HOST

Survasnata Das, Priyanka Katariya
Jaypee Hospital, Noida

Introduction: Non tuberculous Mycobacteria have emerged as an important differential diagnosis in acute/chronic infections but they do not present commonly as bacteremia. Mycobacterium abscessus are found in water, soil and dust and are associated with infections after cosmetic and plastic surgery, in invasive procedures performed with contaminated equipment and in injuries contaminated accidentally by soil.

Aim and Objective: To study cases of bacteremia due to Mycobacterium abscessus.

Method: All cases positive in blood culture for Mycobacterium abscessus from Jan 2016 to June 2019 were analysed for demographics of the patient, primary disease, co-morbidities, source of infection, laboratory findings and clinical outcomes.

Result: There were two apparently immunocompetent cases from which Mycobacterium abscessus was isolated repeatedly from paired blood culture samples. The blood cultures were positive within 48-72 hours for both the cases but on smear initially there was no organism seen and later irregularly stained gram positive bacilli were seen. M. abscessus was isolated on blood agar and chocolate agar after 72 hours of incubation. In one case the source of infection was aspiration pneumonia and in the second case no apparent cause could be
detected but partially controlled Diabetes mellitus could be a predisposing factor. Even though treatment was initiated, mortality was 100%.

**Conclusion:** *Mycobacterium abscessus* can cause bacteremia in immunocompetent host. All false positive blood culture should be subcultured on blood agar and chocolate agar and incubated preferably for 7 days to detect any rapidly growing Mycobacterium. Early diagnosis and targeted treatment of *M. abscessus* is the key to reducing mortality.

**MICP 174**

**PREVALENCE AND MOLECULAR IDENTIFICATION OF NON-TUBERCULOUS MYCOBACTERIA IN PATIENTS WITH PULMONARY AND EXTRAPULMONARY INFECTIONS**

Dr Kalpana T, Dr Noyal Maria Joseph, Dr Laxmisha Chandrashekhar, Dr Dharm Prakash Dwivedi
JIPMER, Pondicherry

**Introduction:** Non-tuberculous mycobacteria (NTM) are capable of causing both pulmonary and extrapulmonary infections in immunocompromised patients and those with certain predisposing or risk factors. A study based on molecular identification of the NTM will shed more light on the most common NTM associated with infections at different sites.

**Aims & Objectives:** To determine the prevalence of NTM in pulmonary and extrapulmonary infections among patients attending a tertiary care hospital and to identify the different species of NTM associated with pulmonary and extrapulmonary infections using line probe assay.

**Methods:** In this descriptive study, the pulmonary and extrapulmonary specimens were subjected to smear examination for detection of acid fast bacilli (AFB) and cultured on both Lowenstein Jensen medium and MGIT 960. The NTM isolated were identified using GenoType Mycobacterium CM/AS assay.

**Results:** A total of 4327 pulmonary and 3306 extrapulmonary samples were cultured, from which 26 (0.6%) and 12 (0.4%) NTM were isolated, respectively. The most common NTM isolated from pulmonary samples was *M. intracellulare* (6), followed by *M. abscessus* (3), *M. fortuitum* (3), *M. kansasi* (3) and *M. scrofulaceum* (2). In addition, one each of *M. goodii*, *M. mucogenicum*, *M. simiae*, *M. malmoense* and *M. Interjectum* were isolated. Two each of *M. fortuitum*, *M. intracellulare* and *M. scrofulaceum* and one *M. gordonae* were isolated from the extrapulmonary samples. Nine of the NTM were identified as *Mycobacterium* spp. and could not be speciated further. Only one of the pulmonary samples was positive for AFB in direct smear.

**Conclusion:** GenoType Mycobacterium CM/AS assay was able to identify most of the clinically relevant NTM. Rapid molecular identification of NTM from pulmonary and extrapulmonary samples and differentiation to species level will aid in administering appropriate targeted therapy and prevention of development of drug resistance among NTM.

**MICP 324**

**NON TUBERCULOUS MYCOBACTERIA CLINICALLY PRESENTING AS MDR-TB: A CASE SERIES FROM EASTERN INDIAN HOSPITAL**

Baijayantimala Mishra¹, Sivasankar Das¹, Sutapa Rath¹, Prasanta R Mohapatra²
Departments of Microbiology¹ and Pulmonary Medicine and Critical Care²
Introduction: Nontuberculous Mycobacteria (NTM) are being increasingly reported worldwide. All mycobacteria are acid fast, and most of the laboratories in India still use only ZN smear examination as a single modality of diagnosis of tuberculosis. It is not possible to distinguish NTM from Multi drug resistant tuberculosis (MDR-TB) infections using only ZN smear examination. As both have similar clinical and radiological findings as well as history of poor response to anti tubercular therapy, NTM infections can be suspected clinically as MDR-TB. The prevalence of NTM in such patients in our country is not very clear.

Aims and Objectives: The present study aimed to determine the frequency of NTM among MDR-TB suspects in a tertiary care hospital in eastern India.

Methods: Samples were collected from suspected MDR-TB cases during December 2018 to July 2019 and were subjected to ZN staining, Xpert MTB/Rif (CBNAAT), and culture. Samples that were positive for acid fast bacilli (AFB) and MTB DNA by CBNAAT were considered as Mycobacterium tuberculosis complex (MTBC), and AFB positive and CBNAAT negative as presumptive NTM. All MTBC and presumptive NTM were confirmed by culture, MPT-64 antigen and multiplex Real-time PCR (Genefinder TB & NTM).

Result: Of 109 suspected MDR TB cases, five were diagnosed as NTM, all were scotochromogens. All NTM positive patients had history of recurrent fever, cough and antitubercular drug intake. Chest X ray showed bilateral lung opacity, with and without mediastinal lymphadenopathy. One of 5 NTM patients died and remaining four received specific treatment and were clinically asymptomatic till 3 months follow-up.

Conclusion: NTM infections can clinically mimic MDR TB. ZN Staining along with culture and CB NAAT represent a useful modality to confirm the clinical NTM infections. It is essential to rule out NTM in settings of endemic tuberculosis. Accurate and timely identification of NTM will have impact both epidemiology of TB and accurate drug management of such patients.

MICP 444

 ALL THAT IS ACID-FAST IS NOT TB: CLINICAL SPECTRUM AND SPECIES DISTRIBUTION OF NONTUBERCULOUS MYCOBACTERIAL INFECTIONS IN A TERTIARY CARE CENTRE

Nandini Sethuraman*, Rachel Premakumari, M.A.Thirunarayan.
Department of Microbiology, Apollo hospitals, Greams Road, Chennai

Introduction: With increasing complexity of medicine and availability of microbiological diagnostics, there is an increasing importance of nontuberculous mycobacterial(NTM) infections. Clinical significance of many of these species is variable as their isolation occurs as mere colonisers as well as highly pathogenic organisms causing severe destruction of lungs, depending on the host and species.

Aims & Objectives: This study was carried out to map out the prevalence of NTM infections, their species spectrum and clinical relevance in various settings.

Methods: The study was carried out on patients submitting specimens for culture primarily for suspicion of tuberculosis or chronic infections for evaluation, between October 2016 and May 2019. Specimens were first subjected to Ziehl-Neelsen stain and subsequently cultured on automated liquid culture system (MGIT) as well as solid media. Cultures flagging positive or showing growth were identified as Mycobacterium tuberculosis if acid-fast on ZN stain.
and also positive by the MPT64 immunochromatography method; and as NTM if negative. NTM were further identified to species level using MALDI-TOF (Vitek-MS) after a mechanical agitation-acetonitrile-formic acid extraction method developed in-house. Clinical data of patients whose specimens were positive for NTM were retrospectively reviewed.

**Results:** Out of a total 12031 specimens, 1325 (11.01%) grew *M.tuberculosis* and 141 (1.17%) grew NTM. There were 12 different species identified, of which *M. abscessus* (24.8%) was most common followed by *M.fortuitum* (22.1%), *M.intracellulare* (20.7%) and *M.kansasii* (10.7%). Most common site of isolation was pulmonary (67.8%) of which 33.7% were smear positive specimens; followed by skin and soft tissue infections (12.8%). 17% isolates were deemed colonisers per clinician’s judgement not to treat. *M.gordonae* was always a coloniser.

**Conclusion:** There is a significant prevalence of NTM even in smear positive pulmonary specimens which are frequently deemed and treated as TB, which stresses on the importance of early recognition and species identification of mycobacteria to enable appropriate patient management.

---

**MICP 383**

**AN INNOVATIVE SYSTEM USING INTELLIGENT MICROSCOPE AND IMAGE RECOGNITION TECHNOLOGY FOR DETECTION OF MYCOBACTERIA IN ACID-FAST STAIN PROCEDURES**

Lin Eason1,2; Lin Elaine1

1Wellgen Medical Co., LTD, Kaohsiung, TAIWAN, 2National Kaohsiung Normal University, Kaohsiung, Taiwan

**Introduction:** The most economical and rapid method for laboratory diagnosis of TB is acid-fast staining of sputum smear to identify mycobacterial acid-fast bacilli (AFB). However, TB smear has low sensitivity and is labor-intensive. The use of an automated system, using a custom-design microscope and AFB recognition software based on artificial intelligence and big data, may significantly increase the sensitivity of TB smear microscopy.

**Aim & Objectives:** The objective is to evaluate such system for identification of AFB.

**Methods:** The study was conducted in a TB Hospital in Jiangsu, China. Total of 1,150 smears were randomized enrolled for this study. 150 smears were rejected from this study due to incomplete stain removal (n=60), smear location (n=8), smear too thick or too thin (17), and slide size (too big or too small) (n=25). An intelligent microscope system (TB-Scan, Wellgen Medical, Kaohsiung) was used which consisted of imaging acquiring microscope and image recognition software. AFB were automatically marked, identified and classified for medical technicians verification. Referee technicians were used as Gold Standard for result discrepancy.

**Results:** The initial performance was as follows: accuracy 95.00% (950/1,000), sensitivity 91.24% (177/194), and specificity 95.91% (773/806). However, there were 21 smears that were previously reported as negative but TB-Scan found positive. Referee technicians ruled out 4 smears and agreed with the remaining 17 as positive. Therefore, the final performance was re-calculated as follows: The accuracy is 96.70% (967/1,000), sensitivity 91.94% (194/211), specificity 97.97% (773/789), false negative rate 8.06% (17/211) and false positive 2.03% (16/789).

**Conclusion:** Microscopic examination by human is the last mile of the laboratory automation. We believe such automated system could achieve higher TB smear sensitivity.
and laboratory efficiency worldwide, and may have potential for application in pap smears, gram stains, cytological smears, and other smears that require labor-intensive works.

MICP 422

STUDY OF SERUM CONCENTRATION OF CYTOKINES IN PATIENTS WITH SMEAR POSITIVE PULMONARY TUBERCULOSIS AND AFTER 2 MONTHS OF STANDARD ANTITUBERCULAR DRUGS

Dr Ashwani K Pandey, Dr Ashwini Agarwal, Dr IV Nagesh
Department of Microbiology, Armed Forces Medical College, Pune

Introduction: Tuberculosis (TB) is a communicable infectious disease and remains a global health problem worldwide. Sputum smear microscopy of Acid Fast Bacillus has been widely used for diagnosis of active TB. The sputum smear microscopy has also been used to monitor the treatment response after intensive therapy phase to see the sputum conversion. However AFB smear microscopy has limited sensitivity. Mode of infection in pulmonary tuberculosis is by inhalation of infectious droplet nuclei containing Mycobacterium tuberculosis bacilli. Hosts cell mediated immune response to the bacilli is critical to control the infection. The macrophages present the mycobacterial antigen to T Helper cells and activate them to TH-1 and TH-2 cells. TH1cells produce IFN-γ, IL-2, IP-10, whereas TH-2 cells produce IL-4 and IL-10 cells. The level of Cytokines play an important role in pathogenesis.

Aim and Objective: To study the plasma concentration of IL-2, IFN-γ, IL-10 IL-4 and IP-10 cytokines in patients with smear positive pulmonary tuberculosis & after 2 months of treatment with standard anti-tubercular drugs.

Methods: Study population was all diagnosed cases of smear positive pulmonary TB aged >18yrs. Sample size was (50) smear positive pulmonary tuberculosis patients. Sputum Smear examination was performed with conventional technique at initiation and after 2 months of intensive phase therapy. Plasma Cytokine levels of IL-2, IFN-γ, IL-10, IL-4 and IP10 was estimated by ELISA at the start of the therapy and after 02 months of intensive phase therapy.

Results & Conclusions: The Level of IFN-γ, IP-10 levels decreased in the patients after the intensive phase whereas there was not marked difference in other cytokine levels. The level of Level of, IFN-γ, IP-10 could be used to monitor the response to treatment.

MICP 95

MOLECULAR DETECTION OF RESISTANCE TO SECOND LINE ANTITUBERCULAR DRUGS BY LINE PROBE ASSAY

Pratik Thosani, Santosh Karade, Ashwini Agarwal, Sourav Sen, CDS Katoch
Armed Forces Medical College, Pune

Introduction: Emergence and spread of extensively drug resistance (XDR) tuberculosis (TB) is a challenge in resource limited setting. Although, India accounts for one fourth burden of multi-drug resistant (MDR) cases of TB, the prevalence of XDR TB varies widely. Rapid molecular diagnosis of resistance by methods such as Line probe assay (LPA) is important.
Aims and Objectives: The aim of this study was to characterize resistance mutations against second-line antitubercular drugs using LPA. Objectives were to identify the frequency of mutations and to detect any unknown mutations.

Methods: In this retrospective study we analyzed resistance to second-line antitubercular drugs in 100 isolates from patients failing first-line anti-tubercular therapy as per national guidelines by LPA. Genotype MTBDRsl assay by Hains Lifescience is a drug susceptibility test that use PCR and reverse hybridization methods for the rapid detection of common mutations in gyrA, gyrB gene for fluoroquinolone (FLQ) resistance, in rrs gene for amikacin, capreomycin, and kanamycin resistance, and in eis gene for low level kanamycin resistance. Interpretation of resistance was performed as per manufacturer’s instruction.

Results: Of the 100 isolates processed, a total of 94 assay results were valid. Of these no resistance mutations were seen in 52% isolates and wild type band was successfully amplified. Resistance to FLQ was seen in 30% of isolates with predominance of gyrA mutation (22/30), most common mutation being A90V. Heteroresistance to FLQ was seen in 06 isolates. Resistance to FLQ was inferred in 02 isolates as wild type and mutant probe failed to develop. A total of 12% isolate were resistant to aminoglycosides with A1401G as most common mutation. No mutations were detected in gyrB and eis gene.

Conclusion: Higher resistant to FLQ as compared to aminoglycosides was seen in our study. Presence of heteroresistant strains and unknown mutations indicates need for further analysis by gene sequencing.

MICP 208      MB-O12

POINT-OF-CARE DIAGNOSIS OF FEMALE GENITAL TUBERCULOSIS IN INFERTILE WOMEN BY LAMP ASSAY

1Department of Biochemistry, 2Obstetrics and Gynaecology, 3Microbiology & Molecular Biology, 4Clinical Medicine, 5Biostatistics, and 6Immunology.
ICMR-National JALMA Institute for Leprosy & Other Mycobacterial Diseases, (Indian Council of Medical Research), Taj Ganj, Agra-(U.P) & Sarojini Naidu Medical College, Agra (U.P). (Ministry of Medical Education, Govt. of Uttar Pradesh)

Introduction: Tuberculosis (TB) is endemic in many developing countries of the world including India and caused by Mycobacterium tuberculosis (M. tb). The disease is 100% lethal, if left undiagnosed and untreated. TB exists in two forms: pulmonary tuberculosis (PB) and Extra-Pulmonary Tuberculosis (EPTB). Genital tuberculosis (GTB) is a form of 15-20% EPTB affecting the female genital organs. Female GTB is now a global priority of the world. The incidence of infertility in GTB worldwide varies from 10–85%, and majority is in the reproductive age group (18–45 years). The diagnosis of GTB in infertile women is difficult as most of the cases are usually asymptomatic. Currently available diagnostic methods are insufficient for the rapid and accurate diagnosis of GTB. On the other hand, rapid advancements have been made in the chemotherapy of TB. With the advent of Loop-mediated isothermal amplification (LAMP) assay and Xpert, more TB cases in females are being reported. Available diagnostic methods are requires high cost equipments, sophisticated technology, skill personnel, continual electricity, time consuming and post amplification handling. A diagnostic method that should be very simple, rapid, user-friendly, less time-
Aims and Objectives: The aim of this study is undertaken to evaluate the diagnostic performance of Xpert and LAMP (mpb64 and IS6110 genome sequence from M. tb.) assay in diagnosis of female genital tuberculosis.

Methods: This study has been approved by the scientific advisory committee (SAC) and patients inform consent was obtained from all participants. Endometrial biopsy specimens from 114 infertile women aged between 25 to 40 years were collected and subjected to histopathological examination, microscopy, culture (LJ medium), Xpert and nucleic acid amplification by LAMP assay in ICMR-National JALMA Institute for Leprosy & Other mycobacterial Diseases (ICMR), Tajganj, Agra and Department of Obstetrics and Gynaecology, S. N. Medical College, Agra.

Results: Of total 114 endometrial biopsy specimens, 14.7% was positive by histopathology, 11.7% were positive by L-J culture of M. tuberculosis whereas microscopy could detect only in 5.8% specimens. In this study the LAMP assay is highly sensitive as compared to Xpert and gold standard diagnostic methods. The sensitivity, specificity, positive predictive and negative predictive value of LAMP assay compared with Xpert were 85.2%, 98.04%, 85.62% and 96.2%, respectively.

Discussion and Conclusions: LAMP amplification is very simple, rapid, user-friendly, cost-effective, highly sensitive and specific assay to detect TB infection without the aid of sophisticated equipments, and it can be easily performed in any laboratory as well as in low-resource or rural / field settings. Finally the LAMP assay is an efficient diagnostic tool in female genital tuberculosis as point-of-care test, thereby facilitating early therapeutic decisions in suspected cases. The LAMP assay can be used as in a translational research.

MICP 85

A STUDY ON THE SPECTRUM OF CLINICO-DEMOGRAPHIC PROFILE OF EXTRAPULMONARY TUBERCULOSIS (EPTB) CASES BY USING CBNAAT AT AGMC, TRIPURA

Dr. Ashmita Banik, Dr. Tapan Majumdar
Agartala Government Medical College & GB Pant Hospital, Agartala

Introduction: Tripura, north-east state of India, comprising 40.73 lakhs population. Two unique feature of the State, ‘tropical savana climate’ and ‘passing of tropic of cancer’ leads to spectrum of infectious diseases with low prevalence rate respectively. In India prevalence of EPTB varies from 8.3-13.1% in various states, commonest being tubercular lymphadenopathy. In Tripura, there is paucity of data in EPTB. This study was carried out to find the clinico-demographic profile of EPTB patients in Tripura.

Aims & Objectives: Aim was to study the spectrum of clinico-demographic profile of EPTB using CBNAAT. Objectives were to identify mycobacterium tuberculosis (MTB) from the collected samples by CBNAAT & look for rifampicin sensitivity & to assess clinico-demographic profile of EPTB.

Methods: A retrospective study was done collecting 4.5 years registered data of EPTB from TB lab of AGMC, Tripura, (2016 March- 2019 August). Data about type of EPTB, age group, sex ratio, and geographical distribution of cases were collected, statistically analysed and compared.
**Results:** Among 506 suspected EPTB cases, 11.26% (57/506) were MTB positive. Proportion of positive cases in 2016, 2017, 2018, 2019 till August were 10.52%, 28.07%, 28.07%, 33.33% respectively. Among all MTB detected cases, 94.73% were rifampicin sensitive and 5.26% rifampicin resistance. Majority of MTB detected cases (49.12%) belonged to 20-45yrs age-group followed by children <10 years of age (24.56%). 56% were male, 44% female. Pus from infected lymph-nodes (49.12%) yielded highest number of isolates followed by gastric aspirate (22.8%). West Tripura (47.36%) was the worst affected district followed by Khowai district (15.78%).

**Conclusion:** Study highlighted an increasing trend of EPTB among high-risk groups—notably adult (20-45yrs), males, lymph node TB and population of west Tripura in last 4.5 years.

**MICP 284**

“UTILITY OF GENEXPERT FOR DIRECT DETECTION OF MYCOBACTERIUM TUBERCULOSIS IN STOOL SPECIMENS IN CHILDREN WITH PRESUMPTIVE PULMONARY TUBERCULOSIS”

Nair M., Baveja S.
Lokmanya Tilak Municipal Medical College and General Hospital, Sion, Mumbai

**Introduction:** Tuberculosis, caused by *Mycobacterium tuberculosis*, continues to be one of the world’s deadliest communicable diseases. Gastric lavage, an invasive procedure, is performed to diagnose pulmonary tuberculosis in children. TB DNA can survive intestinal transit. Hence stool specimen can be used as a tool for diagnosis of childhood pulmonary TB by GeneXpert.

**Aims and Objectives:** Comparison of Xpert MTB/RIF on stool specimen from children with presumptive pulmonary tuberculosis with Xpert MTB/RIF on gastric lavage (GL) specimen and with conventional methods for detection of pulmonary TB.

**Methods:** 120 children between 0-10 yrs with presumptive pulmonary tuberculosis were selected for the study following consent from their parents. Single gastric lavage and stool sample was collected from each patient. Each gastric lavage sample was subjected to Acid Fast Bacilli staining by Ziehl-Neelsen technique and culture on Lowenstein Jensen medium followed by GeneXpert analysis. Each stool sample was subjected to only GeneXpert analysis.

**Results:** Out of 120 Gastric Lavage samples tested, 5% were positive by ZN stain, 10% were positive by LJ culture and 9.2% were positive by GeneXpert. Out of 120 Stool samples tested, 7.5% were positive by GeneXpert. When compared with GL- Xpert, Stool- Xpert showed a sensitivity of 81.82% and specificity of 100%. When compared with LJ culture, Stool GeneXpert showed a sensitivity of 75% and specificity of 100%. When compared with GL ZN stain, Stool GeneXpert showed a sensitivity of 100% and specificity of 97.37%.

**Conclusion:** Stool specimen for GeneXpert can be used to detect pulmonary TB in children as an alternative to Gastric Lavage specimen for GeneXpert for its ease of collection.

**MICP 356**

“UTILITY OF GENEXPERT FOR DIRECT DETECTION OF MYCOBACTERIUM TUBERCULOSIS IN STOOL SPECIMENS IN CHILDREN WITH PRESUMPTIVE PULMONARY TUBERCULOSIS”

Nair M., Baveja S.
Lokmanya Tilak Municipal Medical College and General Hospital, Sion, Mumbai

**Introduction:** Tuberculosis, caused by *Mycobacterium tuberculosis*, continues to be one of the world’s deadliest communicable diseases. Gastric lavage, an invasive procedure, is performed to diagnose pulmonary tuberculosis in children. TB DNA can survive intestinal transit. Hence stool specimen can be used as a tool for diagnosis of childhood pulmonary TB by GeneXpert.

**Aims and Objectives:** Comparison of Xpert MTB/RIF on stool specimen from children with presumptive pulmonary tuberculosis with Xpert MTB/RIF on gastric lavage (GL) specimen and with conventional methods for detection of pulmonary TB.

**Methods:** 120 children between 0-10 yrs with presumptive pulmonary tuberculosis were selected for the study following consent from their parents. Single gastric lavage and stool sample was collected from each patient. Each gastric lavage sample was subjected to Acid Fast Bacilli staining by Ziehl-Neelsen technique and culture on Lowenstein Jensen medium followed by GeneXpert analysis. Each stool sample was subjected to only GeneXpert analysis.

**Results:** Out of 120 Gastric Lavage samples tested, 5% were positive by ZN stain, 10% were positive by LJ culture and 9.2% were positive by GeneXpert. Out of 120 Stool samples tested, 7.5% were positive by GeneXpert. When compared with GL- Xpert, Stool- Xpert showed a sensitivity of 81.82% and specificity of 100%. When compared with LJ culture, Stool GeneXpert showed a sensitivity of 75% and specificity of 100%. When compared with GL ZN stain, Stool GeneXpert showed a sensitivity of 100% and specificity of 97.37%.

**Conclusion:** Stool specimen for GeneXpert can be used to detect pulmonary TB in children as an alternative to Gastric Lavage specimen for GeneXpert for its ease of collection.
COMPARISON OF EXTRAPULMONARY AND PULMONARY TUBERCULOSIS INFECTIONS: AN OVERVIEW ON HIV-TB CO-INFECTION & EXTRAPULMONARY SAMPLES

Dr. Anjani (PG), Dr. I. Jahnavi (Prof & Head)
Guntur Medical College, Guntur

Introduction: Tuberculosis (TB) is one of the leading infectious diseases worldwide. WHO launched “The End TB Strategy” (2014) to achieve “a world free of Tuberculosis- zero deaths, disease, and suffering due to Tuberculosis”. Hurdles in this journey are EPTB, HIV – TB co infection. In 2019 WHO launched a multisectoral accountability framework to end TB and the components that form a cycle for strengthening accountability: Commitments, Actions, Monitoring, and Reporting. With this back ground the study was taken up.

Aims & Objectives: 1. To detect MTB in both pulmonary & extra pulmonary cases by Genexpert MTB/RIF. 2. To detect Rifampicin resistance. 3. To know the burden of HIV-TB co-infection.

Method: This study was a Prospective study, conducted over period of six months from January to June of 2019 by the department of microbiology in association with district tuberculosis center. Samples various from suspected cases subjected to GENEXPERT MTB/RIF. Distribution of TB positives, Rifampicin resistance was analyzed.

Results: Out of 2489 samples from suspected cases 513(20.6%) was positive for MTB. Of the MTB positives, 7.6% (39) were extra pulmonary. Males are predominant 78.2% (p<0.05) in PTB and 53.8% in EPTB. More no. of cases were noted (45.9%) in 41-50 age group in PTB but in EPTB it was (51.2%) among 21-40 years age group. PTB (69%) and EPTB (51%) were found among rural population (p<0.05). (25%) of EPTB were meningitis cases. Each category showed (7%) of Rifampicin resistance. HIV-TB co-infection among PTB (5.9%) and EPTB (5.1%) cases. In 82% of HIV-TB co-infection cases CD4 count <400.

Conclusion: Results shows younger age strongly associated with EPTB. Even though EPTB, HIV-TB co-infection cases are less in number compared to PTB to reach “The end TB strategy” more focus is needed for this two hurdles.

MICP 102

EVALUATION OF IS6110 BASED PCR AND MICROSCOPY IN COMPARISON TO BACTEC MGIT CULTURE IN DIAGNOSIS OF SUSPECTED PULMONARY TUBERCULOSIS CASES

Mandal S, Bhatia NJK, Shulania A, Malhotra S, Duggal N
ABVIMS and Dr RML Hospital, New Delhi

Introduction: Tuberculosis (TB) is caused by Mycobacterium tuberculosis complex (MTC), which is still a major cause of death worldwide. According to Global tuberculosis report 2018 by WHO approximately 10.0 million people worldwide suffered from tuberculosis in the year 2017. There are many molecular methods are available which hold the advantage of rapid diagnosis and thus timely management of tuberculosis. Our study was proposed to compare Ziehl – Neelsen staining method, BACTEC MGIT 960 automated culture method and IS6110 based RT-PCR assay in respiratory samples from clinically suspected pulmonary tuberculosis cases.
**Aims and Objectives:** To analyze and compare the results of IS6110 based RT-PCR assay, Ziehl–Neelsen smear examination and TB culture by MGIT 960 system in diagnosis of suspected pulmonary tuberculosis cases.

**Methods:** Total 200 suspected cases of pulmonary tuberculosis from various wards and OPDs of Dr. RML Hospital were included in this study. Various samples included were sputum, bronchoalveolar lavage (BAL) and gastric aspirate (GA). The samples were subjected to Ziehl–Neelsen staining, BACTEC MGIT960 automated culture system and IS6110 based Real Time PCR assay.

**Results:** MGIT culture was taken as gold standard. 32 (16.0%) cases were detected positive by MGIT culture. PCR gave positive result in 43 cases (21.5%). 27 (13.5%) cases detected positive by all the three tests performed including ZN stain. Sensitivity and specificity of IS6110 based real time PCR was 100% and 93.45% respectively. ZN staining showed sensitivity of 84.38% and specificity of 100%.

**Conclusion:** IS6110 based Real time PCR could be a promising diagnostic tool as it has stood the test in present era terms of time management and accuracy to detect the disease, patient care will be lot easier by early diagnosis.

---

**MICP 125**

**EPIDEMIOLOGY OF MYCOBACTERIAL INFECTIONS IN CANCER**

Dr Sabina Jahagirdar, Dr Sanjay Biswas, Dr Rohini Kelkar
Department of Microbiology, Tata Memorial Hospital, Mumbai

**Introduction:** Tuberculosis caused by *Mycobacterium tuberculosis* is an ancient illness causing significant morbidity and mortality throughout history. Tuberculosis mimics cancer both clinically and radiologically. It may co-exist with cancer in some patients and poses a diagnostic dilemma in others. In some malignancies like lymphoma the disease may flare up during prolonged periods of immunosuppression. The use of microbiological tools, aided with histopathological findings helps in accurate diagnosis of tuberculosis and proper treatment can be initiated. Culture and identification of the species is important as nontuberculous mycobacteria may be isolated in some cases.

**Aim:** To study the epidemiology of mycobacterial infections in cancer patients

**Methods:** Retrospective Observational Study of samples processed for mycobacterial culture and susceptibility testing in the Department of Microbiology, Tata Memorial Centre from 1st January 2014 to 31st December 2018 (5 years)

**Results:** Of the 8016 samples processed, 342 (4.3%) were culture positive, with 321 (94%) isolates of *M.tuberculosis*. Of the 281 isolates tested for primary line anti-mycobacterial agents, one (0.36%) isolate was multidrug resistant and 21 isolates were resistant to isoniazid. Out of the total isolates of *M.tuberculosis* 14% were from cases of suspected lung cancer and 8% were from cases of acute lymphocytic leukemia. The overall prevalence of tuberculosis in 2018 is 0.1% of registered cases.

**Conclusion:** The prevalence of tuberculosis is highest among the patients with suspected lung cancer followed by hematolymphoid malignancies. Accurate diagnosis of tuberculosis by culture is a useful tool assisting in early diagnosis and better outcomes for cancer patients. MDR TB is uncommon in patients with cancer compared to the general population.
SCREENING OF HEALTH CARE WORKERS FOR LATENT TUBERCULOSIS INFECTION USING INTERFERON GAMMA RELEASE ASSAY (IGRA)

Dr. Tarini Deshmukh, Dr. Nilma Hirani, Dr. Pranali Medhekar, Dr. Ameeta Joshi
Dept. of Microbiology, GGMC & JJ Hospital, Mumbai

Introduction: Latent TB infection (LTBI) is a state of persistent immune response to stimulation by Mycobacterium tuberculosis antigens without evidence of clinically manifested active TB. TB is a professional risk for health care workers because of close contact with TB affected patients. There is no diagnostic gold standard for LTBI, existing tests are immunological tests that provide indirect evidence of sensitization of host to TB antigens. Recently, interferon-gamma release assays (IGRAs), such as QFT-GIT have been introduced for detection of LTBI. Incidence of LTBI has been investigated via screening programs using TST or QFT-GIT.

Aim & Objectives: Screening of Health Care Workers from a tertiary care hospital for LTBI using QFT-Plus GIT, and determining the prevalence of LTBI in them.

Methods: 191 adult Health Care Workers with no clinical signs/symptoms suggestive of active TB were screened using QFT-Plus GIT.

Results: QFT-Plus GIT test positivity was 42.93% in our study. It was 18.30% in doctors, 32.92% in nurses, 29.27% in laboratory personnel and 19.51% in attendants. Male to female ratio in positive cases was 22:60.

Conclusion: Prevalence of LTBI in HCWs is in accordance with prevalence in general population in India. However, efforts must be spent for elimination of risk factors for TB infection, screening of a larger strata of health care workers, timely diagnosis and effective management of LTBI. Thus, both health of HCWs and general population would improve and decreased incidence of TB infection would be accomplished.

MICP 266

FLUROQUINOLONE DRUG RESISTANCE AMONG MDR-TB PATIENTS INCREASES THE RISK OF UNFAVORABLE INTERIM MICROBIOLOGICAL TREATMENT OUTCOME: AN OBSERVATIONAL STUDY

Nishtha Singh1, Amita Jain1, Pravin Kumar Singh1, Urmila Singh1, Rajiv Garg2
1Department of Microbiology, King George’s Medical University, Lucknow(UP)
2 Department of Respiratory Medicine, King George’s Medical University, Lucknow(UP)

Introduction: Sputum culture conversion (from negative to positive test result) at the end of intensive phase of multi-drug resistant tuberculosis (MDR-TB) treatment is a key predictor for favourable treatment outcome.

Aims and Objective: This observational study was undertaken to assess the interim microbiological outcome of a cohort of rifampicin-resistant (RR)-TB patients with variable resistance to second-line drugs.

Methods: We consecutively enrolled 100 RR-TB cases who were tested and concluded for phenotypic drug susceptibility testing (DST) during Jan–Apr 2018. Following RR-TB diagnosis, these patients underwent for conventional MDR-TB regimen under the programmatic setting in Uttar Pradesh, India. At 6 months of treatment, sputum culture
conversion status was determined using liquid culture. Data was analyzed to assess the baseline drug resistance profile and its impact on culture conversion.

**Results:** DST of total 100 RR-TB patients showed high resistance to fluoroquinolone (FQs; levofloxacin-56%; moxifloxacin-44%) followed by kanamycin (8%) and capreomycin (6%). None of them were resistant to other drugs (amikacin, clofazimine and linezolid) tested. At 6 months of treatment follow-up, 28 patients were lost to follow-up and 8 died. Microbiological outcome could be obtained from the remaining 64 patients. Successful culture conversion was achieved in only 62.5% of patients. FQ resistance was found to be a strong predictor (p<0.001) followed by kanamycin (p<0.05) for unfavourable microbiological outcome.

**Conclusion:** The rate of FQ-resistance among RR/MDR-TB is high and it has strong association with un-successful interim microbiological outcome of conventional MDR-TB treatment. Scale-up of rapid DST and timely initiation of appropriate treatment regimen should be ensured.

**MICP 94**

**MOLECULAR DIAGNOSIS OF TUBERCULOSIS - 5 YEARS EXPERIENCE**

Dr. Namita Dsouza Davar, Apoorva Ghaisas, Lavina Jadhav, Dr. Pooja Thakkar, Dr. Sweta Shah
Department of Microbiology, KokilabenDhirubhai Ambani Hospital and MRI

**Introduction:** India has a high burden of drug resistant tuberculosis (TB). Early diagnosis of Tuberculosis and anti-TB drug resistance is important to treat and prevent disease spread.

**Aims & Objectives:** Comparison of GeneXpert MTB/Rif (real-time PCR) for Mycobacterium tuberculosis (MTB) complex and Rifampicin resistance detection with Mycobacterium culture and Ziehl-Neelsen (ZN) Smear.

**Methods:** A retrospective, comparative study was done, wherein, results from pulmonary (P) and extra-pulmonary (EP) clinical specimens, previously tested by GeneXpert MTB/Rif, Mycobacterium culture and ZN-smear, from January 2014–December 2018, were analyzed. Sensitivity, specificity, positive predictive value (PPV) & negative predictive value (NPV) of the GeneXpert MTB/Rif test was calculated.

**Results:** A total of 6546 clinical specimens [P:2292(35%); EP:4254(65%)] were received for GeneXpert MTB/Rif of which MTB complex was detected in 994 (15.2%). Rifampicin resistance was detected in 169 (17%) of MTB positive specimens. Of 6546 specimens tested by Genexpert, 4910 were cultured for mycobacteria; 624 (12.7%) grew MTB-complex and 545 (11.1%) were AFB smear-positive. GeneXpert detected MTB in 122 (2.5%) specimens where culture was negative and in 201 (4%) specimens where ZN-smear was negative. Mycobacterium culture was positive for MTB complex in 88 (1.8%) specimens where GeneXpert was negative. Culture was not requested for 1636 specimens; of these, Genexpert detected MTB in 248 (15%) specimens. Sensitivity, specificity, PPV, NPV of the GeneXpert MTB/Rif test, calculated for 4910 specimens, was 89%, 95%, 73%, 98% for pulmonary specimens and 84%, 95%, 71%, 98% for extra-pulmonary specimens.

**Conclusion:** The GeneXpert MTB/Rif assay enables diagnosis of TB and detection of Rifampicin resistance in just 2 hours. This aids in a much earlier TB diagnosis and initiation of treatment, timely detection of resistance and more precise treatment regimen, and quicker isolation of open TB cases. Real-time PCR, mycobacterium culture, and ZN-smear should be performed simultaneously for more accurate diagnosis of TB.
PREVALENCE AND MOLECULAR CHARACTERISTICS OF MRSA BACTERAEMIA IN A TERTIARY CARE TEACHING HOSPITAL

Dr. Aditi Garg, Dr. Vimala Venkatesh, Dr. Piyush Tripathi
Post-Graduate Department of Microbiology, King George Medical University, Lucknow

Introduction: Staphylococcus aureus is one of the pathogens responsible for bacteraemia requiring immediate antibiotic treatment. Staphylococcus aureus bacteraemia (SAB) is often associated with high rates of antibiotic resistance particularly Methicillin resistant Staphylococcus aureus (MRSA) representing a serious challenge for patient management. Alteration in PBP-2 to PBP-2a encoded by mecA gene is the most common mechanism of methicillin resistance. Other mechanisms such as presence of mecB and mecC genes, borderline resistance and heteroresistance may also lead to MRSA.

Aims and Objectives: To study prevalence of Methicillin resistance Staphylococcus aureus bacteraemia in adults and paediatric patients and to investigate the genes associated with methicillin resistance in Staphylococcus aureus isolates obtained from bacteraemia.

Methods: A prospective study was conducted on Blood cultures received in Microbiology Laboratory, King Georges Medical University, Lucknow from May 2019 to July 2019. Staphylococcus aureus was identified on positive blood culture samples. MRSA was detected using cefoxitin disc diffusion testing using CLSI-2019 guidelines. Detection of mecA, mecB and mecC was done by conventional PCR using published primers.

Results: Out of 992 blood cultures received in Lab during specified period, 680 were sterile, 42 were Staphylococcus aureus, rest were other pathogenic organisms. MRSA was detected in 61% (26/42) of Staphylococcus aureus isolates. MRSA bacteraemia was more prevalent in adult patients as compared to paediatric patients. mecA gene positivity was detected in 17 of 26 (65.4%) MRSA strains. No mecB and mecC genes were detected in our study.

Conclusion: In our setting, mecA is the most common gene associated with MRSA. mecB and mecC genes are not prevalent in our setting. Further detection of borderline MRSA, heteroresistance etc. is needed for better MRSA understanding.

DETECTION OF PLASMID MEDIATED RESISTANCE IN ENTEROBACTERIACEAE BY REPLICON TYPING

Mahadevan Kumar, Pooja Mahajan, GS Bhalla
Bharati Vidyapeeth Medical College, Pune

Introduction: The rapidly increasing prevalence of multi drug resistance poses a critical public health threat, especially in the developing countries. Plasmid mediated resistance is an important factor in the development of resistance and hence, this study has been undertaken to provide an insight into the prevalence of resistance plasmids in multidrug resistant Enterobacteriaceae.

Aims & Objectives: To detect plasmids responsible for multi drug resistance in Enterobacteriaceae using plasmid replicon typing.

Methods: The study was conducted in a tertiary care hospital from Oct 2017 to March 2019. A total of 593 non-repeat multidrug resistant Enterobacteriaceae isolates were collected.
during the study period. From these, a representative sample of 100 isolates were selected for PCR based replicon typing (PBRT).

**Results:** A total of 21 plasmid replicon types were detected from 85% (n = 85) of the isolates. IncF was the most frequent plasmid family detected with FIA being the most common replicon type (43%) followed by FII (29%) and FIB (28%) replicons. Among the IncX plasmid family, X3 replicon was the commonest (14%). None of the isolates carried plasmids belonging to I2, L/M, B/O, N, W and U incompatibility groups.

**Conclusion:** Certain plasmid families are more prevalent among pathogens than others and the knowledge of prevalent plasmid families can help in exploring the possibility of anti-plasmid approach as a strategy for the treatment of infections caused by drug-resistant bacteria.

**MICP 214**

**ME-O3**

**A PILOT STUDY OF THE MOLECULAR EPIDEMIOLOGY OF METHICILLIN-RESISTANT Staphylococcus aureus IN A TERTIARY CARE HOSPITAL USING PULSED-FIELD GEL ELECTROPHORESIS**

Avinandan Saha, Preeti R Mehta, Gita Nataraj
Department of Microbiology, Seth GSMC and KEMH, Mumbai

**Introduction:** Knowledge of the relatedness of circulating methicillin-resistant *Staphylococcus aureus* (MRSA) strains is central to controlling its spread. Pulsed-field gel electrophoresis (PFGE) is a band-based genotyping method with maximum discriminatory index (>0.95) and shows greater than 95% concordance with sequence-based genotyping methods besides costing less. It is the gold standard for epidemiological typing of MRSA. In this pilot study we examined the relatedness of MRSA isolates in our hospital using PFGE.

**Aims:** To examine relatedness of clinically isolated MRSA by antibiotic susceptibility profiling and PFGE profiling (PFP).

**Methods:** This cross-sectional pilot study was carried out on all non-duplicate MRSA isolated in our laboratory during April-May 2019. Identification and antibiotic susceptibility testing were carried out by standard methods and according to Clinical and Laboratory Standards Institute (CLSI) standards. Single colony clones of the MRSA isolates were typed by PFGE following the PulseNet protocol of the Centres for Disease Control and Prevention, USA, and the criteria proposed by Tenover, et al.

**Results:** Thirty MRSA were isolated over 40 days chiefly from burns unit (6 isolates, 20%), orthopaedics (5 isolates, 17%) and general surgery (4 isolates, 13%). Four main antibiotypes were identified, comprising 3 (10%), 14 (47%), 2 (7%) and 2 (7%) isolates respectively, the rest showing individual antibiograms. PFPs of 30 isolates 2 revealed two pulsotypes and 10 (33%) individual patterns. Pulsotype I comprised 18 (60%) isolates. Pulsotype II comprised 2 (7%) isolates and was 50%-80% related to pulsotype I. Most isolates of pulsotype I (10 isolates, 56%) belonged to antibiotype II. Isolates of pulsotype II had individual antibiograms. Clustering of related isolates in specific locations or disciplines was not observed suggesting commonality of strains circulating throughout the hospital.

**Conclusion:** Related MRSA strains may be circulating throughout our hospital. The molecular epidemiology of MRSA in our hospital will be studied further using PFGE.
HETERODUPEX TYPING OF CLINICAL ISOLATES OF ACINETOBACTER FROM INTENSIVE CARE UNITS IN A TERTIARY TEACHING HOSPITAL

Dr. Shubhada C M, Dr. R. D. Kulkarni, Dr. Prakash Patil, Dr. Ajaykumar Oli
SDM College of Medical Sciences and Hospital, Dharwad

Introduction: Acinetobacter is an important hospital pathogen whose role is implicated in various disease conditions especially in patients confined to hospital intensive care units. The characters of the organism from different sources vary. Prevention of infection requires knowledge about the epidemiology of infection. Therefore, differentiation of isolates is essential to identify the source and to understand the spread which in turn helps to prevent infections. Heteroduplex Analysis being a sensitive, reliable and rapid method, a large number of isolates can be typed using this method. Therefore, we have adapted this technique to know the variation between the strains of Acinetobacter from clinical specimens.

Aims and Objectives: Using Heteroduplex method to type clinical isolates of Acinetobacter.

Methods: One hundred and fifty clinical isolates of Acinetobacter were analyzed in this study. DNA extraction was done by phenol-chloroform method. Acinetobacter PCR was performed by targeting 397 bp hypervariable region of rpoB gene. The Heteroduplex assay was performed by mixing the amplicons of test strains and that of standard strain, ATCC A. baumannii 19606. To recognize the likely diversity between clinical isolates, Heteroduplex assay was also performed by using amplicons of different clinical isolates of Acinetobacter. The formation of heteroduplexes was determined by polyarylamide gel electrophoresis.

Results: We identified 4 distinct heteroduplex types of Acinetobacter in clinical isolates of 150 Acinetobacter isolates.

Conclusions: Heteroduplex analysis provides a simple and accurate method to analyse the strain diversity in Acinetobacter isolates.

MICP 306

EPIDEMIOLOGY OF KERATOCONJUNCTIVITIS IN INDIA: A MULTICENTRIC HOSPITAL BASED STUDY

Dr. Mayuri Zende, Dr. Madhav Sathe, Dr. Jayanthi Shastri
B.Y.L.Nair Charitable Hospital and Topiwala National Medical College, Mumbai

Introduction: Viral conjunctivitis is a commonly encountered ocular infection, mainly caused by Adenoviruses, Enteroviruses and Herpes simplex viruses. However, exact epidemiology of Keratoconjunctivitis is unknown as etiologic diagnosis of viruses is seldom performed. Most of the studies have been carried out during outbreaks and no study has been attempted towards surveillance of acute conjunctivitis throughout the year. As a centre of Multicentric hospital based study conducted at 5 centres from India, we share our study findings.

Aims & Objectives: To describe the clinical profile of keratoconjunctivitis in India and to detect the etiology of keratoconjunctivitis using Polymerase Chain Reaction (PCR) in patients from Mumbai.

Methods: The study was conducted from December 2017 to July 2019. Patients presenting with clinical symptoms of Keratoconjunctivitis were enrolled and clinical details recorded by the ophthalmologists. The patients were grouped into 3 categories as per their presentations:
MICP 348

MOLECULAR CHARACTERIZATION FOR STUDY OF SEROTYPES OF DENGUE VIRUSES CIRCULATING IN RANCHI, JHARKHAND

Kumari Seema, Nikesh Sinha, Manoj Kumar, Ashok Kumar Sharma, Amber Prasad, Department of Microbiology, Rajendra Institute of Medical Sciences, Ranchi

Introduction: Dengue is a severe disease caused by dengue virus. These positive-sense single-stranded RNA viruses are transmitted to human beings by Aedes mosquitoes. Dengue is caused by four distinct types of dengue virus serotypes DENV-1, DENV-2, DENV-3 and DENV-4. It is a major public health concern due to its fatality and complications like DHF or DSS. Despite the high endemicity of dengue in this state, there is still no data on the virological aspects of dengue serotype circulating in this area. We conducted a molecular surveillance study of the circulating dengue viruses to identify DENV serotypes prevalent in endemic area of Jharkhand.

Methods: A total number of 238 sera samples were obtained from patients with clinical manifestations of dengue fever reported to Virology lab of Department of Microbiology, RIMS, Ranchi from May 2018 to May 2019. The samples collected were analyzed by ELISA method for Dengue NS1Ag (Panbio kit) and IgMAb (NIV Kit). Real time PCR for detection of all four serotypes was done after extraction of RNA using QIAamp viral RNA mini kit.

Results & Conclusion: Out of total 238 dengue-suspected patients' 58 (24.3%) were positive for IgM & 100 (42%) for NS1Ag. Serotyping was successful for 62 isolates. The study confirmed 62 dengue cases using RT-PCR where 01(1.6%) were dual infections with DENV-1 and DENV-2, 01(1.6%) with DENV-2 and DENV-3, and 02(3.2%) with DENV-2 and DENV-4. Only 9 (14.5%) were infected with DENV-1 serotype; 30 (48.4%) were with DENV-2; 11(17.7%) were DENV-3 and 4 (6.5%) were DENV-4. Dengue serotype 2 was the most common serotype identified in the present study. All four serotypes of dengue virus were found to be prevalent. The circulation of all four serotypes may lead to an increase in the prevalence of more severe complications of this emerging disease requiring an urgent need for further strengthening of the dengue preventive measures. Our serotype data will also provide references for future dengue molecular epidemiology studies and disease management in this region.
MOLECULAR EPIDEMIOLOGY OF PENICILLIN NONSUSCEPTIBLE STREPTOCOCCUS PNEUMONIAE ISOLATES FROM INDIA

Rosemol Varghese, Ayyanraj Neeravi, Jones Lionel Kumar, Kavi Priya, Pavithra, Balaji Veeraraghavan
Christian Medical College, Vellore

Introduction: Emergence of increased penicillin non susceptible S. pneumoniae in India is alarming. Penicillin binding proteins (PBPs) are the primary targets for beta lactam drugs that are mainstay of treatment. Significant mutations in the active site combined with mosaicism of pBP leads to emergence

Aim and Objectives: To analyse pBp gene mutations of Indian penicillin non susceptible pneumococcal (PNSP) isolates and its association with PMEN clones.

Methods: A total of 32 PNSP invasive isolates with penicillin MIC ≥0.12 µg/ml tested by E-test method were included in the study. PCR for the three pBp gene (pBp2b,pBp2x,pBp1a) targets and MLST were carried out after the DNA extraction. S. pneumoniae R6 susceptible strain was used as wild type for comparative analyses of PBP gene mutations. Sequence Type was assigned from the pneumococcal database of pubmlst.org.

Results: In majority of the study isolates, PBP mutations in the active site are seen in pBp2b whereas mosaicism is more in pBp1a and pBp2x. All the isolates had combinations of mutations in the three genes while few isolates showed only two or three mutations with the absence of mutation in the active sites. No correlation was observed between the penicillin MIC and PBP mutations. Major sequence types were ST63, ST236 and ST 320. E-burst analysis revealed majority of the STs belong mostly to the clonal complex CC320, CC230 and CC63.

Conclusion: The present study provides baseline data on the prevalent pBp gene mutations and clonal associations responsible for pneumococcal penicillin resistance in India. The emergence of pneumococcal penicillin non susceptibility in India is mainly due to the gradual expansion of clonal complexes CC320, CC230 and CC63.

DETECTION OF PAP VIRULENCE GENE AMONG UROPATHOGENIC ESCHERICHIA COLI AND THEIR CORRELATION WITH ANTIMICROBIAL SUSCEPTIBILITY– AN OBSERVATIONAL STUDY

Dr.K.Nagalakshmi¹, Dr. Sageera Banoo²
1 – Final Year Post Graduate, 2 - Professor, Department of Microbiology, Dhanalakshmi Srinivasan Medical College & Hospital, Perambalur

Introduction: Uropathogenic Escherichia coli (UPEC) is the most common primary pathogen isolated from UTIs. P fimbriae, encoded by pap genes is one of the common and first identified adhesions, which plays an important role in the pathogenesis of pyelonephritis. In the era of rapidly increasing antibiotic resistance the better understanding of the pathogenesis of UTIs and role of virulence factors in different clinical manifestations of UTIs is of utmost importance.
Aim & Objectives: To determine virulence pattern of pap gene among UPEC strains and to correlate the antimicrobial susceptibility.

Methods: E.coli isolated from urine samples confirmed by phenotypic methods, Antibiotic sensitivity done by the Kirby Bauer disc diffusion method using commercially available antibiotic discs (HiMedia) following CLSI guidelines and PCR is done for pap gene identification.

Results: A total of 100 UPEC isolates was studied for pap gene and its correlation with antibiotic susceptibility in a tertiary care hospital Perambalur, Tamilnadu. Out of 100 isolates UPEC were common among age group of >50 and Male:Female ratio was 3:4. Out of 100 isolates 37 of pap gene detected. Out of 37%, PAPgene was common among the Male sex which was 54.1%. Pap gene correlated with ESBL were 32.43%.

Conclusion: Our study showed high prevalence of antibiotic resistance and ESBL production among pap gene. This observation lead to the awareness of resistance rates of E.coli in our tertiary care hospital and the necessity to establish guidelines for appropriate first line antibiotic treatment.

MICP 182  ME-O9

EPIDEMIOLOGY OF ROTA VIRUS GASTROENTERITIS IN INDIA

Neetu Vijay, Sidharth Giri, Vasna Joshua, Nivedita Gupta, Ira Praharaj, Neeraj Aggarwal, Manoj Murhekar, Gajanan Sapkal, R.R Gangakhedkar, Anu Nagar
Department of Health Research, New Delhi

Introduction: Diarrhea is one of the leading causes of infant mortality across the globe and rotavirus is a common cause of severe childhood diarrheal illness. The Government of India has introduced two indigenously developed rotavirus vaccines in 28 states and UTs and had planned to expand it across the country soon.

Aims & Objectives: To evaluate the burden of rotavirus associated gastroenteritis in India and to estimate the age wise prevalence in children and the distribution across the geographical regions of the country.

Methods: Govt. of India has established a network of Viral Research & Diagnostic Laboratories (VRDLs) across the country. This study is conducted in 10 VRDLs covering three zones (east, north, south). Stool samples collected from cases of acute gastroenteritis were tested for rotavirus, along with collection of demographic and clinical data from 2014 to 2019. All the stool samples were tested for rotavirus using ELISA or PCR.

Results & Conclusion: During the study period from 2014 to 2019, a total of 6089 stool samples were tested for rotavirus, of which 22.02% (1341/6089) were positive for rotavirus. Rotavirus associated diarrhea was more common in the females (26.9%) compared to males (22.6%). The age wise distribution of rotavirus positivity showed that rotavirus associated diarrhea was most common in children <1 year of age (27.9%), followed by 1-4 years age group (20.7%). Only 8.3% of patients who were >4 years of age, had rotavirus diarrhea. To conclude, rotavirus is a major cause of diarrhea in Indian children <5 years of age. With the introduction of the oral rotavirus vaccines into the universal immunization programme, continued surveillance will be crucial to evaluate the trends in rotavirus gastroenteritis in the under five age group in future. However, the data has limitations: (i) VRDLs mostly test for referred samples from field and hospital. The samples represent a wide geographic area; (ii) Serological and molecular testing is not standardized.
MICP 42
My-O1

PYTHIUM INSIDIOSUM KERATITIS: DEVELOPMENT AND EVALUATION OF A RABBIT MODEL

Savitri Sharma, MD; Paavan Kalra, MS; Lalit Kishore Ahirwar, MSc; Ruchi Mittal, MD
L. V. Prasad Eye Institute, Hyderabad

Aim: To describe a rabbit model for Pythium insidiosum keratitis.

Methods: Zoospores of *Pythium insidiosum* isolated from a patient with microbial keratitis were used for inoculation of the right eye of 48 New Zealand White rabbits in either low (LD) or high dose (HD). Apart from variable dosage the rabbits were grouped (6 rabbits per group) based on route of inoculation (topical on abraded cornea or intracorneal) and immunosuppression (subconjunctival steroid or no steroid). Left eye received phosphate buffered saline via route similar to the right eye. Daily clinical examination of the eye was done, the corneas were harvested on days 3, 7 and 9 and part of the cornea was preserved in 10% neutral buffered formalin for histopathological examination.

Results: Left eye of all rabbits were clinically normal. Eyes with intracorneal injection of zoospores developed infection irrespective of dose of inoculation and administration of steroids. One of the consistent early signs of infection was ring like infiltrate in the peripheral cornea. The density of inflammation showed temporal correlation (increase with time) when the inoculum was low. Of the rabbits that received topical inoculation one rabbit cornea showed mild infiltrate in steroid group while no eye was infected in the group without steroid. Sparsely septate to aseptate branching filaments were noted in the stroma of all infected corneas.

Conclusions: We describe the first animal model of *Pythium* keratitis that holds promise for future studies. While topical inoculation of zoospores was unsuccessful in causing infection intracorneal inoculation without immunosuppression was sufficient to develop clinically severe keratitis in rabbits.

MICP 71
My-O2

CORRELATION OF BIOFILM PRODUCTION OF MULTIDRUG RESISTANT CANDIDA SPECIES WITH CANDIDA SCORE- A FUTURISTIC TOOL FOR ASSESSING INVASIVE CANDIDIASIS

Chayanika Banerjee1, Chitrita Chattopadhyay2, Swagata Ganguly3, Soma Sarkar4, Soumodip Dutta5, Sonia Deb6
N.R.S Medical College and Hospital, Kolkata

Introduction: Candida species are normal commensals of mucous membrane. As opportunistic pathogens they can cause induction of disease by various virulence factors, biofilm production being one of them. Early diagnosis of invasive candidiasis remains a challenge, so scoring systems like “Candida score” might lead to better treatment.

Aims and Objectives: To study the biofilm production of different multi drug resistant Candida species and to establish a relation between biofilm production and "Candida score"
Methods: A prospective cohort study was done in Microbiology department at N.R.S Medical College and Hospital for a period of 6 months, January 2019 -June 2019 in which 92 patients were included. The data collection included recording of demographic characteristics, underlying diseases, reason for ICU admission, and severity of illness on a standardized report form. “Candida score” was calculated at the onset of sepsis. The multidrug resistant species were further studied for biofilm production, quantitatively by tissue culture plate method.

Results: Among 92 patients, 70 patients had score 2, 16 patients had score 3, and 6 patients had score 4. Invasive candidiasis was found in 5.43% patients with score 4, 10.86% patients with score 3 and 2.17% with score 2 (p<0.00001). Biofilm production of multi drug resistant species was studied and their OD values were determined. The OD values of positive and negative controls were 0.090 and 0.027 respectively. Maximum biofilm production was shown by Candida auris with higher OD value=0.111 followed by Candida guillermondii=0.099, Candida tropicalis=0.098 and Candida albicans=0.095

Conclusion: “Candida score” is an innovative tool that helps in proper assessment of patients for receiving early antifungal treatment. It was observed that a higher “Candida score” corresponded with higher OD value for biofilm production of species like Candida auris contributing to its virulence and promoting transmission to other susceptible individuals.

MICP 161
My-O3

PNEUMOCYSTIS PNEUMONIA IN CHILDREN WITH HEMATOLOGICAL MALIGNANCIES

Masoom Nathani, Deepti Rawat, Piali Mandal, Ravinder Kaur, Jagdish Chandra
Department Of Microbiology, LHMC New Delhi

Introduction: Pneumocystis jirovecii(formerly carinii) pneumonia (PCP) is a serious opportunistic infection in children and adolescents with cancer. The most important risk factors for PCP in HIV negative children include hematologic malignancies, hematopoietic stem cell transplantation, prolonged corticosteroid therapy, neutropenia and lymphopenia.

Aims and Objectives: To study the incidence of P. jiroveciipneumonia in children undergoing treatment for hematological malignancies who presented with respiratory symptoms with suspected PCP in a tertiary care pediatric institute.

Methods: The study was performed from January 2019 to September 2019 in the Department of Pediatrics KSCH and Department of Microbiology, LHMC. 62 children with hematological malignancies presenting to the Department of Pediatrics with respiratory symptoms were included in the study and their samples were sent to Department of Microbiology for testing. All the samples were tested by direct immunofluorescence antibody staining for PCP using the Merifluor kit.

Results: Out of the 62 samples sent, 12 tested positive for PCP by direct immunofluorescence antibody test. Maximum positivity of PCP was seen in the age group of 2-4 years (58.33%). Majority (41.66%) of children were in the maintenance cycle of chemotherapy. 9 (75%) patients had hypoxia and 10 (83.33%) had cytopenia and positive chest x-ray findings. All of them received treatment with trimethoprim/sulphamethoxazole and 2 received second line therapy of clindamycin and primaquine due to treatment failure. Associated bacterial/fungal infections were seen in 3 children. The incidence of PCP was found to be 19.35%.
Conclusion: PCP is a potentially fatal opportunistic infection in children with hematological malignancies. The high incidence of PCP infection found in the present study indicates that it is important to identify high-risk patient populations and highlights the role of prophylaxis and timely intervention in improving outcome. DFA staining could be a useful diagnostic tool for early diagnosis of PCP which would result in timely initiation of therapy in these children.

MICP 210
My-O4

NEW RISK GROUP FOR INVASIVE FUNGAL INFECTIONS: EPIDEMIOLOGY, RISK FACTORS, RAPID DIAGNOSIS AND BIOMARKER ANALYSIS OF FUNGAL PNEUMONIA IN CIRRHOSIS

Pratibha Kale¹, Vikas Khillan¹, S K Sarin².
1) Department of Clinical Microbiology, 2) Department of Hepatology, Institute of Liver and Biliary Sciences, New Delhi.

Introduction: Liver cirrhosis causes immune dysregulation and increased susceptibility to infections. The data on invasive fungal infections (IFIs) in cirrhosis is limited, in whom the risk factors and management differs due to higher risk of antifungal toxicity. Now included as a new risk group for IFIs

Aims and objectives: To study the epidemiology, risk factors, and compare the rapid diagnostic methods and biomarkers for fungal pneumonia in critically ill cirrhotics.

Methods: Single-center, prospective cohort study of 100 critically ill cirrhotics with fungal pneumonia between January to September 2018 was performed. Comparative analysis was done for culture, real time polymerase chain reaction (PCR) and biomarkers; bronchoalveolar lavage (BAL) and serum galactomannan (GM), and serum procalcitonin (PCT) measured on days 1, 3 and 7. Mortality within one month of diagnosis or discharge was analyzed.

Results: Aspergillus flavus was the most common species (70/100, 70%). Risk factors for fungal pneumonia included neutropenia (p 0.03), steroids prior to ICU admission (p 0.02), prolonged (>21 days) hospitalization (p<0.05), Child class C (p< 0.03) and MELD score > 40 (0.05). Culture positivity was 80%. Culture was not inferior to real time PCR for diagnosis of fungal pneumonia. BAL GM was early prognostic marker with median rise >3.5 over the index value. Median PCT level was higher from day 1 in the fungal pneumonia non-survivor than survivor group (3.29 vs. 0.8 ng/ml), with higher 30-day mortality (72%). Baseline PCT at admission to ICU was higher in non-survivors; levels on day 3 and day 7 were persistently higher. Higher PCT level was associated with bacterial co-infection (48%), antibiotic(74%) and antifungal therapy and renal failure and mortality.

Conclusion: Cirrhotics who are neutropenic, have prolonged hospitalization and exposed to steroids with Child class C and MELD score > 40 have high risk of fungal pneumonia. High serum procalcitonin level is an independent prognostic biomarker of mortality risk in fungal pneumonia which reaches nearly 70%, Galactomannan cut off was high (>3.5) based on clinical and radiological criteria. High index of suspicion and early detection of fungal pneumonia, is required in advanced cirrhosis.

MICP 19
My-O5

RISK FACTORS ASSOCIATION AND ANTIFUNGAL SUSCEPTIBILITY PATTERN OF CANDIDA PARAPSILOSIS COMPLEX
**Introduction:** Candida parapsilosis complex is composed of C. parapsilosis sensu stricto (CPSS), C. orthopsilosis (CO) and C. metapsilosis (CM). There are various predisposing factors for candidiasis. Very limited studies are available on association of risk factors and antifungal susceptibility testing (AFST) of these three species and therefore the study was undertaken.

**Methods:** 84 CPSS, 15 CO and 7 CM isolates which were obtained from various clinical samples from January 2016 to December 2018 in a tertiary care hospital and identified by PCR, were included in the study. Waiver of consent was granted by the IEC. Risk factors details were collected and AFST were performed by both disk diffusion (DD) method and broth-microdilution method (BMD) using CLSI guidelines.

**Results:** Species wise analysis showed that most of the risk factors did not vary significantly between the three species. C. orthopsilosis was isolated in significantly (P-value=0.021) higher proportion in uncontrolled diabetes. ICU admission, deranged renal parameters, presence of invasive devices such as central venous catheter, mechanical ventilator and chemotherapy recipients were statistically significant risk factors contributing to mortality. DD gave similar results as BMD results with few variations. DD method showed 89.6% and 99% of categorical agreement with the BMD for fluconazole and voriconazole respectively. 8.3% of the CPSS, 6.7% of CO and none of CM isolates were resistant to fluconazole while only 2.4% of the CPSS isolates were resistant to voriconazole by BMD. MIC\textsubscript{90} of fluconazole for CPSS was 4µg/mL and was lower for CO and CM while MIC\textsubscript{90} of voriconazole was 0.125 µg/mL for all the three species. A single isolate of CPSS was resistant to both the drugs.

**Conclusion:** C. orthopsilosis was associated with uncontrolled diabetes. More number of isolates of C. parapsilosis complex were susceptible to voriconazole than fluconazole. Resistant isolates against fluconazole and voriconazole are mostly seen in CPSS. MIC\textsubscript{90} of CPSS is still in SDD range and therefore azoles may be considered as empirical therapy in non-critical cases in our set up.

**MICP 366**

**My-O6**

**INFECTIVE AETIOLOGY IN PATIENTS WITH 'TREE-IN-BUD' PATTERN ON HRCT CHEST HIGHLIGHTING THE NEGLCTED FUNGAL LUNG INFECTIONS**

Dr. Priyanka Sharma, Dr. Manoj Sharma
Kailash Hospital Limited, Greater Noida

**Introduction:** Tree-in-bud is indicative of a spectrum of endobronchial spread and refers to a pattern seen on thin-section chest CT (HRCT) in which centrilobular bronchial dilatation and filling by mucus, pus, or fluid resembles a budding tree. First described in cases of endobronchial spread of Mycobacterium tuberculosis, the tree-in-bud pattern is now recognized as a CT manifestation of such various entities as infection (bacterial, fungal, viral, parasitic), congenital disorders (cystic fibrosis, Kartagener syndrome), idiopathic disorders (obliterative bronchiolitis, panbronchiolitis), aspiration or inhalation of foreign
substances, immunologic abnormalities, connective tissue disorders, peripheral pulmonary vascular disease, and rarely malignancy.

**Aims and Objectives:** This study was carried out to evaluate the infectious causes of tree-in-bud pattern seen on HRCT chest and to highlight under-diagnosed fungal cases of endobronchial spread in the lungs for timely institution of appropriate treatment.

**Methods:** Total 58 patients presenting between September 2018 to August 2019 with suspected lung diseases underwent HRCT chest examinations showing a tree-in-bud pattern in whom a microbiological analysis (acid fast stain, Gram stain, KOH, GeneXpert, bacterial and fungal cultures) of sputum, BAL or respiratory secretions had been performed by using standard procedures.

**Results:** Among 58 patients with tree-in-bud pattern on HRCT chest, 33 (56.89%) had significant positive microbiological results. Out of 33 positive tests, 22 (66.66%) were diagnosed to be *Mycobacterium tuberculosis* complex, 9 (27.27%) were fungal pathogens (*7 Aspergillus species and 1 Apophysomyces elegans and 1 Penicillium (Talaromyces) marneffei*), 2 (6.06%) were *Staphylococcus aureus* and 1 (3.03%) was an unusual finding of *Nocardia species*. Among 22 culture positive cases of *Mycobacterium tuberculosis* complex, 16(72.72%) were positive for AFB smear microscopy and 20 (90.90%) were positive with GeneXpert. To our surprise, one case of *Nocardia* was also diagnosed as acid fast positive branching filaments using 20% H₂SO₄.

**Conclusions:** A clinically significant infective etiological diagnosis was obtained in approximately 57 % (33 out of 58) of the patients with tree-in-bud pattern on HRCT chest. Among all the microbiologically positive cases, approximately 28% patients had fungal etiology that is usually under-reported leading to a delay in treatment and high mortality in this subset of patients. Although, the tree-in-bud pattern is believed to be a characteristic of pulmonary tuberculosis (approximately 67% of pulmonary tuberculosis cases in our study), increase in number of immune-compromised and susceptible patients have led to a rise in prevalence of fungal lung infections which should always be kept as a high index of suspicion in mind to be one of the most frequent entity nowadays in order to permit prompt and appropriate treatment.

**MICP 398**

**My-O7**

**DETECTION OF CAUSATIVE AGENTS OF INFECTIOUS KERATITIS IN PATIENTS FROM WESTERN RAJASTHAN**

Twishi Shrimali¹, Anuradha Sharma², Anup Kumar Ghosh³*, Arvind Kumar Morya⁴#, Vibhor Tak⁵, Vijaya Lakshmi Nag⁶

¹Postgraduate student, ²Additional Professor, ³Additional Professor, ⁴Associate Professor, ⁵Associate Professor, ⁶Professor and Head
Department of Microbiology, ⁷Department of Ophthalmology, All India Institute of Medical Sciences, Jodhpur, * Department of Medical Microbiology, PGIMER Chandigarh

**Introduction:** Corneal ulcers have an insidious onset and are difficult to treat which demands early diagnosis and treatment. The climate of Rajasthan is different from the rest of India and there is lack of data regarding the epidemiology of pathogens causing keratitis in this part of the country.
Aims & objectives: The study was conducted to determine the spectrum and distribution of causative agents, the associated risk factors and their relationship in patients of infectious keratitis.

Methods: It was a prospective study conducted over a period of one year from August 2018 to August 2019 at AIIMS Jodhpur which included 62 patients attending the ophthalmology OPD with features of keratitis. Ophthalmological examination was conducted, corneal scrapings were collected under slit lamp biomicroscope. The samples were subjected to direct microscopy and bacterial and fungal cultures. Bacterial isolates were identified by conventional methods and Microscan Walkaway automated system. Fungal isolates were identified by gross appearance and microscopic morphology.

Results: Out of 62 patients tested, 28 cases were positive for infectious keratitis, of which 21 (75%) had fungal and 6 (21.5%) had bacterial keratitis. There was one case of microsporidial keratitis. Fusarium spp. accounted for 38.1% of the fungal pathogens followed by Aspergillus spp. (14.2%). Among the bacterial isolates, Pseudomonas aeruginosa accounted for 50% of the cases followed by Staphylococcus aureus (33.3%). Infectious keratitis followed a seasonal trend with maximum number of cases recorded during July to October i.e. during harvesting period. Trauma from vegetative matter was the most common predisposing factor (51.1%). Farmers (29%) were more commonly affected than other occupational groups. A male preponderance (69.3%) was observed in our study with maximum number of cases observed in >50 years’ age group and presenting within ten days of injury (38.7%). Two cases (one each due to Fusarium spp. And Streptococcus pyogenes) underwent enucleation even after treatment.

Conclusion: Corneal ulcers are an important cause of ocular morbidity, particularly in rural India. Even after early diagnosis and treatment, two of our cases underwent enucleation which emphasizes the need for faster detection methods like molecular techniques which can detect the causative agents directly from the clinical specimens.

MICP 417
My-O8

STRESS RESPONSES CORRELATE WITH FLUCONAZOLE RESISTANCE IN CANDIDA AURIS

Sourav Das, Yamini Tawde, Shreya Singh and Anup Ghosh
Department of Medical Microbiology, Post Graduate Institute of Medical Education & Research, Chandigarh.

Introduction: For survival, pathogenic fungi exert stress responses against various physiological stresses which also have been shown to be linked with the drug resistance patterns. Candida auris is a multidrug resistant yeast emerging as a major global health threat. In this study we have evaluated the link between stress response and azole resistance in C. auris.

Aims and Objectives: To investigate the phenotypic osmotic, oxidative and metal stress response in C. auris. To estimate the related gene expression profile in clinical, colonizing and environmental C. auris isolates and to evaluate the percentage survival rate in mice model upon infection of C. auris isolated from all three origins.

Methods: Total of 12 C. auris isolates of three groups including clinical, colonizing and environmental (each group contained two isolates from both resistant MIC: ≥256 µg/ml and susceptible MIC: ≤2-4µg/ml) were tested in this study. A range of 8% to 18% NaCl for
osmotic, 5 mM to 50 mM H₂O₂ for oxidative stress were tested. Tolerance against iron, zinc and copper stresses were also checked. Expression profile of Hog1, Sho1, Cta1, Mkc1, Sod1, Cek1 were evaluated by real time qPCR. Two isolates of *C. auris* from each group were used for animal experiment. A standardized inoculum i.e. 200 µl of 2X10⁷/ml stock were injected into immunosuppressed Swiss albino mice and observed for 21 days. Organs were harvested and CFU count along with tissue histology were performed.

**Results:** Flucanazole susceptible *C. auris* isolates of all three representative groups tolerated up to 17% NaCl in comparison with resistant isolates which tolerated only 15% of NaCl. Similarly, a high oxidative tolerance (up to 40 mM of H₂O₂) was noted in susceptible isolates whereas resistant isolates could withstand up to 25 mM of H₂O₂. Gene expression profile showed a variable wide range of fold change among the susceptible and resistant group of isolates. Mice infected with resistant isolate showed prolonged survival than mice infected with susceptible isolates.

**Conclusion:** Flucanazole resistant *C. auris* isolates showed reduced tolerance to both osmotic and oxidative stress and better survival in mice compared to susceptible isolates. This tradeoff could be due to the consequences of their multidrug resistance adaptation eventually reducing their competitive fitness.

**MICP 439**

**My-O9**

**EVALUATION OF A NOVEL ASPERGILLUS IGG ENZYME IMMUNOASSAY FOR DIAGNOSING ALLERGIC AND CHRONIC PULMONARY ASPERGILLOSIS**

Harsimran Kaur, Shreya Singh, Shivaprakash M Rudramurthy, Hansraj Choudhary, Ritesh Agarwal, Anup Ghosh, Arunaloke Chakrabarti

Department of Medical Microbiology and Pulmonary Medicine, PGIMER, Chandigarh

**Introduction:** *Aspergillus* IgG antibody plays a crucial role in diagnosis & management of allergic bronchopulmonary aspergillosis (ABPA) and chronic pulmonary aspergillosis (CPA). Currently available diagnostic kit (PhadiaImmunoCap, PIC) is costly and requires stable electrical power.

**Aims & Objectives:** Evaluation of a new commercial enzyme immunoassay (EIA) (BordierELISA, BE) for detection of *Aspergillus* IgG antibodies in CPA & ABPA.

**Methods:** We conducted a retrospective study between October, 2018 and June, 2019 using stored sera of patients. The patients were categorized into ABPA, asthma with *Aspergillus* sensitization (AAS), asthma without *Aspergillus* sensitization (AWS) and CPA according to standard definitions. *Aspergillus* IgG concentrations were determined by BE and PIC. The analysis was carried out using SPSS. Results were treated as positive when performance of both tests was equivocal. Interpretation: a) BE: OD index ≥1 positive, 0.8-1 equivocal, < 0.8 negative b) PIC: Cutoff 26.9 mgA/L. Sensitivity, specificity, positive and negative predictive values, Cohen’s kappa, diagnostic odds ratio (DOR), likelihood ratio (LR) and Youden’s index (YI) were calculated.

**Results:** We included 172 patients: CPA-50, ABPA-40, AAS-25, AWAS-25, and healthy controls-32. The specificity (%) of BE vs PIC in ABPA; CPA; AAS and AWS was 90.70; 82.6, 39.1; 90.9,81.8 and 95.6, 95.6 respectively. The PPV (%) of BE vs PIC in ABPA; CPA; AAS and AWS was 96.8, 90.9; 87.1, 65.8; 93.3, 87.5 and 66.7, 66.7 respectively. The sensitivity and NPV for both tests were 100% in all clinical categories. The positive LR, YI and DOR of BE were higher than PIC. The overall agreement between both tests was 79.6%
(moderate) with a slight agreement in CPA (64%) and substantial agreement in ABPA (90%), AAS (88%) and AWS (96%).

**Conclusion:** Bordier ELISA is a suitable alternative for detection of *A. fumigatus* specific IgG in CAP and ABPA in resource poor settings.

**MICP 320**  
**My-O10**

EMERGENCE OF RHIZOPUS HOMOTHALLICUS AS A SIGNIFICANT HUMAN PATHOGEN OF MUCORMYCOSIS

Dr Jagdish Chander, Dr Alisha Bhagat, Dr Nidhi Singla, Dr Neelam Gulati, Dr RPS Punia, Dr Deepak Agarwal  
GMCH, Chandigarh

**Introduction:** *Rhizopus homothallicus* was first described by Hesseltine and Ellis in 1961 from a soil sample in tropical desert at Zacapa station in Guatemala. This has two varieties: *R. homothallicus* var. *homothallicus* and *R. homothallicus* var. *indicus*. The fungus is thermotolerant and can grow at 48°C unlike other homothallic species.

**Aims & Objectives:** To recognize the importance of emerging mucormycete *R. homothallicus* in causing significant human infections.

**Methods:** Nasal crusts, necrotic tissue, broncho-alveolar lavage (BAL) were processed for conventional mycological examination. Fungal etiology was established by direct examination of KOH mount, GMS, PAS and fungal culture. Morphological identification of fungal isolates was done by LCB preparation. Final diagnosis of isolates was established on the basis of molecular identification done by sequencing ITS region.

**Results:** A total of 7 cases of mucormycosis caused by *R. homothallicus* were encountered during a period of seven years from 2013-2019. There were three cases of pulmonary mucormycosis, two rhino-orbito-cerebral mucormycosis (ROCM), one each of cutaneous and ear mucormycosis. Diabetes mellitus was the risk factor in all seven cases, one case of ROCM also had tooth extraction as risk factor and one cutaneous case was iatrogenic (at the site of aspiration of pleural effusion). One pulmonary case was successfully managed with ampholip while two pulmonary cases went LAMA. One case of ROCM was treated by FESS alone and he survived, while other case of ROCM was successfully managed by ampholip and debridement. The cutaneous case was treated with ampholip and debridement but the patient expired. The case of mucormycosis of middle ear was successfully treated by radical mastoidectomy and ampholip.

**Conclusion:** A very limited number of isolates of *R. homothallicus* have been found worldwide and are being isolated mostly from India. This emerging mucormycete may cause rare but fatal infections, especially in patients with uncontrolled diabetes mellitus.

**MICP 31**  
**My-O11**

EMERGING DEMATIACEOUS AND HYALINE FUNGI CAUSING KERATITIS IN A TERTIARY CARE CENTRE FROM NORTH INDIA
Introduction: Fungal keratitis (FK) is a devastating corneal infection and considered to be the second most common cause of blindness in developing countries. The early identification of newer and rare agents and their AFST would provide a better understanding of the epidemiology and management scope of fungal keratitis.

Aims & Objectives: To report rare dematiaceous and hyaline fungal pathogens causing fungal keratitis (FK) and their in vitro susceptibility testing at our centre.

Methods: A total of 14 rare pathogens causing FK which were reported from 2005 through 2011 were revived from our collection and re-confirmed by molecular techniques. The in-vitro antifungal susceptibility testing (AFST) was performed against a 6 antifungal drug panel by CLSI microbroth-dilution method.

Results: Alternaria tenuissima and Epicoccum nigrum were reported in FK for the first time. Other agents included 6 dematiaceous fungi (Acrophialophorafusispora, Chaetomium globosum, Cladophialophoracarionii, Nigrosporasphaerica, PapulasporaequiandScytalidiumlignicola), 5 hyaline fungi (Aspergillus tamarii, Fusarium chlamydosporum, Fusarium incarnatum, Fusarium lichenicolaand Fusarium sacchari) and one yeast (Trichosporonasahii). Amphotericin B had good in-vitro activity (Minimum inhibitory concentration (MIC) ≤ 1µg/ml) against most dematiaceous fungi, but not hyaline fungi (MIC ≥1µg/ml). Natamycin showed variable MIC, Itraconazole and voriconazole had good in-vitro activity except in Fusarium species. A.tenuissima and A.fusispora had very high MIC (≥16µg/ml) against echinocandins. Literature search revealed 27 FK cases due to F.lichenicola (n=6), P.equi (n=5), F.sacchari (n=4), A.fusispora(n=3), S.lignicola (n=2) and others (n=7) and more than 50% of these were reported from India.

Conclusion: Plant fungal pathogens with variable antifungal susceptibility are an emerging cause of human keratitis with predominance of dematiaceous fungi. Identification and AFST are important for epidemiology and to optimise therapy and improve patient outcome.

MICP 162
My-O12

STUDY OF SUBCUTANEOUS MYCOSIS; DIVERSITY OF PATHOGENS

Wankhade AB, Patro P, Mathias A, Sharma P, Das P, Gaikwad U, Arora R, Chhabra N Department of Microbiology, All India Institute of Medical Sciences, Raipur

Introduction: Subcutaneous mycoses are a group of fungal infections of dermis and subcutaneous tissue. It often affects the patients in immunosuppressive conditions. It consists of Sporotrichosis, Chromoblastomycosis, Phaeohyphomycosis, Hyalohyphomycosis, Mycetoma, subcutaneous zygomycosis, Rhinosporidiosis, Lobomycosis and disseminated Penicilliosis. There are proven pathogenic agents causing subcutaneous mycosis though are not regularly isolated & reported. Few of them are commonly encountered in laboratory. Herewith, emphasized on the clinical isolates from the patients having subcutaneous mycotic lesion with its clinical details.

Aims & Objective: To isolate & identify the causative agents of suspected subcutaneous mycosis patients.
Methods: It is a retrospective study of one year duration from July 2018 to July 2019. Twenty three tissue or biopsy specimens from the lesion of suspected subcutaneous mycoses were studied. Among these, eight were positive by direct microscopy with 20% KOH while six were positive for culture. These were processed & identified by using standard protocol. The two isolates which were not identified phenotypically were sent to NCCPF PGI, Chandigarh for identification. The isolates identified were two Conidiobolus coronatus from biopsy of nasal mass & biopsied tissue from right nasal cavity. Each isolate of Medicopsis romerai from fine needle aspiration from the nodule of left thumb, newer species of Paecilomyces from Sino-orbital tissue, Cladosporium species, Actinomaduraspp from Mycetoma patients. All these cases were studied in detail.

Conclusion: There is diversity in the etiological agents of subcutaneous mycoses. Every case is different & rare. With the help of molecular techniques, newer fungi are identified as causative agents of subcutaneous infection. Awareness & extensive studies are required to regulate the therapeutic management & to know the geographical distribution of etiological agents.

MICP 176
My-O13

CORRELATION OF GALACTOMANNAN WITH CLINICAL PROFILE- A PILOT STUDY

Almas Fathima U, Geetha N, Anupma Jyoti Kindo
Sri Ramachandra Institute of Higher Education and Research, Chennai.

Introduction: Invasive Pulmonary Aspergillosis (IPA) is one of the major causes of mortality in immunocompromised patients. The gold standard method of diagnosis of IPA is histopathological examination of lung tissue; however the post procedural bleeding limits the feasibility of lung biopsy. Galactomannan, which is a universal polysaccharide component of Aspergillus sp.cell wall, is released into bronchoalveolar lavage fluid (BAL) & serum which can be detected by performing Galactomannan Assay.

Aims and Objectives: To analyse the galactomannan values obtained from clinical specimens. To correlate the galactomannan values with the culture and KOH reports and to compare the outcome of the patient with the antifungal therapy

Methods: The galactomannan assay was done for patients with respiratory symptoms from the period of March 2018 to September 2019. The clinical specimens-BAL & serum, collected from the patients were tested using the Platelia™ Aspergillus Ag (BIO-RAD). Retrospective chart analysis was performed using the values obtained with the clinical presentations and outcome of the patient along with available histopathological and radiological findings.

Results: During the period of 19 months, 18 samples were positive among the 49 patients’ samples (BAL/Serum) tested for Galactomannan assay. For 18 positive patients, KOH received for 10 BAL samples were negative for fungal elements and 5 samples for fungal culture showed no growth. The comorbid conditions were analysed from the available history and showed positivity of galactomannan assay in 3 patients on hemodialysis, but the correlation with antibiotic usage was not useful. Among the patients who had received antifungal treatment, 7 died.

Conclusion: IPA patients need early diagnosis and treatment to reduce the mortality of the patient. It can be done using galactomannan assay which provide the clue for
probable/possible IPA even though the culture is negative. Since it is a pilot study large number of samples should be used for better understanding.

MICP 226
My-O14

MICROBIOLOGICAL, CLINICAL PROFILE AND ANTIFUNGAL SUSCEPTIBILITY PATTERN OF DERMATOPHYTOSIS IN A TERTIARY CARE HOSPITAL FROM WESTERN INDIA

Swati Mudshingkar, Ashwini Dedwal, Sunil Bhamare, Anju Kagal, Rajesh Karyakarte
Department of Microbiology, BJ Government Medical College and Sassoon General Hospitals, Pune

Introduction: Dermatophytosis is a common superficial mycosis causing significant cutaneous morbidity. In recent times, the prevalence of dermatophytosis is increasing. There is emergence of antifungal resistant strains due to incongruous use of antifungals and poor antifungal policy. There are limited studies related to antifungal susceptibility testing (AFST).

Aims & Objectives: To determine microbiological, clinical profile and antifungal susceptibility testing of dermatophytosis.

Methods: A prospective study was conducted on patients with superficial fungal infections over a period of 11 months (October 2018 to August 2019). Various samples like skin scrapings, scales, hair and nail clippings were processed by standard fungal culture methods. AFST was performed by using E-test strips (HiMedia) of fluconazole, itraconazole and terbinafine on Sabouraud’s dextrose agar plates and interpreted according to CLSI (M38A).

Results: A total of 25 (23.8%) dermatophytes were isolated from 105 (skin 57, Nail 41, scales 11, Hair 6) samples. Out of 25 culture positive patients, 18 presented as tinea corporis, 3 as tinea cruris, 3 onychomycosis, 1 each as tinea capitis & tinea incognito. T. tonsurans was the most common dermatophyte 40% (N10), followed by T. rubrum 36% (N9), T. mentagrophytes 12% (N3) and M. canis 8% (N2) and T. megninii 4% (N1). AFST of all 25 isolates revealed that 21 isolates were sensitive to itraconazole (0.023 to 0.75 mcg/ml) whereas a single isolate of T. rubrum and T. tonsurans each were resistant. Two isolates of T. tonsurans showed lower MICs for itraconazole (0.023 mcg/ml). For terbinafine (0.002-0.008mcg/ml), 14 isolates (56%) showed resistance with MICs >32 mcg/ml. For fluconazole (range 0.5-4 mcg/ml) only 3 isolates showed MIC in range while 22 were resistant MICs >256mcg/ml. The results were communicated with dermatologists and appropriate changes were made in patient therapy.

Conclusion: The emergence of resistant dermatophytes emphasises the need of antifungal drug susceptibility tests, antifungal stewardship and strong antifungal policy to enable the clinician to start suitable antifungals to avoid antifungal resistance and treatment failure.

MICP 264
My-O15

UTILITY OF VITEK2 IN IDENTIFICATION AND ANTIFUNGAL SUSCEPTIBILITY TESTING OF YEAST IN A RESOURCE CONSTRAINED SETTING
**Introduction**: Invasive fungal infections especially those caused by Candida spp are on the rise. The mortality rate due to invasive Candidiasis is approximately 40%. *Non-albicans Candida* species previously considered to be non-pathogenic are now increasing in frequency. Increasing use of antifungals for empirical treatment of fungal infections has led to development of resistance to the existing antifungal agents in previously sensitive *Candida* species. The emerging *Candida* species are known to be inherently resistant to antifungal agents. The specificity in the antifungal profile of different *Candida* species makes it necessary to speciate and determine the antifungal susceptibility pattern for improving patient care. The conventional methods of identification and antifungal susceptibility are labour intensive and time consuming for yeasts. Newer automated methods not only reduce the turnaround time but are also cost-effective.

**Aims and Objectives** - Species identification and antifungal susceptibility profile of 100 consecutive, non-duplicate yeast isolates recovered during a study period of one year was determined using conventional methods and VITEK2 and a comparison of the results.

**Results** - *C.tropicalis* (44%) was the most common species isolated followed by *C.albicans* (29%) and *C.glabrata* (7%). Of the 100 isolates identified, the agreement between VITEK2 and conventional was 95%. 50 isolates were subjected to antifungal susceptibility testing for fluconazole and amphotericin B. For fluconazole, the essential agreement was found to be 96% and for amphotericin B, it was 98%. TAT by VITEK2 was significantly lower compared to conventional method. The cost per test was higher for VITEK2.

**Conclusion** - Vitek 2 is a reliable, feasible and time saving alternative for identification and antifungal susceptibility of the yeasts. Availability of rapid results will help in optimizing the therapy of invasive candidial infection and prove to be a beneficial option in a resource constrained setting.

**MICP 305**

**My-O16**

**METABOLIC INHIBITION IN BIOFILMS OF EMERGING UNUSUAL CLINICAL YEAST WITH TRIAZOLES AND ECHINOCANDIN CLASS OF ANTIFUNGALS**

Balaji S, Gnanasekar R and Umamaheswari K
Department of Biotechnology, University of Madras, Chennai

**Introduction**: Changing incidences and clinical spectrum of infectious mycosis due to unusual yeast has been dramatic in the recent past. Understanding the species diversity and its key virulent factors would enhance selective species targeted therapy. The emerging yeasts with the biofilm potential are frequently encountered with nosocomial mycosis and are remarkably obsessed with multiple antifungal resistance patterns.

**Aims & Objective**: To study the proficiency of Triazoles (Itraconazole, Posaconazole, Voriconazole and Fluconazole) and Echinocandin (Anidulafungin) against biofilm of unusual yeast.

**Methods**: The planktonic MIC break points of the triazoles and echinocandins against the unusual yeast were determined using microdilution assay. The biofilm potential was characterized using crystal violet assay and the minimum biofilm eradication concentration
(MBEC) of triazoles and echinocandin against biofilms of unusual yeast was determined using XTT reduction assay.

**Results & Conclusion:** A total of 21 unusual yeast clinical isolates belonging to 8 different genera speciated using ITS sequencing were tested in this study. The spectrum of species included Yarrowialipolytica(12), Kluyveromycesmarxianus(1), Meyerozymacaribbica(1), Pichiamanshurica(1), Pichianorvegensis(1), Clavisporalusitaniae(2), Candida metapsilosis(2) and Debaryomyceshansenii(1). Biofilm quantification studies showed that all the unusual yeasts tested are biofilm producers that included strong biofilm formers (12), moderate biofilm formers (7) and weak biofilm formers (2). The MBEC profiles showed that Voriconazole and Anidulafungin were more destructive against the biofilms in comparison with the other antifungals. The clinical encounter of the unusual yeast species is on an exponential rise and determination of its biofilm sensitivity would be pertinent in guiding precise therapy.

**MICP 281**
**My-O17**

**ACCURATE IDENTIFICATION OF CANDIDA FAMATA MISIDENTIFIED BY VITEK 2 AUTOMATED I/D SYSTEM**

Dr.PrativaSahu PGT, Dr.Gargi Choudhury Associate Professor, Dr. Reema Nath Professor & Head, Department of Microbiology, Assam Medical College & Hospital

**Introduction:** Candida famata(formerly Torulopsis candida; teleomorph, Debaromyceshansenii) is an ascomycetous yeast commonly found in foods, including dairy products. It is a rare human pathogen, but a medically relevant yeast as other species of Candida are often misidentified as Candida famata.

**Aims and Objectives:** To assess the accuracy of identification of Candida famata by Vitek 2 automated I/D system using molecular characterization by ITS gene sequencing and to detect the antifungal susceptibilities of the clinical isolates.

**Methods:** A prospective study was done in Microbiology Department, Assam Medical College & Hospital, over 4 months period. Yeast isolates obtained as pure culture from clinical specimens were further identified by Vitek 2 automated system. Candida famata strains identified by Vitek were further characterized using universal primers ITS1 and ITS4 by PCR amplification and sequencing. The antifungal susceptibility testing of the Candida species was done by Vitek 2 automated system.

**Results:** Out of 30 yeast isolates, Vitek 2 system identified 6 as Candida famata. On molecular identification using ITS gene sequencing they were identified as C.albicans (2 no.), C.tropicalis (2 no.), C.krusei(1 no.), C.glabrata(1 no.). All Candida species showed 100% sensitivity to amphotericin-B, voriconazole and caspofungin. But Candida krusei showed resistance to fluconazole and flucytosine.

**Conclusion:** We should suspect misidentification when Candida famata is reported by the Vitek 2 system. Accurate speciation of yeast is important because of the presence of intrinsic resistance mechanism of these species to various antifungal agents.
MICP 289
My-O18

“ISOLATION OF CANDIDA AURIS AMONG IMMUNOCOMROMISED PATIENTS FOR PROMPT INFECTION CONTROL MEASURES”

GitaliBhagawati, Rekha Saji Kumar, Lincy T.P.
Dharamshila Narayana Superspeciality Hospital, Kaushambi, Gaziabad.

Introduction: C. auris is emerging as a multi-drug resistant strain of Candida in recent years. In India, during 2013 to 2014, two larger series of cases of candidemia and deep-seated infections with high mortality rate were reported by it.

Aims & Objectives: To study the prevalence of Candida auris in our institute and have stringent infection control practices for their control.

Methods: The retrospective study was done over a period of one year, from January to December 2018 in a superspeciality hospital in Delhi. Various samples processed as per Standard operating procedure (SOP) in the Dept. of Microbiology were taken in the study. Yeast and yeast-like fungus were further sub-cultured on two tubes of Sabouroud’s Dextrose Agar (SDA) and incubated at 25°C and 37°C for 72 hours. Identification was done by colony morphology, a germ tube test and finally by Vitek 2 Compact system (bioMérieux, Inc. Durham, North Carolina/USA) using ID-YST. YST-AST card was used for antifungal susceptibility pattern. Quality control strains used were C. tropicalis ATCC 201380, C. parapsilosis ATCC 22019 and C. krusei14243.

Results: A total seven C. auris were isolated over a period of one year; 5 of these isolates were from urine samples while one sample from paired-blood and one from sputum. The prevalence of C. auris was found to be 3.35% (7/209) as compared to predominant albicans species, C. albicans 54.23% (109/209) and non-albicans species, C. tropicalis 16.75%(35/209). Out of 7 isolates, 3 were isolated from patients admitted in ICU and 4 were from IPD; no isolate from OPD.

Conclusion: Prompt diagnosis of C. auris helps in empiric treatment of the patient due to high anti-fungal resistance. Secondly, identification of the fungus helps in controlling any impending outbreak in inpatient department or critical care areas by taking proper infection control measures.

MICP 291
My-O19

CHANGING TRENDS IN EPIDEMIOLOGY AND ANTIFUNGAL SUSCEPTIBILITY PATTERNS OF BLOODSTREAM CANDIDA ISOLATES FROM A TERTIARY CARE HOSPITAL IN WESTERN INDIA

Arghadip Samaddar*, Anuradha Sharma, Vijaya Lakshmi Nag
Department of Microbiology, All India Institute of Medical Sciences (AIIMS), Jodhpur, Rajasthan, India

Introduction: Bloodstream infections caused by Candida are a significant cause of morbidity and mortality in critically ill patients. The changing epidemiology and emergence of antifungal resistance have made such infections extremely difficult to treat.
**Aims & Objectives:** This study was conducted to evaluate the different species of Candida causing blood stream infections and their antifungal susceptibility patterns.

**Methods:** It was a retrospective observational study conducted over a period of five and a half years from January 2014 to June 2019 at AIIMS, Jodhpur, Rajasthan. The study included 91 cases whose blood cultures were positive for *Candida* by BACTEC 9120 equipment (BD Diagnostic Systems). Speciation of *Candida* isolates was done by conventional methods. Antifungal susceptibility testing (AFST) was performed by E-test according to CLSI document M27 A3.

**Results:** Candidemia was most common in <1 year age group (41.7%). Majority of the cases were from intensive care units (61.5%) with neonatal ICU accounting for 37.4% of the cases. Prematurity, usage of broad spectrum antibiotics, central venous catheter, immunosuppressive medications, and prolonged ICU stay were the major risk factors associated with candidaemia. Non- *albicans Candida* species (67.1%) were more commonly isolated than *Candida albicans* (32.9%). Amongst NAC, *C. parapsilosis* (32.8%) was the most common species followed by *C. tropicalis* (27.8%), *C. glabrata* (21.3%), and *C. krusei* (18.1%). All *Candida* isolates were susceptible to amphotericin B. Resistance to fluconazole was observed in 41.7% of the isolates, of which 92% were NAC. Resistance to caspofungin, anidulafungin and micafungin were detected in 6.6%, 4.4%, and 5.5% of the isolates, respectively, all of which were NAC. One isolate of *C. parapsilosis* showed resistance to all three echinocandins tested.

**Conclusions:** A shifting paradigm from *Candida albicans* to non- *albicans Candida spp.* in cases of candidemia was observed in our study. This is critical as the latter is associated with greater resistance to antifungal drugs and significantly high mortality. Speciation and AFST are of paramount importance to guide appropriate therapy and improve patient outcomes.

**MICP 339**

**My-O20**

**CANDIDAEMIA IN SURGERY – WHERE DO WE STAND? AN EXPERIENCE FROM A TERTIARY CARE HOSPITAL**

Arshad Badar, Shashir Wanjare, Pallavi Surase, Kunalsen Jagatdeo, Gita Nataraj
Department of Microbiology, Seth G.S. Medical College & KEM Hospital, Mumbai

**Introduction:** Candidaemia is an important health problem in immune-compromised patients. Candida accounts for 8-10% of blood stream infection (BSI) in intensive care units (ICUs). Epidemiology of candidaemia varies with period and patient population involved. As very limited study of candidaemia is available in surgical patients, a retrospective study on candidaemia in surgical patients has been undertaken in tertiary care hospital.

**Aims and Objectives:** To analyze the occurrence of candidaemia and species distribution in different surgical specialties over an 8 year period.

**Methods:** Laboratory data from patients with candidaemia were collected from 2011 to 2018. Data was analyzed with respect to different surgical specialties along with species distribution. Available antifungal susceptibility pattern was analyzed.

**Results:** 249 candidaemia episodes occurred during period of 8 years. There were increased episodes during 2015 to 2018 (182 episodes) to previous time period of 2011 to 2014 (67 episodes). Frequency of candidaemia in different surgical specialties was as follows General surgery (108), SICU (53), Paediatric surgery (49), CVTS (26), GI surgery (7), Plastic surgery
There was no episode of candidaemia in Neurosurgery. Common candida species isolated were *Candida tropicalis* (38.96%), *Candida glabrata* (23.69%) *Candida parapsilosis* (15.26%) *Candida albicans* (14.46%). *Candida tropicalis* was isolated uniformly from different surgical specialities but highest isolation was in SICU (54.71%). Isolation of *Candida glabrata* was highest in paediatric surgery (42.86%) followed by general surgery (25%) and least in SICU (7.54%). Although Non-albicans candida supersedes in our setup, there was a surprise increase in *Candida albicans* isolation over last four years. Antifungal susceptibility of different candida species showed 81.87% and 85% susceptibility to fluconazole and Amphotericin B respectively.

**Conclusion:** This might be one of the very few studies on candidaemia in surgical patients which will help increase the awareness among the surgeons in different specialties. These findings in our study will be of interest for antifungal stewardship in surgical specialties.

**MICP 39**

**My-O21**

**CANDIDEMIA: A 5 YEAR EXPERIENCE FROM A TERTIARY CARE CENTRE IN NORTH INDIA**

Dr. Ruchi Rati, Dr. Aparna Pandey, Dr. Ashima Jain Vidyarthi, Dr. Namita Jaggi
Artemis Hospital, Gurgaon

**Introduction:** Candidemia, i.e., blood stream infections (BSI) caused by *Candida* is a major cause of morbidity and mortality in tertiary health care settings. In the last two decades, there has been a dramatic increase in the incidence of candidemia worldwide. Although *C. albicans* remains the dominant pathogen causing BSI due to *Candida* the incidence rates of candidemia caused by Non-Albicans Candida (NAC) species is increasing.

**Aims & Objectives:** By our present study, we aim to derive useful information regarding the incidence of candidemia due to different species, their predisposing conditions and their susceptibility pattern in this particular region of North India.

**Methods:** This study was retrospectively conducted at a 300 bedded hospital in Gurgaon, India. All patients with candidemia were identified from a computerized database from the microbiology department between January 2014 and January 2019. The inclusion criteria comprised of at least one positive blood culture yielding Candida.

**Results:** In the present study, a total of 107 Candida species were isolated accounting for 1.3% of the positive blood cultures received. Male predominance was seen. Majority of cases were found to occur in patients in extremes of ages (69.1%). Immunosuppression (32.71%) was most common predisposing factor causing candidemia. *Candida albicans* and Non-albicans spp. were responsible for 30.80% and 69.15% of candidemia cases, respectively. Flucytosine was found to be most effective against *C. albicans* while the non-albicans group was more susceptible to the echinocandins.

**Conclusion:** Candida is rapidly emerging as an important pathogen in causing blood stream infections in hospitalized patients. The need of the hour is to provide better diagnostic facilities throughout the country and to routinely screen for candida isolates especially in high risk patients so that distribution and susceptibility pattern can be better understood.

**MICP 68**

**My-O22**
CANDIDA COLONIZATION IN NEONATES ADMITTED TO PEDIATRIC SURGICAL ICU IN TERTIARY CARE CENTER

Dr Soumya J S, Dr Jyoti S Kabbin, Dr Anand Alladi, Dr Ambica R.
Bangalore Medical College, Bangalore

Introduction: Candida infection has increased steadily in incidence over last two decades. This has been attributed to the use and duration of broad spectrum antibiotics therapy, technology advancement of life supporting systems, relative immunodeficiency in neonates, high prevalence of carriage in health care workers, colonization in maternal vagina and ability to live on environmental surfaces. Colonization of neonatal skin and gastrointestinal tract is the first step in the pathogenesis of invasive candidiasis.

Aims and Objectives: To determine the Candida species colonization and to assess their antifungal susceptibility (AST) in neonates admitted to pediatric surgical ICU along with its risk factors.

Methods: This prospective study was conducted at Bangalore Medical College, over 6 months period (January-June 2019). Swabs from oral, rectal, umbilical and groin region were collected from the neonates. Twice every month, air was sampled by settle plates and swabs were collected from the health care workers’ hands and inanimate objects. Swabs were inoculated on SDA plates and incubated for 37°C for 5-7 days. Any growth obtained were processed for further identification/confirmation of yeast by germ tube production, pigmentation on Hi-chrome candida differential agar, chlamyospore formation on corn meal agar, sugar assimilation tests and Biofilm Production. AST was carried out by disk diffusion method against Fluconazole, Amphotericin B, Ketoconazole and by VITEK 2 compact system.

Results: A total of 9 isolates of Candida spp, were obtained from 60 neonates. Colonization was significantly higher in pre-terms, males, rectal followed by oral, groin and umbilicus. Non- albicans candida colonization was higher than C.albicans. No Candida spp. was isolated from health care personnel or environment. Candidemia was not reported in any of the neonates admitted during that period.

Conclusion: Colonization of neonates by Candida is a problem and needs attention, especially in patients with identified risk factors, to avoid their dissemination and causation of life threatening infections.

MICP 164
My-O23

ISOLATION AND SPECIATION OF CANDIDA SPECIES FROM ORAL THRUSH IN HIV SEROPOSITIVE INDIVIDUALS FROM TERTIARY CARE HOSPITAL, VIMS, BALLARI

Dr. Mariraj Jeer1, Dr. S.Vidyaa Nayaki2*
1.Professor, Dept of Microbiology, VIMS, Ballari, 2.Postgraduate, Dept of Microbiology, VIMS, Ballari

Introduction: Candidiasis is the most common opportunistic infection in HIV infected patients. Infection due to Candida species are increasing in recent decades, probable reason being increase in incidence of immunosppression, significant risk being low absolute CD4+ T
lymphocyte count. Majority of infection is due to Candida albicans; but increase in frequency of non Candida albicans species has been observed.

**Aims and Objectives:** To study the incidence of Candida species among HIV seropositive patient and to isolate and speciate Candida species and to correlate with CD+4 T-lymphocyte count

**Methods:** Prospective study was carried out on 60 HIV seropositive individuals for a period of 6 months presenting with oral thrush. Identification of Candida species was done using KOH mount, Gram’s stain and inoculated on Saboraud dextrose agar, CHROM agar and various other tests were carried out. CD4+ T cell count was done.

**Results:** Out of 60 cases, 54 were positive for Candida, belonging to age group 18-55. There was a slight male preponderance. Most of the cases fall either in stage 3 or stage 4. *C.albicans* was the predominant pathogen isolated accounting for nearly 52%; among the non albicans group the most common isolates were *C.dubliensis* (24%), *C.tropicalis* (15%), *C.krusei* (5%) and *C.parapsilosis* (4%). Nearly 70% of the patients had a CD4+ T cell count of less than 200 cells/µL.

**Conclusion:** Candida is the most common opportunistic fungal pathogen seen in HIV seropositive individuals, when the CD4+ count is considerably low. Though, *C.albicans* is the most common pathogen isolated, there is also a significant increase in non albicans Candida species. Candidiasis affect the quality of life in affected individual hence, identification of Candida to species level and detection of drug resistance remains essential for initiating treatment. With effective anti retroviral therapy, the incidence and prevalence can been reduced.

**MICP 83**

**My-O24**

**A STUDY ON VULVOVAGINAL CANDIDIASIS IN A TERTIARY CARE CENTRE**

Dr. Mahuya Roy, Dr. Tapan Majumdar
Agartala Government Medical College, Agartala.

**Introduction:** Vulvovaginal candidiasis (VVC), an inflammatory condition involving vulva and vagina due to infection by *Candida* spp., is a major problem among females in India. The study is undertaken to determine the present status of VVC in Tripura.

**Aims and Objectives:** To determine the proportion of Vulvovaginal Candidiasis among symptomatic vulvovaginitis subjects of reproductive age group with the following objectives-
To isolate and identify *Candida* spp. causing Vulvovaginal Candidiasis and to study the antifungal susceptibility pattern of the isolates.

**Methods:** A hospital based cross-sectional study is undertaken at AGMC & GBPH from 01/03/2019 to 31/08/2019 among patients of age group 18-49 years presenting with symptomatic vulvovaginitis. Identification of isolates is done by standard mycological methods and antifungal assay is performed by E-test format following standard CLSI protocol, 2009.

**Results:** Out of 68 vaginal swabs processed during this period, 25% (17/68) yielded *Candida* isolates. 41.2% (7/17) isolates were *Candida albicans* while rest 58.8% (10/17) were Non albicans Candida (NAC). Among the NAC, predominant isolate was *Candida glabrata* 23.5% (4/17) followed by *Candida krusei* 17.7% (3/17). Most sensitive antifungal was Fluconazole (overall 88.2%) followed by Voriconazole (82.4 %). Ketoconazole showed least sensitivity (53.3%) among the isolates.
**Discussion:** Proportion of VVC among the symptomatic vulvovaginitis patients was found to be 25%. NAC spp. (58.8%) prevailed over *C. albicans* (41.2%) with *C. glabrata* occurring most commonly among the NAC spp signifying the emergence of NAC as major pathogenic *Candida* spp. All the drugs apart from ketoconazole showed good efficacy among the isolates. Further studies are necessary to determine the community prevalence, virulence factors and drug resistance mechanisms.

**MICP 249**
**My-O25**

**ANTIFUNGAL SUSCEPTIBILITY TESTING AMONG CLINICAL AND COMMUNITY ENVIRONMENT ISOLATES OF ASPERGILLUS**

Manharpreet Kaur, Nidhi Singla, Jagdish Chander, Deepak Aggarwal
Departments of Microbiology & Department of Pulmonary Medicine, Government Medical College Hospital, Chandigarh

**Introduction**- Aspergillus species are ubiquitous fungal saprophytes causing various human infections. Irrational use of antifungal drugs, clinically as well as in agriculture to protect the crops has led to emergence of resistance among *Aspergillus* thereby contributing for increased mortality among the patients. Globally azole resistance rate of *Aspergillus fumigatus* varies from 2–31%.

**Aims & Objectives**- To determine the antifungal drug susceptibility among clinical & community environment isolates of *Aspergillus* against amphotericin B, itraconazole, voriconazole and caspofungin by micro-broth dilution method (CLSI M38-A2).

**Methods**- Various samples clinical as well as soil samples from community environment were processed as per Standard Mycological Techniques. Growth of *Aspergillus* was identified by phenotypic methods and subjected to microbroth dilution testing according to CLSI M38-A2.

**Results**- Among clinical: 30 (75%) were *Aspergillus flavus* & 9 (22.5%) *Aspergillus fumigatus* & one (2.5%) was *Aspergillus candidus*. All 30 (75%) isolates of *Aspergillus flavus* were sensitive for itraconazole while one strain of *Aspergillus flavus* was found highly resistant to all other three drugs namely voriconazole (MIC value of ≥ 2 µg/ml), amphotericin B (8µg/ml) and caspofungin (MEC value of 0.12µg/ml). All 9 (100%) isolates of *Aspergillus fumigatus* were sensitive for itraconazole & voriconazole while one isolate showed elevated MIC value of 4 µg/ml for amphotericin B and 2 isolates had elevated MIC value of 0.12 µg/ml to caspofungin thereby resistant. Among 22 isolates of community environment, 2 isolates of *Aspergillus niger*, 3 isolates of *Aspergillus flavus* and one of *Aspergillus fumigatus* had elevated MEC value for caspofungin. One strain of *Aspergillus flavus* was resistant to amphotericin B (4µg/ml).

**Conclusion:** Almost all *Aspergillus* isolates were sensitive to first line drugs such as azoles whereas resistance is emerging for amphotericin B &caspofungin, drugs which are used for salvage therapy.

**MICP 224**
**My-O26**
ASPERGILLUS ISOLATES IN TERTIARY HEALTH CARE- UBQUITOUS MOLD TO UBQUITOUS PATHOGEN OF IMMUNOSUPPRESSED AND IMMUNOCOMPETENT PATIENTS

Hena Butta1, Leena Mendiratta1, Jestina M Johnson2, Raman Sardana1, Rajesh Chawla3, Girish Raheja4, Neerav Goyal5, V Arun Kumar5
Departments of 1Microbiology, 3Critical Care Medicine, 4Otorhinolaryngology, 5Liver Transplant Unit, Indraprastha Apollo Hospitals, New Delhi, 2Amity Institute of Biotechnology, Noida

Introduction: Aspergillus sp. are ubiquitously distributed in nature and inhalation of Aspergillus spores can lead to colonization in the upper and lower respiratory tract with allergic response or invasive destruction in both immunocompetent and immunocompromised patients. It is an important cause of morbidity and mortality in immunocompromised patients like post-transplant patients, patients on chemotherapy and other immunosuppressants.

Aims and Objectives: The primary aim of our study was to study the epidemiology of Aspergillus infections in a tertiary health care set-up and various risk factors associated with it. The secondary aim was to study the type of infections caused by Aspergillus species, species distribution, antifungal susceptibility and clinical outcome in patients with these infections.

Methods: This study was conducted in the Department of Microbiology at a tertiary health care centre. The details of patients with clinically relevant Aspergillus isolates between 2015-2018 from various types of clinical specimens mainly respiratory, sinus tissue and pus were recorded. Fungal culture was performed as per the standard techniques and identification of fungal isolate was done by LPCB mount and/or MALDITOF-MS. Clinical relevance was based on the direct microscopic examination (fungal smear KOH and/or histopathological examination), radiological diagnosis and/or galactomannan antigen detection. The antifungal susceptibility of few molds was done by E-test method.

Results: A total of 10,182 clinical specimens were received during the study period. Out of 10,182 specimens, 345 non-duplicate clinically relevant Aspergillus species were isolated. A. fumigatus was the most common (64.3%) followed by A. flavus (29.8%), A. terreus (2.2%), A. niger (1.14%), A.nidulans (1.14%) and A. versicolor (1.14%). Male patients (63.5%) were found to be more commonly affected than female patients (36.5%). The various risk factors which were found to be associated with Aspergillus infections/colonization include post solid organ transplant, malignancy, H1N1, chronic obstructive pulmonary disease (COPD), tuberculosis, sinusitis, admission in critical care units with sepsis. An increase in rate of Aspergillus infections was found from year 2015 to year 2018. None of the Aspergillus isolates showed resistance to echinocandins. However, 4% isolates showed resistance to azoles. The mortality of patients with Aspergillus infections was found to be 30.7%.

Conclusion: Diagnosis of Aspergillus infections including species identification is very important for the proper management of the patients. It is also very important to differentiate between colonization and infection for antifungal stewardship. Well resourced and equipped clinical mycology laboratory has a great role in the optimum diagnosis of Aspergillus infections. Mortality in patients with Aspergillus infections also depends upon co-morbidities and primary clinical diagnosis.

MICP 77
My-O27
A CASE REPORT ON PHEOHYPHOMYCOSIS CAUSED BY FONSECEA PEDROSOI

Akash Panigrahi, Sanghamitrapadhi, BimochProjnaPaty, BanojiniParida
Maharaja Krushna Chandra Gajapati Medical College, Berhampur

Introduction: Phaeohyphomycosis is the term used to designate infections caused by dematiaceous fungi that contain melanin in their cell wall.

Case Report: We report a case of Pheohyphomycosis by Fonsecaea in a 26 year male, farmer presented with scaly erythematous plaques on right shin for 4 years. He had history of thorn injury 4 years back, treated with oral antibiotics with no improvement. Histopathology, showed stratified squamous epithelium with pseudoepitheliomatous hyperplasia. Ulcerated areas show fibrocollagenous tissue and nonspecific granulation tissue. There is no evidence of malignancy or tuberculosis. All other routine tests were normal. Mycological findings: KOH (20%) examination of biopsy tissue showed septate pigmented hyphae. Tissue fragments cultured on SDA with gentamicin and chloramphenicol showed flat to dome-shaped colonies with black reverse seen to grow in the 2nd week. The colonies were velvety, dark olive gray in color, developed radial grooves and a central elevation when old. Slide culture of the growthrevealed light brown septate hyphae and straight conidiophores bearing frequently branched one-celled chains of conidia. The fungus was identified as Fonsecaeapedrosoi. The patient was treated with 200 mg of Itraconazole daily, for 3 months. Skin lesions improved.

Conclusion: Fonsecaeapedrosoi causing Pheohyphomycosis is an uncommon clinical entity. A corroboration of clinical features, histopathological findings and cultural isolation of organism is required to make an accurate diagnosis and for timely intervention.

MICP 47

DETECTION OF blaVIM, blaIMP, blaNDM, blaKPC, and blaOXA-48- IN CARBAPENEM RESISTANT ENTEROBACTERIACEAE ISOLATES WITH PHENOTYPIC AND GENOTYPIC SUSCEPTIBILITY PROFILE TO COLISTIN

1Ketan Priyadarshi, 1Prof Vijaya Lakshmi Nag, 1Dr Anuradha Sharma, 1Dr VibhorTak, 1Dr Sarika P Kombade, 1Dr Vidhi Jain
1Department of Microbiology, All India Institute of Medical Sciences, Jodhpur, Rajasthan

Introduction: The emergence of carbapenem resistant Enterobacteriaceae (CRE) is of great concern in health-care settings. Spread of resistance to colistin, a therapeutic option for treatment of CRE infections is a big concern.

Aims and Objectives: To know the phenotypic and genotypic patterns of prevalent carbapenemases & colistin susceptibility among CRE clinical isolates from a tertiary care hospital in Western India.

Methods: A total of 144 CRE isolates which tested resistant to at least two carbapenems (i.e., ertapenem, meropenem or imipenem) by Kirby-Bauer disk diffusion method or E-test, from clinical samples between February 2019 and April 2019, were included in the study. mCIM & eCIM were performed on 80 isolates. DNA was extracted and Multiplex PCR for simultaneous detection of blaVIM, blaIMP, blaNDM, blaKPC, and blaOXA-48-like carbapenemase genes was performed. MIC of colistin using broth micro dilution method was...
performed, and those which had MIC ≥1µg/ml were subjected to PCR for detection of mcr-1 gene.

**Results:** Among 80 isolates, 59 were mCIM positive, 10 were mCIM indeterminate and 11 were mCIM negative. Among 59 mCIM positive isolates, 56 were eCIM positive and 3 were eCIM negative. Out of 144 isolates, 11 were positive for PCR (7 for blaNDM & 4 for blaIMP). Out of 144 CRE isolates tested for MIC of colistin, 116 were sensitive [MIC=1 (n=23); MIC=2 (n=15)] and 28 were resistant [MIC >16 (n=17); MIC=8 (n=4); MIC =4 (n=7)]. Among 66 CRE isolates with MIC ≥1µg/ml, PCR for mcr-1 gene was positive in 5 of 66 isolates [MIC>2 (n=3); MIC=2 (n=1); MIC=1 (n=1)].

**Conclusion:** It is essential for all hospitals to monitor carbapenemases prevalent in their regions for epidemiological investigation and infection control measures. MIC by broth microdilution method for colistin should be routinely performed in all laboratories. This study confirms the spread of the plasmid mediated gene mcr-1.

**MICP 367**

**AUTOMATION IN SYNERGY WITH BASIC MICROBIOLOGICAL TECHNIQUES- A BOON FOR CLINICAL ANAEROBIC BACTERIOLOGY AND ANTIMICROBIAL STEWARDSHIP**

Hena Butta¹, Leena Mendiratta¹, Kirti Gilotra¹, Sushil Kumar Jain², Deepak Govil², Shakti Bhan Khanna³, Ranjana Sharma³, Raman Sardana¹

Departments of ¹Microbiology, ²Surgery and ³Obstetrics and Gynaecology, Indraprastha Apollo Hospitals, New Delhi

**Introduction:** Anaerobic bacteria may cause infections in almost every organ and anatomic region of the body and can mimic many chronic infections. But isolation and identification of anaerobic bacteria is a great challenge. This study depicts the impact of automated techniques for the isolation and identification of anaerobic bacteria rapidly and reliably.

**Aims & Objectives:** The primary aim of our study was to isolate and identify anaerobic bacteria from clinical specimens of the patients using automated techniques i.e. Anoxomat and MALDITOF MS/Vitek-2 and to see the impact of isolation of anaerobic bacteria on patient management. The secondary aim of our study was to look for the antimicrobial susceptibility of these isolates.

**Methods:** This study was done in a tertiary health care center from May 2018 to August 2019. All the specimens received for anaerobic culture were processed as per standard guidelines using Anoxomat technique. Direct microscopic examination of each of the specimens was done. These specimens consisted of pus and tissues from various sites, abscesses, High vaginal swabs, body fluids, respiratory specimens and were transported in transport media. The growth of the anaerobic bacteria was identified by automated methods such as MALDI-TOF Vitek MS and/or Vitek-2. Antimicrobial susceptibility testing was performed using E-test method and interpretation was done as per CLSI guidelines.

**Results:** A total of 910 specimens were received for anaerobic culture during study period. Out of 910 specimens, a total of 71 bacteria were isolated anaerobically. Out of these 71 isolates, 54 were obligate anaerobes and 17 were facultative anaerobes which were isolated anaerobically only i.e. they were not isolated aerobically. Out of 54 obligate anaerobes, *Bacteroides sp.* was isolated maximally (27.7%) followed by *Prevotella sp.* (24.0%). Out of *Bacteroides sp.* (15), *B. fragilis* was isolated maximally (60%), followed by *B.thetamicron* (26.6%), *B.vulgatus* (13.3%). The various clinical specimens from which these
anaerobes were recovered mainly included abdominal pus, perianal abscess, High vaginal swab, Urethral pus and Breast abscess. Metronidazole resistance in Bacteroides sp. was found to be 30.7% whereas in Prevotella sp. it was comparatively low (25%). Facultative anaerobes like various species of Streptococcus from deep seated abscess like Brain abscess were isolated anaerobically only.

**Conclusion:** We have found increased isolation of anaerobic bacterial isolates by using automated evacuation and replacement technique of anaerobiosis and MALDITOF MS. Also, a synergistic effect on isolation of anaerobes has been seen with combination of direct microscopic examination of the clinical specimen and automated techniques. Basic microbiological technique of Gram stain gives a clue towards anaerobic etiology of infection and automated techniques help in increased and definitive recovery of these isolates. Accurate and rapid detection of anaerobes due to automated methods synergizes with basic microbiological techniques which leads to early institution of targeted therapy and thus helps in antimicrobial stewardship.

---

**MICP 389**

**COMPARATIVE EVALUATION OF CHROMID CARBA, A NOVEL CHROMOGENIC MEDIUM FOR RAPID SCREENING OF CARBAPENEMASE-PRODUCING ENTEROBACTERIACEAE DIRECTLY FROM CLINICAL SAMPLES**

Sheetal Verma¹, V. Venkatesh¹, R. K. Kalyan¹, P. Gupta¹, Amita Jain¹
¹Department of Microbiology, King George’s Medical University, Lucknow, UP, India

**Introduction:** Nosocomial infections due to carbapenem-resistant Enterobacteriaceae (CRE) have been a worldwide problem in the last few decades especially in intensive care units. The recent reports have suggested that the mortality and morbidity is higher in patients with CRE infections in comparison to those with carbapenem-susceptible Enterobacteriaceae infections.

**Aims & Objectives:** The purpose of this study was to evaluate the utility of new chromogenic medium for the isolation of carbapenemase-producing Enterobacteriaceae (CPE) directly from clinical samples.

**Methods:** Non-repetitive different clinical samples were tested by conventional, chromogenic (ChromID) test and VITEK 2 compact system for bacterial identification and antimicrobial susceptibility testing. The suspected carbapenem resistant isolates weretested by Modified Hodge test, mCIM, eCIM and CarbaNP test for detection of carbapenemases.

**Results:** In total, 180 presumptive CRE Strains were detected. The sensitivity of Chromogenic ChromID was 96.3% and specificity was 81.3% compared to VITEK 2 compact. High level antibiotic resistance was seen among CRE isolates to cotrimoxazole (93.2%), tobramycin (90.7%), gentamicin (89.3%), amikacin (87.9%) levofloxacin (88.5%), aztreonam (85.6%), tetracycline (71.2%) and various other drugs. Colistin was the only drug most whichshowed sensitivity of 97.6%. Minimum inhibitory concentrations (MICs) against different carbapenemase-producing strains ranged from 0.5μg/mL to ≥256μg/mL different carbapenems.

**Conclusion:** The study shows new chromIDCREis a ready-to-use, sensitive and specific for rapid, presumptive identification of ESBL-producing Enterobacteriaceae directly clinical samples. It is a promising method for detecting CPE rapidly in laboratories with minimum infrastructure especially in developing countries like India.
Evaluation of peptide epitopes of 56 kDa antigen of Orientia tsutsugamushi in the diagnosis of scrub typhus

Patricia Anitha.K*, Ravichandran$, Reba Kanungo*, S.L. Hoti@
* Department of Microbiology, Pondicherry Institute of Medical Sciences, Puducherry
$ Biostatistician, Pondicherry Institute of Medical Sciences, Puducherry
@ICMR - National Institute of traditional medicine, Belagavi, Karnataka

**Introduction:** The clinical manifestations of scrub typhus are indistinguishable from other common febrile illnesses. Serological tests form the mainstay of diagnosis with IgM Enzyme linked immunosorbent assay (ELISA) being widely used for its diagnosis in India. It uses recombinant 56kDa antigen to detect antibodies, and is reported to have low sensitivity in some geographic regions due to variations in this molecule. Synthetic peptides have been used in the diagnosis of several infectious diseases and are reported to be advantageous as, non-specific reactions are almost eliminated and offer enhanced specificity and sensitivity owing to their defined and discrete structure. This study used antigenic peptides of 56kDa gene of *Orientia tsutsugamushi* which were evaluated for their reactivity against patient’s sera.

**Aim & Objectives:** To evaluate the reactivity of antigenic peptides of 56kDa gene of *Orientia* against sera from scrub typhus cases and other febrile illnesses.

**Methods:** Full length Open reading frame (ORF) of 56kDa gene of *Orientia* was amplified and cloned into TOPO vector for sequencing. Using this sequence, homology modeling was done in Phyre2 software and antigenic peptides were identified using BCepred. Peptides were synthesized and evaluated for reactivity against IgM antibodies in patients with scrub typhus and other febrile illnesses by indirect ELISA and also compared with Scrub typhus detect kit (Inbios, USA)

**Results:** Stability of homology model was established by Ramachandran plot. Five peptides were identified to be antigenic and tested against various sera. Peptide 2 showed sensitivity of 82.9% and specificity of 84% while peptide 5 showed sensitivity of 87.8% and specificity of 96% and showed good reactivity against scrub typhus positive sera and lesser reactivity against sera from other febrile illnesses.

**Conclusions:** This study explored the utility of some peptide epitopes of the immunodominant region of 56 kDa protein of *O. tsutsugamushi*, as candidate diagnostic marker of scrub typhus and indicates that peptide 5 could serve as a target to develop an immunodiagnostic kit.
Aim & Objective: Syndromic approach of respiratory infections by Multiplex RT PCR is aimed to detect single or multiple etiological agents, cultivable or non-cultivable pathogens causing respiratory symptoms with rapid turnaround time and cost effectiveness. Most of the viral respiratory infections are self-limiting; however co-infections with other Bacteria, virus and fungus can worsen the clinical condition.

Material & Methods: A total of 321 retrospective respiratory samples were taken up for the study from Jan 2019- Sep 2019 at Microbiological Laboratory, Coimbatore. Sample were extracted by QiaSymphony Automated Nucleic Acid Extraction and amplified with commercial multiplex assay (Fast Tract Diagnostics Respiratory pathogens 33).

Results: In a total of 321 samples, 279 (89.4%) cases were detected positive. Single etiological agent (pathogen) was detected in 85 (30.4%) cases. Multiple etiological agents (pathogen) were detected in 194 (69.5%) cases. Most prevalent single pathogen DNA detected were K. pneumoniae (16%), Panfungal (16%), Respiratory syncytial virus (RSV)A/B (11%), Streptococcus pneumoniae (9%) and multiple pathogens DNA detected were Adenovirus, Rhino virus, CMV, Influenza A, Coronovirus, Boca virus, Pneumocystis jirovecii, Legionella, Mycoplasma pneumoniae in combinations. RSV A/B and Influenza A virus showed similar distribution during flu season.

Conclusion: Identifying whether single or multiple etiological agents in respiratory infections by Multiplex PCR will provide us clinical outcome, the severity and management of the disease. Also prevents unnecessary usage of Antibiotics, decides the length of stay in hospital and mandatory diagnostic tool during flu season.

MICP 292

BACTERIOLOGICAL QUALITY OF WATER FROM WELLS AND AT POINT OF CONSUMPTION

Sneha Kukanur F, Sriprada N. S.
Karwar Institute Medical Sciences, Karwar – UK

Introduction: Water is essential for life and providing access to safe water is instrumental in promoting health. In Karwar, major source of water is well, but there are deficiencies in underground drainage systems resulting in well water contamination.

Aims & Objectives: To assess bacteriological quality of well water and water from point of consumption in Karwar, Karnataka.

Methods: This was a prospective study. Inclusion criteria- Wells from which water is being consumed. Exclusion criteria- Any private well 1. un consumed, 2. of household where the head is unwilling to participate, 3. of house which was locked during the visit. After obtaining IEC clearance, households selected by SRS (Simple Random Sampling) were visited. Semi structured questionnaires were used to interview the head of households. Water was collected from wells and point of consumption using glass bottles of 100ml capacity each. The bottles were labeled with full details and delivered to the Microbiological laboratory immediately. Presumptive count and differential coliform test was performed on each sample.

Results: Our study included 92 houses. Of those 20% of the head of families did not have any formal education, primary educated (54.11%) and secondary educated or above (25.89%). Filtration was practiced in more than 85% of households. In 94.57% of the households water was stored in covered vessels. Samples collected from the sources of water in 61 (66%) households were free from coliform organisms, whereas mild coliform
contamination was detected in water sources from 15%. Moderate contamination was detected in 11% and heavy contamination was detected in 8% households. Drinking water samples from 96% of the households were found to be free from coliform organisms. Moderate and heavy coliform contamination of drinking water was found to be 2% where as mild and severe coliform contamination was 3%.

**Conclusion:** Frequent disinfection of wells is necessary.

**MICP 330**

OT-O2

**CAPACITY BUILDING OF THE STI LABORATORIES FOR RAPID DETECTION AND IMPLEMENTATION PLAN TO CONTROL AND MANAGE THE EMERGING THREAT OF MULTIDRUG-RESISTANT N. GONORRHOEAE**

Dr Chimanjita Phukan*, Ridip Dutta**, Dr Pankaj Adhikary***
*Associate Professor of Microbiology, ** Research officer- Regional STI Research & Referral Laboratory,***Professor & HOD of Dermatology, Gauhati Medical College & Hospital

**Introduction:** Gonorrhoea is a major global concern in Sexually Transmitted Infections among the infectious diseases prevailing in the community. If not detected or treated, the infections can result in severe complications with significant morbidity and socioeconomic consequences globally. So capacity building of the laboratories is a need for rapid diagnosis and implementation of policies to reduce MDR gonococcus.

**Aims & Objective:** The study was conducted to determine the emergence of Ceftriaxone resistance among the MDR *Neisseria gonorrhoea* prevailing among the STI clinic attendees in a tertiary care hospital of Assam.

**Methods:** The Gonococcal isolates were culture in Chocolate agar plate and GC agar plate with Vancomycin, Colistin, Nystatin, Trimethoprim supplement for detection of plasmid mediated resistance of *Neisseria gonorrhoeae* to penicillin (PPNG) by β-lactamase test, Tetracycline resistance (TRNG), quinolone resistance (QRNG). The antimicrobial susceptibility to clinically important antibiotics - penicillin (0.5 IU), tetracycline (10 µg), ciprofloxacin (1 µg), Nalidixic acid (30 µg), ceftriaxone (0.5 µg), cefixime (5 µg), Spectinomycin (100 µg) and azithromycin (15 µg) was tested by disc diffusion method according to CDS (Calibrated Dichotomous Sensitivity) method and WHO-C and WHO-K were used as control strains. E-test MIC strip for Ceftriaxone (TX) resistance was used.

**Results:** Of the 73 patients attending the STI clinic for Gonococcalurethritis the study period from September 2017 to August 2019, the prevalence of gonococcus by culture were found to be 7.69% (1 out of 13) in 2017, 32.25% (10 out of 31) in 2018 and 58.15% (17 out of 29) in 2019 respectively. Gonococcal isolates could be recovered mostly from males. A significant increasing in penicillin resistance (19% - 29.41%) and a rise in PPNG (16.12% to 29.41%) was observed. The overall TRNG among the isolates during the study was 10.71%. Over the years the percentage of QRNG was observed to decrease from 16.12% to 11.76% (2018 - 2019). Ceftriaxone (TX) MIC E-test showed the emergence of resistant strains equally among the heterosexuals and the MSM.

**Conclusion:** The capacity building of the STI laboratories are utmost important for rapid diagnostic treatment response, prompting the creation and subsequent implementation of a response plan to control and manage the threat of multidrug-resistant *N. gonorrhoeae* in India.
WHAT HAS ONE YEAR OF ANTIMICROBIAL STEWARDSHIP PROGRAM TAUGHT US?

Dr. Pooja Thakkar, Dr. Tanu Singhal, Dr. Sweta Shah
KokilabenDhirubhai Ambani Hospital and Medical Research Institute

Introduction: Hospital antimicrobial stewardship program is an integral intervention needed to reduce the menace of antimicrobial resistance and ensure effective therapy.

Aims & Objectives: To study the total number of patient receiving restricted antimicrobials, percentage of unjustified use of restricted antimicrobials and compliance to recommendations for de-escalation in unjustified prescriptions.

Methods: This is a prospective study from January to December 2018. The hospital’s restricted antimicrobial list includes Colistin, Polymyxin B, Intravenous Fosfomycin, Tigecycline, Intravenous Minocycline, Daptomycin and Echinocandins. The prescription of any of these antimicrobials necessitated the filling of an antimicrobial justification form. The antimicrobial stewardship committee reviewed the index patient’s clinical status and culture data at 48-72 hours and opined whether the use of the particular antimicrobial was justified/unjustified and also about how therapy could be optimized for that infection. The same was communicated to the treating clinician and the patient was followed up to assess the compliance to the recommendation of the stewardship committee. The monthly data was collated and feedback given to the users in the Hospital Infection Prevention & Control Committee meetings.

Results: A total of 1203 prescriptions for restricted antimicrobials (average 100 prescriptions/month) for 663 patients (average 55 patients/month) were received over the year. There was unjustified use of restricted antimicrobials in 108 prescriptions (range: 7.14% to 22%; average 12.65%). Average Compliance to recommendation was 85%.

Conclusion: The Antibiotic Stewardship Program was able to reduce the use of restricted antimicrobials in the hospital. Further follow up is needed to study the impact of the program in reducing antimicrobial use & antimicrobial resistance.

OUTBREAK OF WILDERNESS/BACKCOUNTRY/TRAVELERS’ DIARRHEA AT A HIMALAYAN BASE-CAMP AT 4000 M/13,125 FT

Dr Inam Danish Khan
Dept of Microbiology, Base Hospital, Delhi

Introduction: Wilderness/backcountry diarrhea is a type of travelers’ diarrhea affecting backpackers/trekkers/campers/hikers, soldiers, wilderness/outdoor enthusiasts. Giardia and Cryptosporidium are the most common pathogens followed by bacteria (Campylobacter, Shigella, Escherichia coli (enterotoxigenic/enteroaggregative/verotoxigenic O157:H7), Yersinia enterocolitica, Aeromonas) and viruses (Hepatitis-A, Hepatitis-E). Giardia and Cryptosporidium cysts, Salmonella Typhi, Shigella, and Hepatitis-A virus can survive freezing temperatures in mountain streams/lakes. Campsites pose additional risks worldwide, irrespective of developing or developed regions, due to inadequate hygiene, with fluctuating incidence of wilderness-diarrhoea between 3-74%.
**Aims and Objectives**: Outbreak investigation / management of wilderness / backcountry / travelers’ diarrhea at a Himalayan Base-Camp.

**Methods**: In a first of its kind, an outbreak of wilderness diarrhea at a semi-permanent Himalayan Base-Camp at 4000 m/13,125 ft in Uttarkashi, India, was investigated and managed by oral-rehydration and empirical-antimicrobials. Return of normal bowel function and return to routine activities at Base-Camp were considered as primary and secondary outcomes. Clinicoepidemiological surveillance for source-tracing, index-case, secondary-attack rates, incubation-period and epidemiologic curve was attempted.

**Results and Conclusion**: Sixty-two personnel presented with wilderness-diarrhea of 5.58 days mean duration with onset after mean Base-Camp stay of 10.26 days, despite provisions for adequate camp-hygiene/sanitation. Both primary and secondary outcomes were reached by all except three individuals evacuated on foot to district-referral-hospital 56-km downhill from Base-Camp. Personal-hygiene was compromised due to cold weather/water. Epidemic-curve revealed two-fold increase on day-12. Clinicoepidemiological surveillance was affected by mixed acute/subacute oligosymptomatic/polysymptomatic presentation, untreated mountain-water source and individual variation in seeking medical-attention. Wilderness-diarrhea can present in outbreak-proportions from formerly considered safe water-sources due to variable microbial-contamination. Protozoal-cysts have a low infective-dose (10-25 cysts) compared to bacteria (10^6-10^8 colony-forming-units/ml). On-site diagnostics and management are required to control outbreaks of wilderness-diarrhea. Traveler risk-management strategies and traveler awareness/education on culinary, washing, and hand hygiene can be a targeted mandatory intervention to enhance preparedness and resilience-capital in outdoor/mountain environments.

**MICP 59 PA-O2**

**DETECTION OF TOXOPLASMOSIS AMONG HIV INFECTED/AIDS PATIENTS - A STUDY IN A TERTIARY CARE HOSPITAL OF KOLKATA**

Soumita Kundu, Dilip Kumar Bera, BibhutiSaha
Calcutta School of Tropical Medicine, Kolkata

**Introduction**: *Toxoplasmosis* is an important opportunistic infection which occurs mostly due to result of reactivation of latent infection. The incidence is directly related to CD4+ T cell counts, with an increasing risk when count falls under 100 cells/µl. Toxoplasmic encephalitis is the most predominant manifestation among HIV patients.

**Aims & Objectives**: To detect the prevalence of toxoplasmosis among the HIV infected/AIDS patients & to compare the role of serological & PCR based diagnosis.

**Methods**: Blood samples of HIV infected patients complaining of fever, headache and neurological signs like disorientation, drowsiness, hemiparesis, reflex changes & convulsions were collected. Serum samples were tested for anti *Toxoplasma gondii*IgG & IgM antibody by ELISA. Toxoplasmic DNA extraction and genetic evaluation using 3 genomic targets (B1, rDNA and AF146527) by PCR technique was done.

**Results**: Among 102 samples screened, 55 (53.92%) were reactive for Anti *T. gondii* IgG antibody and all samples were nonreactive for IgM antibody. Haemogram results showed that among 55 IgG seroreactive patients, 32 (58.18%) had anaemia (Hb< 9 gm / dl), 18 (32.73%) had leucopenia (Total Leucocyte count < 4.5 thousands / dl), 35 (63.64%) had thrombocytopenia (Thrombocyte count < 150 Thousands / Cmm). Seventeen (16.7%) cases
showed PCR positive results, interestingly all of them were positive for IgG antibody. Among serologically positive patients, 50 (90.91%) had CD4 count < 100, 35 (63.64%) had positive radiological findings of Toxoplasmic encephalitis.

**Conclusion:** The study reveals that risk of reactivation of *Toxoplasma* infection is more when the CD4 counts are <100 cells/µL, mostly presents with acute neurological clinical signs and some present with positive radiological findings in brain imaging of Toxoplasmic Encephalitis. Clinical suspicion followed by prompt diagnosis is recommended for instituting proper management.

**MICP 72**

**RARE CASE OF HAEMOPTYSIS: PARAGONIMUS**

Kumar A, Yadav A
AMC, Ranchi

**Introduction:** We present a rare case of paragonimiasis masquerading as hypereosinophilia, asthma and intracerebral haemorrhage for the last three years. Paragonimiasis is a rare cause of haemoptysis outside endemic regions. A strong index of suspicion is required to diagnose paragonimiasis outside the endemic regions. Diagnosis is usually delayed due to similarity of presentation to tuberculosis.

**Case History:** Our patient was symptomatic with haemoptysis for three years. He gave history of eating raw crayfish and crabs while on leave to his native village in Nagaland. Diagnosis was confirmed on microscopy by detection of Paragonimus ova in sputum and bronchoalveolar lavage specimens. Symptoms resolved on treatment with Praziquantel.

**Discussion:** Paragonimiasis is acquired by eating raw, undercooked or pickled crabs or crayfish containing encysted metacercariae of Paragonimus. Early pulmonary paragonimiasis is characterized by chest pain, cough and dyspnea. Evaluation may show peripheral eosinophilia and migratory pulmonary infiltrates on chest radiograph. Late infection is characterized by recurrent haemoptysis. Radiographic findings include ring shadows representing cystic cavities, linear streaks due to burrowing, pleural thickening and mass lesions. Infection can usually be confirmed by finding Paragonimus eggs in sputum or bronchoalveolar lavage. Praziquantel (25 mg/kg TDS for three days) or triclabendazole (10 mg/kg once or twice) administered orally is curative. Control programs in endemic areas should concentrate on discouraging eating of raw crustaceans. Paragonimiasis should be considered an important differential diagnosis for tuberculosis and a cause of haemoptysis in endemic areas. In endemic areas integration of paragonimiasis control with tuberculosis control programs should be implemented.

**MICP 135**

**OCCURRENCE OF DEMODEX INFESTATION IN CHRONIC BLEPHARITIS IN A TERTIARY CARE HOSPITAL IN NORTH-EAST INDIA**

Dr. Suranjana Chaliha Hazarika, Dr. Himanto N. Hazarika, Dr. Ashwini Ghuge, Dr. Lahari Saikia, Dr. Ajanta Sharma
Srimanta Sankaradeva University of Health Science, Guwahati
**Introduction:** Chronic Blepharitis is frequently encountered by ophthalmologists. Demodex mites (Demodex folliculorum and Demodex brevis) can play a role in its pathogenesis, especially in treatment-resistant cases. Demodex infestation often remains underdiagnosed and undertreated. Definitive diagnosis can be made with lash-sampling. The most common mode of treatment is with tea-tree oil.

**Aims & Objectives:** To study the association between Demodex infestation and chronic blepharitis & find the effectivity of tea-tree oil in control of Demodex infestation.

**Methods:** The study included 80 patients diagnosed with chronic blepharitis, preferably having cylindrical dandruff on clinical examination and 80 controls without blepharitis. Four eyelashes were epilated from each lower and upper lids of the right and left eye (a total of sixteen samples) of each participant. Eyelash samples were examined under a light microscope and demodex species were identified and counted. Positive cases were prescribed tea-tree oil application.

**Results:** Demodex mites were detected in 45 cases (56.25%) and 14 controls (17.5%). Significant association was found between demodex infestation and blepharitis as Odd’s Ratio was found to be 6.0612 and P value < 0.0001. All the detected mites belonged to the species Demodex folliculorum. No Demodex brevis was detected. The mean age for demodex positive cases and controls were 49.78 (SD ±13.25) and 64 (SD ±7.86) years respectively. Amongst the cases, Demodex was detected in 57.69% males (30 out of 52) and 53.55% females (15 out of 28). After application of tea-tree oil for two weeks, microscopic examination was negative for demodex in 32 of the 45 cases while there was significant decrease in Demodex count in the rest of the cases.

**Conclusion:** There is significant co-relation between Demodex infestation and chronic blepharitis. Demodex infestation should be part of differential diagnosis of chronic blepharitis. Tea-tree oil application is an effective treatment for Demodex infestation.

**MICP 138**

**UTILITY OF RAPID DIAGNOSTIC TESTS FOR DETECTION OF MALARIAL ANTIGEN AND THEIR COMPARISON WITH PERIPHERAL BLOOD SMEAR EXAMINATION**

Shreshy Singh, Sangeeta Dey, Dhananjay Kumar, Kahkashan Akhter, Nafisa Rahman, Ashitkumar Katihar Medical College, Katihar

**Introduction:** Malaria, sometimes called the “King of diseases” is caused by protozoan parasites of the genus *Plasmodium*. The disease is transmitted by nine Anopheline species out of which the six primary vectors are *Anopheles culicifacies*, *Anopheles stephensi*, *Anopheles dirus*, *Anopheles fluviatilis*, *Anopheles minimus*, *Anopheles epiroticus*.

**Aims and Objectives:** To compare the utility of rapid antigen detection tests by immunochromatography (ICT) with Leishman, Field’s and Giemsa stains for the detection of malarial parasites.

**Methods:** Patients with fever attending various departments of hospital were included in this study. Patients with previous history of malaria or history of intake of antimalarials were excluded. A total of 200 blood samples were collected either by finger prick or venepuncture and subjected to microscopy and ICT by three different commercially available kits. Stains used for staining thick and thin smears were acquired from HiMedia (Mumbai).
Results: Out of the 200 patients 128 (64.0%) were male and 72 (36.0%) were female. Maximum number of cases were from the Medicine 114 (57.0%) followed by Paediatrics 65(32.5%). The most common accompanying symptom was headache followed vomiting by 82% and 80% respectively. Chills with rigor was seen in only 32.5% of cases. 52/200 (26%) were positive by ICTand 48/200(24%) were positive on microscopy. 31(60 %) patients had Plasmodium vivax infection, 17(33%) had Plasmodium falciparum and 4 (7%) had mixed infection. Positivity of Giemsa, Leishman and Field’s stain was found to be 24%, 22.5% and 15.6% respectively. Positivity of Parahit, Paramax and Is It was found to be 26%, 24% and 14.5% respectively.

Conclusion: Malaria is still a major parasitic infection. In India Plasmodium vivax is more common. In this study sensitivity of ICT was better than microscopy. This study gives a basic insight about malaria and the problems associated with its diagnosis in a rural setup.

MICP 216 PA-O6

CHILDHOOD LYMPHATIC FILARIASIS (LF) -AN APPRAISAL FROM HOSPITAL SETTING

Dr. M. Nizamuddin Ahmed, Dr Raunak Bir, Dr Nishant Verma, Dr B.R. Mirdha
Section of Parasitology, Department of Microbiology, AIIMS New Delhi

Introduction: Lymphatic Filariasis (LF) is major public health problem in India and accounts for substantial disease burden globally. Wuchereria bancrofti, Brugia malayi and rarely Brugia pahangi are the causes of lymphatic filariasis. LF is a disease more pronounced in adults, however, epidemiology and description of clinical disease due to LF in children are lacking.

Aims & Objectives: As the National Programme for elimination of LF has been launched in India, which also targets children ≥2 years of age, this presentation intends to describe the occurrence/epidemiology of childhood filariasis in an hospital setting.

Methods and Results: Data on children with LF were collected through review of cases records of children with a diagnosis of long-standing low-grade fever diagnosed between 2014-2019 and were analysed. A total of one thousand one hundred and seventy-one(n=1171) blood samples with citrate as the anti-coagulant were received for the diagnosis of filariasis, of which 1134 (96.8%) were adults and rest 37 (3.2%) were children. Out of this 37, 10 children were positive for Wuchereria bancrofti (0.85%) only. The number of cases of childhood filariasis showed relative increase during study period although the frequency is less.

Conclusion: Although LF has low mortality there is an urgent need to detect early to alleviate disability in children besides preventing late complications.

MICP 229 PA-O7

ACANTHAMOEBA KERATITIS IN MOUSE MODEL USING A NOVEL APPROACH

Chayan Sharma¹, Anchal Thakur², Amit Gupta², Alka Bhatia³, Sumeeta Khurana¹
Introduction: *Acanthamoeba* are free living protozoa increasingly implicated in causing keratitis (AK) in patients with contact lens or ocular trauma and has a poor prognosis. Establishment of an animal model that replicates the disease in the same manner as in humans is critical to study the disease pathology and pathogenesis. Few studies have successfully developed AK models in pigs, hamsters and mice while few have reportedly failed. The eye of mouse is extremely small with convex curvature from which contact lenses dislodge easily.

Aim and Objectives: To assess the feasibility of using parafilm as an alternative to contact lens for the establishment of AK in mouse model.

Methods: Eighteen male Balb/c mice were used for AK with two different *Acanthamoeba* strains. AK was induced in two different experimental ways; using contact lens and parafilm followed by tarsorraphy. The contact lenses of 2mm diameter were cut from human contact lenses using corneal trephine while parafilm of same size was used. Right eyes were used for infection and left as controls. Three different possibilities were tried on a group of three mice (Scratching + *Acanthamoeba* inoculation (106cells/ml); Scratching+ lens+ *Acanthamoeba* inoculation (106cells/ml); Scratching+ Parafilm+ *Acanthamoeba* inoculation (106cells/ml). AK model was evaluated through microscopic examination (Giemsa and calcofluor staining) of corneal scrapings and HE staining of corneal sections.

Results and Conclusion: AK model was successfully established in all the mice with the use of parafilm whereas only three out of six mice developed AK with the use of contact lenses and none in the third group till 21 days post-inoculation. The use of parafilm gave better results in comparison to contacts. The use of parafilm is convenient, reliable and cheaper and can be considered an alternative to contact lenses to induce bacterial, fungal or parasitic keratitis in animal model.

MICP 096

**CHICKEN POX OUTBREAK INVESTIGATION & SURVEILLANCE IN DIFFERENT DISTRICTS OF JHARKHAND, INDIA**

Manoj Kumar, Kumari Seema, Ashok Kumar Sharma, Amber Prasad
Department of Microbiology, Rajendra Institute of Medical Sciences, Ranchi, Jharkhand

Introduction: Chicken pox or varicella is an acute infectious disease of childhood caused by varicella-zoster virus (VZV) belonging to the family *Herpesviridae*. Human beings are the only known hosts of this virus. An Outbreak investigation is an important and challenging component of epidemiology and public health, which can help to identify the source of ongoing outbreaks and prevent additional cases.

Methods: Discussion with the District authorities and medical and paramedical staff to know the background information of the affected areas, genesis of outbreak and investigations was carried out and visit to some affected areas was done. From January 2018 till December 2018 a total of 113 samples from suspected Chicken pox outbreak cases were received and tested for IgM antibody testing by ELISA method (Novatech,Germany) in VRDL, Department of Microbiology, RIMS, Ranchi.

Results & Conclusion: Total 77 cases and no deaths due to Chicken pox have been reported from 13 districts over a period of one year duration. All positive blood samples from
suspected cases were lab confirmed with 68% positivity rate. The disease afflicted almost all the age group but the incidence was more in the age group 15-24 years with 50% incidence as compared to other age groups. Males were more affected than females the difference was not very significant with p value less than 0.05. Most of the cases belonged to East Singhbhum district. Majority of the affected cases showed rash (100%) as the most common symptom followed by fever (78%) and headache (35%). Majority of the affected population were illiterate (48%) and residing in a small hut with family that had no proper ventilation which led to rapid transmission of the disease. 75% of the affected population did not adopt any sanitary and personal hygiene measures that also contributed for the spread of the disease outbreak.

**MICP 213**

**PREVALENCE OF INFLUENZA VIRUS AND ITS CIRCULATING SUBTYPES IN PATIENTS ATTENDING A TERTIARY CARE HOSPITAL IN ASSAM**

Dr. Supriya Sona, Prof., (Dr.) Ajanta Sharma
Guwahati Medical College, Guwahati

**Introduction:** Influenza viruses mainly cause respiratory illness which ranges from mild to severe illness often leading to death. The global burden of Influenza is a major health concern and has important public health implications. Determination of the prevalent influenza viruses and its circulating subtypes will help in assessment of the efficacy of the current influenza vaccine for taking further action with regard to modification of the vaccine composition.

**Aims and Objectives:** To study the prevalence of influenza virus and its circulating subtypes in patients attending a tertiary care hospital in Assam.

**Methods:** The study which was conducted was a hospital based cross sectional study conducted over a period of 1 year (July 2018 to July 2019) in the department of Microbiology, Gauhati Medical College, Guwahati. Throat swabs were collected from Influenza like Illness (ILI) suspected cases and subsequently conventional PCR was performed according to the CDC protocol.

**Results:** Overall, 126 ILI cases were included, of which 30.15% showed influenza positivity. Of the total influenza positive cases, 84.21% were influenza A positive followed by 15.78% influenza B positive cases. Out of the total influenza A positive cases, 76.3% were H1N1pdm09, 7.8% were H3N2 and of the influenza B positive cases all were positive for Victoria lineages. Data were analysed for mean, standard deviation and Chisquare tests for quantitative data using SPSS version 20.1.

**Conclusion:** The present study highlighted the disease burden due to influenza A virus in this region among the adult males along with the urgent need of early case detection, timely intervention and management and community awareness which can help in reducing transmission and mortality.
HIV 1 VIRAL LOAD TESTING IN PATIENTS ON ART - EXPERIENCE FROM A TERTIARY CARE PUBLIC HOSPITAL, WESTERN INDIA

Dr. Ranjana Thate, Dr. Nayana Ingole, Dr. Vaishali Solanke-Surase, Dr. Shrikala Acharya, Dr. Gita Nataraj.
Department of Microbiology, Seth GS Medical College and KEM Hospital, Parel, Mumbai

Introduction: Till date, PLHIV on first line ART were monitored by six monthly CD4 count estimation to monitor the treatment response. Systematic monitoring of viral load, as measured by quantitative plasma HIV-1 RNA, is the standard method for verifying adequate control of viral replication in patients under antiretroviral treatment. NACO plans to scale up the reach of routine HIV-1 Viral Load testing in a phased manner. Till recently, 10 laboratories in the country were carrying out targeted VL testing. NACO has planned to start 64 VL testing facilities mapped based on patient load, HIV prevalence and sample transportation considerations with appropriate geographical distribution across the country to enable a well-connected network with the existing ART & ICTC centres. At present, NACO has started 24 centres for viral load testing, among which our hospital is one of the centres.

Aim & Objective: To find out the proportion of patients responding to antiretroviral therapy

Methods: Retrospective analysis of data was done for all patients referred for HIV-1 viral load and/or CD4 testing to the Microbiology Department from July 2019 to October 2019.

Results: A total of 2013 patients were referred of which 1846 samples were tested for HIV-1 viral load testing. Approximately 95% of patients referred were found to be virally suppressed.

Conclusion: More than 90% patients are responding to ART treatment which denotes that the 3rd 90 target of Joint United Nation’s Program on HIV/AIDS has been achieved.

MICP 414 Vi-04

CORRELATION OF HCV GENOTYPES WITH VIRAL LOAD AND OTHER BIOCHEMICAL MARKERS IN SUB-HIMALAYAN REGION: A PILOT STUDY FROM UTTARAKHAND

Dr. DeepiyotiKalita*, Dr. MithileshKumarJha**, Dr. Kuhu Chatterjee***, Dr. Pratima Gupta****.
*Associate Professor of Microbiology
AIIMS Rishikesh

Introduction: Hepatitis C virus (HCV) has emerged as a leading cause of chronic hepatitis, liver cirrhosis and hepatocellular carcinoma worldwide. Genotyping and assessment of the viral load in HCV patients is very critical factor in terms of management of infected cases, especially decompensated cases.

Aims and Objectives: Present study is a pilot project to check the relative prevalence of genotypes and correlation with different factors like viral load, biochemical markers etc.

Methods: 84 HCV RNA positive cases from different part of Uttarakhand attending our hospital were included in this study. Duration of study was 60 days. Viral load was detected using Altona Real star HCV 2.0 quantitative PCR kit in Bio-Rad Real time PCR system (CFx96). Genotyping was performed by NLM - SRL HCV genotyping kit (Based on Reverse hybridization strip assay) which was subsequently confirmed by Sanger sequencing by
protocol published earlier (Verma et al. 2008). Data were analyzed in the back drop of epidemiological and other lab results.

**Results:** Majority of the genotypes fell in 3a & 3b (more than 50%). Rest were primarily 1a, 4a, 1 (other 1 subtypes) etc. Overall Genotype 3a and genotype 1a seemed to be correlated with higher viral load than others but, this finding was not statistically significant. There was no co-relation observed between Liver enzyme levels and genotypes.

**Conclusion:** Genotype 3a, 3b and 1a seemed to be the major subtypes in our region (Uttarakhand) and correlation with viral load seemed to be superfluous (or multi-factored). Similarly, no correlation could be established between genotype and biochemical markers.

**MICP 442**

**DIAGNOSIS OF THE CHIKUNGUNYA INFECTION USING CULTURE, IMMUNOFLUORESCENCE, PCR, ELISA, & RAPID TEST AT TERTIARY CARE CENTER LABORATORY**

Kalpana T. Suryavanshi, Harshad Patil, A.C. Mishra, M. Modak

Bharati Vidyapeeth (DTU) Medical College, Pune

**Introduction:** Chikungunya is a re-emerging arbovirus infection not only in India but globally. To differentiate it from other arboviruses especially, Dengue is challenging & confirmation can be done using molecular testing, culture, Immunofluorescence, but time of sample collection & cost are limiting factors, so rarely used in diagnostic laboratory.

**Aims & Objectives:** To understand different techniques & their utility for Chikungunya diagnosis namely virus culture, Indirect immunofluorescence, Polymerase chain reaction (PCR), Partial sequencing for identification of genotype, rapid immunochromatography & Enzyme linked immunosorbent assay (ELISA).

**Methods:** Acute febrile illness cases with rash s/o Chikungunya infection were included in the study. Lateral flow chromatography & ELISA was carried out on serum samples. All the samples were cultured & indirect immunofluoresence was performed on positive samples. Virus isolates were subjected to partial sequencing for identification of genotype after confirmation by PCR.

**Results:** Out of fifty samples, twenty were positive by Immunochromatography, 23 by ELISA, 3 by culture, PCR confirmed CHIKV isolates & sequencing identified genotypes as East Central South African type.

**Conclusion:** Time of sample collection is key factor in diagnosis of CHIKV. Diagnostic laboratory can use ELISA for screening of CHIKV infection if duration of illness is taken into consideration & resurgence of CHIKV need to be explained with identification of circulating genotype, as it is associated with virulence of CHIKV strains & prognosis of illness among patients.

**MICP 412**

**SPONTANEOUS HEPATITIS C VIRUS CLEARANCE IN CHRONIC HCV INFECTION: A PILOT STUDY FROM UTTARAKHAND**
Introduction: Diagnosis of Hepatitis C infection is still done by antibody detection which is not a true reflector of on-going infection. In India though cases estimating spontaneous clearance of Hepatitis C virus (HCV) viral clearance have been reported yet large-scale studies for estimation of same have not been done till date.

Aim and objectives: The objective of this study was to estimate the frequency of HCV spontaneous clearance and to study associated demographic factors.

Methods: We included 144 newly detected Anti-HCV antibody reactive patients from June – July 2019 (60 days) as part of this pilot study. Subsequently, HCV viral Load estimation was performed (by Altona Realstar HCV 2.0 kit) in all of them. Data was analysed in the backdrop of epidemiological information and lab results.

Results: 41 subjects were found to be HCV RNA negative. Out of these, 15 had already completed directly acting antiviral regimen. Rest 18% cases were identified as spontaneously cleared (HCV) subject. In this group male preponderance, higher subjects in 40-60 year age group, absence of concomitant chronic disease etc were observed.

Conclusion: Nearly one fifth of HCV infected cases recovered spontaneously, while few other demographic factors like sex, age group etc. may influence this phenomenon in our local population (Uttarakhand & adjacent areas). However, a bigger study is necessary to confirm these facts.

MICP 256
Vi-O7

MOLECULAR INSIGHTS AND PREDICTORS OF SEVERE DENGUE INFECTION: A STUDY FROM A TERTIARY CARE HOSPITAL IN MUMBAI

Manoj Vedpathak, Sachee Agrawal, Jayanthi Shastri
TNMC & BYL Ch Nair Hospital, Mumbai

Introduction: Dengue virus infection has grown dramatically around the world in recent decades. WHO currently estimates around 50–100 million dengue infections worldwide every year. The disease is endemic in more than 100 countries including India. Disease spectrum varies from self-limiting infection to haemorrhage and shock. A fraction of infections (0.5%-5% ) progress to severe dengue which could prove fatal in more than 20% cases. As effective vaccination and selective treatment for Dengue are unavailable, knowledge of clinico-laboratory parameters for predictors of progression are necessary. This study provides molecular insights to disease progression.

Aims & Objectives: To classify Dengue fever cases into severe and non-severe (as per WHO 2009 criteria) and to evaluate the two groups clinically and using molecular tests; Viral load and Serotype.

Methods: 200 patients were enrolled from a tertiary care teaching hospital in Mumbai from August 2017 to November 2018. These patients were ≥18 years of either sexes with confirmatory diagnosis of Dengue fever. Detailed clinical history and information of basic investigations were recorded. Viral load estimation was done by Real Time-PCR and serotyping by Nested PCR. Serotyping results will be confirmed by Whole genome sequencing.
Results: Of 200 cases, 11% were severe and 89% were non-severe Dengue. Presenting symptom in both groups was fever followed by headache (95.5%), bodyache (86.4%), vomiting (68.2%), bleeding (63.6%) in severe Dengue and headache (91%), chills (86%), bodyache (79.8%) in non-severe Dengue cases. Common age group affected in both groups was 18-30 yrs. In non-severe Dengue, Commonest serotype was DEN3 followed by DEN1, DEN4 and DEN2 serotypes. Serotypes DEN2, DEN3 and DEN4 were associated with severe Dengue. All patients with severe Dengue had Dengue RNA viral load of >1000copies/ml as compared to 78.7% patients with non-severe Dengue.

Conclusion: Dengue PCR offers an advantage of specific diagnosis, estimation of viral load and serotype identification. There is an urgent need to validate reliable predictors of Dengue disease progression to prevent adverse outcome.

MICP 285

TO ANALYSE THE WESTERN BLOT (WB) RESULTS OF THE SAMPLES INDETERMINATE FOR HIV ANTIBODIES BY RAPID TESTS

Baveja S, Ramchandran A, R Ingle, M Nilekeri
Lokmanya Tilak Municipal Medical College, Sion

Introduction: The success of National AIDS Control program (NACP) depends on correct diagnosis of HIV infection. However, tests performed as per NACO protocols sometimes give indeterminate results

Aims and objectives: This study was planned to analyse results of samples reported as i) Indeterminate for HIV 1 or 2 antibodies; ii) Positive for HIV 1, indeterminate for HIV 2; iii) Positive for HIV-2, indeterminate for HIV 1; iv) Positive for HIV 1 and 2 and v) Positive by one of three tests in asymptotic individuals with a significant history of exposure.

Methods: A retrospective analysis over 7 and a 1/2 years. 134 samples indeterminate by rapid tests were sent to t National Reference Laboratory for confirmation by WB

Results: Of the 30 samples indeterminate for HIV, WB reported 6(20%) as positive for HIV; 18(60%) as HIV negative; 6 were reported as indeterminate for HIV. Of 80 samples positive for HIV-1 & indeterminate for HIV- 2, WB reported 56(70%) as HIV-1 positive, 18(22.5%) as HIV-2, 6 (7.5%) with dual infection. Of 19 samples reported as HIV- 2 positive & indeterminate for HIV1, WB reported 9(47.37%) as HIV- 2 positive, 6 (31.58%) as HIV -1, 4(21.05%) with dual infection. Of 15 samples positive for HIV 1 and 2, 4(26.66%) were confirmed positive for dual by WB, 4(26.66%) were reported as HIV 1 positive,7(46.66%) reported as HIV 2 positive. Of 20 samples positive by 1 of 3 tests; all were negative for HIV 1 and HIV 2

Conclusion: Samples reported as indeterminate for HIV antibodies by WB need to be tested by PCR for conclusive diagnosis.

MICP 255

EVALUATION OF HiPurA® VIRAL RNA PURIFICATION KIT WITH QIAamp® VIRAL RNA MINI KIT FOR DIAGNOSIS OF INFLUENZA A (H1N1) pdm 09 VIRUS
**Introduction:** With the emergence of influenza A (H1N1) pdm 09 virus, the Centers for Disease Control and Prevention developed Real-time RT-PCR protocol for detection of influenza virus. Nucleic acid extraction is a crucial prerequisite for the performance of RT-PCR assay. Presently, there are numerous RNA extraction methods available which differ in integrity, yield and quality of the RNA, which may have effect on the sensitivity and specificity of RT-PCR assay.

**Aims & Objectives:** This study aimed to evaluate the performance of HiPurA® Viral RNA Purification Kit manufactured by HiMedia Laboratories Pvt. Ltd. with QIAamp® Viral RNA Mini Kit for influenza virus diagnosis.

**Methods:** Respiratory samples of 30 confirmed cases and 20 negative cases of influenza A virus (H1N1 pdm 2009) infections were included in this study. Viral RNA was extracted in triplicates using HiPurA® Viral RNA Purification Kit and QIAamp® Viral RNA Mini kit. Real-time RTPCR was performed for each extracted RNA in triplicates using CDC approved protocol. Inter & Intra assay variability was measured using the average coefficient of variation. Assay linearity was assessed by regression analysis.

**Results:** HiPurA® Viral RNA kit on evaluation showed equivalent cycle threshold (Ct) value when compared to QIAamp® Viral RNA Mini kit. Good linearity was observed over an 8-log concentration range with slopes of -3.425 and -3.348 and R2-values of 0.999, respectively, for QIAamp® and HiPurA® Kit. HiPurA® kit yield a greater assay linearity with PCR efficiency of 98.92% while QIAamp® kit had PCR efficiency of 95.86%.

**Conclusion:** The present CDC protocol of real-time RT-PCR for influenza A (H1N1) relies on limited number of commercially available approved extraction kits. Also, the availability and cost are a critical element especially in resource limited countries like India. The data in this study provides laboratories with an additional performance evaluated extraction kit to choose during the routine testing and outbreak of influenza.

**MICP 299 Vi-O10**

**EVALUATING COMPREHENSIVE SET OF HBV MARKERS IN ASSESSING THE BURDEN OF HEPATITIS B INFECTION AMONG CHRONIC LIVER DISEASE PATIENTS**

*Dr. Prasanthi Kolli* (Associate Professor), *Dr. P. Jyothi* (Assistant Professor),
*Dr. K. Kavitha* (Professor), *Dr. I. Jahnavi* (Professor & Head)

*Department of Microbiology, Guntur Medical College, Guntur

**Introduction:** Chronic infection with hepatitis B virus affects an estimated 240 million persons worldwide. Majority of patients resolve the acute infection and have silently translated into chronic HBV infection. Most of the times infection goes unnoticed, undiagnosed, until the virus causes liver damage. This silent, hidden evolution created another group of patients often referred to as occult hepatitis B who are HBV DNA positive
and HBsAg negative. Traditionally, people with HBV infection have been identified primarily with the marker HBsAg, which is not sufficient to identify HBsAg missing cases.

**Aims & Objectives:** To evaluate the comprehensive set of HBV serological & viral markers in the detection of HBV infection and to assess the burden of various stages of Hepatitis B infection in chronic liver disease patients.

**Methods:** 200 clinically diagnosed chronic liver disease patients visiting Gastroenterology department were included in the study. All were screened for HbsAg and Anti HBc total antibodies. Samples positive for HbsAg or Anti HBc total antibodies were further tested for HBeAg, Anti HBe, Anti HBs, Anti HBc IgM antibodies by Fluorescent immune assay and HBV DNA by PCR.

**Results:** Among 200 chronic liver disease cases 70.5% were HBV infected. Of these 3.7% were in Immuno tolerant phase with HbsAg, HbeAg and HBV DNA positive. 14.8% were in immune active phase with HBsAg, HBV DNA positive, HBeAg Negative. 79.8% were in inactive carrier state with HBsAg positive, HBeAg and HBV DNA negative. 10% of the patients were in occult phase where HBsAg, HBe Ag were negative, HBV DNA detected.

**Conclusion:** HBsAg testing though the primary way to identify HBV infection, by utilizing the effective existing comprehensive tools like serological and viral markers, the various stages of Chronic Hepatitis B especially occult HBV infection can be assessed for timely and appropriate treatment.

**MICP 005 Vi-O11**

**PATHOPHYSIOLOGIC AND PROGNOSTIC ROLE OF PROINFLAMMATORY AND REGULATORY CYTOKINES IN DENGUE FEVER**

Dr Saishruti Iyer, Dr. G. Sucila Thangam, Dr. C. Revathy
Tirunelveli Medical College, Tirunelveli, Tamil Nadu

**Introduction**- Antibody response against Dengue virus – infection with dengue virus induces the production of both neutralizing and non neutralizing antibodies. The neutralizing antibodies are protective in nature. Such antibodies are produced against the infective serotype as well as against other serotype. Hence, protection to infective serotype stays lifelong but cross protection to other serotypes diminishes over few months. Then non neutralizing antibodies last lifelong and are heterotypic in nature i.e. They are produced against other serotypes but not against the infective serotype.. The above phenomenon is called Antibody Dependent Enhancement which explains the reason behind the severity of secondary dengue infection. Being suboptimal in specificity and function, they fail to control infection and, instead, contribute greatly to a ‘cytokine storm’.

**Aims and objectives**- To correlate cytokine levels with disease severity and clinical outcomes with a special reference to the development of Dengue Haemorrhagic Fever or Dengue Shock Syndrome and their utility in treatment strategies for dengue patients in the future.

**Methods**- Cytokine levels (IL-10, TNF alpha and IFN gamma) were measured for NS1 and IgM positive patients and then statistically analysed.

**Results**- There was a significant association (p=0.025) between the IL10 categorization and the clinical features. There was a significant association (p=0.025) between the Interferon categorization and the clinical features. There was no significant association between the TNF and the clinical features.
**Conclusion** - The present study indicates that IL10 is a highly sensitive marker of Severe Dengue and can be used as a screening tool in Secondary Dengue patients or those with warning signs. TNF alpha as it correlates strongly with patients with warning signs can be used for prognosis is patients presenting with symptoms. However interferon gamma correlates strongly with low platelet counts and can be a measure to screen patients presenting with fever with thrombocytopenia.

**A STUDY ON THE SPECTRUM OF INFECTIOUS ETIOLOGIES OF ACUTE FEBRILE ILLNESS IN A TERTIARY CARE CENTRE**

Dr Rima Das, Dr Tapan Majumdar
Agartala Government Medical College, Agartala

**Introduction:** Acute febrile illness (AFI) is defined as fever of >38°C of 2 (two) weeks or shorter in duration, rapid in onset, caused by diverse pathogens without any evidence of organ or system-specific aetiology. It is caused by a multitude of diverse pathogens, with significant morbidity and mortality in the developing world. The clinical features of these diseases are non-specific and so overlapping that it is almost impossible to achieve differential diagnosis because of limited diagnostic tools and thus many preventable deaths occur because of delayed or lack of correct diagnosis.

**Aim and Objectives:** To study the spectrum of infectious etiologies of acute febrile illness in a Tertiary Care Hospital with the following objectives: to assess the proportion of various infectious etiologies.

**Methods:** A hospital based descriptive cross-sectional study is undertaken at AGMC & GBPH from March 2019 to August 2019. A total of 1466 patients having AFI are included in the study. Blood samples are collected for QBC, blood culture, widal test and vector borne serological test. Results are interpreted as per standard protocols followed in the department.

**Results:** Out of 1466 patients, 35.33%(518) were positive for etiological agents. 0.5%(8) were positive for QBC for Malaria Parasites, 29.05%(426) were positive for other vector borne serological test, 2.66%(39) were widal positive, 3.06%(45) were blood culture positive. Staphylococcus aureus is the most common organism isolated from blood culture and vector borne serological test showed maximum positivity to Chikungunya infection followed by scrub typhus.

**Conclusions:** Acute febrile illness is a major clinical entity in which most of the etiological agents remain undiagnosed. This study shows viral agents as the most common etiology. Further studies are necessary for ascertaining the definite etiological agents of AFI in our community.
Introduction: Japanese encephalitis (JE) is a major public health problem in India. It is the leading viral cause of acute encephalitis syndrome (AES) in Asia. Approximately 3 billion people live in JE-endemic areas where ≥ 50,000 cases of JE are reported every year.

Aims and Objectives: To determine JE positivity amongst AES cases in Manipur and to assess different parameters with changing trend related to JE in terms of age, sex, geographical location, clinical features & seasonal variation.

Methods: It was a hospital-based, prospective cross-sectional study from Jan 2016 to Dec 2018. A total of 2116 patients of different age groups and both sexes who fulfilled criteria of AES according to WHO guidelines were included in the study. Serum and Cerebrospinal fluid (CSF) samples were tested for JE Capture ELISA specific IgM antibodies.

Results: Of the 2116 patients admitted, 323(15%) were diagnosed as JE positive cases. Male (15.9%) predominance was more than females (14.37%). JE positivity was seen highest among 15-30 years of age. Fever (100%), change in mental status (100%), seizure (36.67%), headache (54.63%), paralysis (14.74%), unconsciousness (30.48%), neck rigidity (43.62%) were the major clinical findings. The majority of the cases were from rural areas. There was a significant association of JE cases with rainy season of the year i.e. June to September. People of Churachandpur district of Manipur were mostly affected by JE.

Conclusion: The present study showed a trend of JE positivity among AES cases over last three years. Case management and referral system should be improved to avoid any complication and mortality.

MICP 087

PREVALENCE OF HIV-TB CASES, EPIDEMIOLOGY, DIAGNOSIS AND ITS OUTCOME AT ART RIMS RAICHUR DISTRICT

Dr Indushree M C, Dr Venkatesh R Naik
Raichur Institute of Medical Sciences, Raichur

Introduction: Of the 5.1 million HIV-infected people in India, approximately 2,00,000 people develop active TB each year.

Aim and Objectives: To determine the prevalence of HIV-TB cases & epidemiology, diagnosis and outcome.

Methods: It is a retrospective study, conducted during the period from January 2018 to August 2019. Out of 2377 PLHIV cases included in the study, 2327 were referred from ART RIMS and remaining were from various parts of Raichur. To detect HIV-TB coinfection, 257 sputum samples were referred to DMC, 2026 samples to CBNAAT, 42 cases to Chest X-Ray. Others such as Lymph node Biopsy, USG abdomen, MRI spine, CSF samples etc. were screened at RIMS, Raichur. CD4 counts were analyzed.

Results: Out of 2377 PLHIV cases, 202 (8.49%) were HIV co-infected with TB and 9 (4.45%) were found to be MDR/RR TB. Pulmonary TB was 161(79.70%) and 111(54.95%) were confirmed by CBNAAT followed by X-ray in 51 (25.24%) respectively. Extra pulmonary TB 41(20.29%), TB Meningitis 13 (31.70%) and pleural effusion 12(29.26%) were found. Males were predominant 123 (60.89%) than Females 71 (35.14%). About 195 (96.53%) were married and 7 (3.46%) unmarried. Most common age group was 21-40 yrs i.e. 106 (52.47%). CD4 count <200 was found in 124 (61.38%). Cure rates and treatment
completed were high i.e. 53 (26.23%) & 45(22.27%) when compared to death rates 34 (16.83%).

**Conclusion:** HIV-TB diagnosed was found to be 8.49 % among which MDR TB was found to be 4.45%. Pulmonary TB (79.70%) was more prevalent than Extra pulmonary TB (20.29%) among HIV-TB. By early diagnosis, initiation of ATT, treatment adherence, IPT initiation, proper monitoring with CD4 levels and follow-up, we can reduce the global burden.

**MICP 121**

**EVOLUTIONARY STABILITY OF DENV-3 CIRCULATING STRAINS IN NEW DELHI: A SINGLE HOSPITAL BASED STUDY**

Dr. Abhishek Padhi¹, Dr. Ekta Gupta¹, Dr. Shama Parveen², Arshi Islam², Dr Bansidhar Tarai³

¹ Department of clinical virology, institute of liver and biliary sciences, New Delhi
² Centre for interdisciplinary research in basic sciences, Jamia Millia Islamia, New Delhi
³ Department of Microbiology and Infection Control, Max Superspeciality Hospital, Saket, New Delhi

**Introduction:** Delhi is hyper endemic for dengue virus (DENV) where all the four DENV have been previously reported. A constant vigilance of circulating dengue virus serotypes is important in surveillance, since the introduction of a new variant to areas affected by pre-existing serotypes constitutes a risk factor for DHF and Dengue Shock Syndrome.

**Aims and objectives:** This retrospective study was carried out with an objective to determine the circulating serotype and genotype of Dengue virus in acute phase blood samples of patients who reported to a tertiary liver care hospital in New Delhi during the last two years (2017 – 2018).

**Methods:** The data of clinician-initiated testing for dengue NS1 antigen was searched in the institutional hospital information system. The serum sample of dengue NS1 antigen positive cases confirmed by ELISA (PANBIO, Gyeonggi-do, ROK) and fever duration of less than 5 days were retrieved from the laboratory archive. The dengue virus serotyping on these sample was carried out by real time reverse transcriptase PCR (Dengue differentiation kit, Fast track diagnostics, Luxembourg). Sequencing and phylogenetic analysis was done for the capsid-pre membrane (CPrM) region to determine the genotype.

**Results:** A total of 440 acute-phase samples were received. Twenty one (4.77%) were positive for dengue NS1 antigen with a mean age of 35.1 years and male to female ratio of 1.1:1. Eight cases (38.09%) were positive by Dengue RT-PCR and all belonged to DENV-3 serotypes. Phylogenetic tree analysis revealed DENV-3 clustered to genotype III with 100% homology with 2008 Indian subcontinent strain.

**Conclusion:** This study revealed that the present circulating dengue virus serotype in Delhi is DENV–3 genotype III. It is similar to previously isolated 2008 Indian subcontinent strain suggesting neither any change in serotype nor any further evolution of DENV-3. That explains the present relatively stable dengue endemicity in Delhi NCR.

**MICP 157**

**Vi-O15**

**THE ROLE OF AGE AND GENDER IN LATE DIAGNOSIS OF HIV INFECTION**
Introduction: Late diagnosis of HIV Infection is detrimental to infected persons and to public health. “Late presentation” refers to entering care with a CD4 count < 350 cell/micro litre or AIDS defining event regardless of the CD4 count in the six month after HIV diagnosis. Late presentation for care has been associated with higher risk of clinical progression and mortality. Determining the reason for late diagnosis is necessary to increase the number of early diagnosis and optimize treatment spectrum.

Aims and objective: to evaluate the role of age and gender in late diagnosis of HIV infection.

Methods: HIV status was confirmed by 3 tests with different principles- TRUSTLINE, COMBAIDS, and MERILSCREEN and an initial CD4 T lymphocyte count was estimated using FACS calibur. Subjects were categorised into various age groups.

Results: 45% of subjects met the immunological definition of AIDS at the time of HIV diagnosis. 3.8% of HIV positive patients were in the age group 1-15 yrs, of which 2.6% were male and 1.2% were female. 29.84% belonged to age 16-30 yrs, of which 19.19% male and 10.64% females were positive. 49.73% belonged to age 31-50 yrs of which 35.42% male and 14.31% female were positive. 16.57% belonged to age >50 yrs, out of that 12.04% male and 4.53% females were positive. HIV positive patients with CD4 T lymphocyte count <350 cells/micro litre were 72.30%, in between CD4 count (350-500) cells/micro litre were 14.23% and >500 cells/micro litre were 13.46%.

Conclusion: late diagnosis is a considerable problem particularly for older patients. Improved HIV testing strategies may allow for more timely diagnosis of HIV infection. Late presenters are at increased risk of clinical progression and death. It is essential to potentiate targeted prevention efforts and HIV testing programs, in order to treat HIV infection as early as possible.

OCCURRENCE OF HEPATOTROPHIC VIRUSES AS A CAUSE OF ACUTE AND CHRONIC HEPATITIS

Dr. Bornali Sarmah Dutta, Dr. Ajanta Sharma, Dr. Lahari Saikia
Department of Microbiology, Gauhati Medical College & Hospital, Guwahati

Introduction: Viral hepatitis, which is recognized as a serious global public health problem, has been silently leading to a pandemic in India. Most people with chronic hepatitis B or C are unaware of their infection and are at serious risk of developing cirrhosis of the liver or liver cancer. On the other hand, millions of acute infections with hepatitis A virus (HAV) and hepatitis E virus (HEV) occur annually and result in deaths.

Aims and objectives: The present study aims to (i) Determine the seroprevalence of Hepatitis A, Hepatitis B, Hepatitis C, Hepatitis E virus both in acute viral hepatitis and in
patients with chronic liver diseases (CLD). (ii) To determine the occurrence of co-infection among the patients.

**Methods:** Over a period from January 2019 to July 2019, a total of 100 serum samples were collected from clinically suspected cases of acute hepatitis and chronic liver disease, which did not have any known coexisting illness. Sera were tested for hepatitis B surface antigen, HBc antibodies, HBeAg and HBeAg (in hep B reactive cases), anti-HCV total antibodies, anti-HAV immunoglobulin (IgM & IgG) and anti-HEV immunoglobulin (IgM & IgG) by enzyme-linked immunosorbent assay.

**Results:** Of the 100 cases, 19 presented with acute viral hepatitis and 81 with chronic liver disease. Of the acute cases, 52.6% showed the presence of antibodies as follows: HAV-IgM (26.3%), HAV IgG (36.8%), HEV IgM (5.2%) and HEV IgG (5.2%). In the acute hepatitis group, the presence of co-infection was noticed in 26.3% of the patients mostly with HAV and HBV (15.7%). In chronic liver diseases group, HBV infection was detected in (29.6%), HCV in 2.5% patients and co-infection was detected in 1.2% patient.

**Conclusion:** It is important to evaluate the association of hepatotropic viruses in acute and chronic hepatitis for better management and to reduce the complications and subsequent mortality.

**MICP 297**

**INCIDENCE OF JAPANESE ENCEPHALITIS AMONGST ACUTE ENCEPHALITIS SYNDROME CASES IN A TERTIARY CARE HOSPITAL OF WESTERN ODISHA**

Patel B, Jena S, Sahu S, Sahu SK, Behera SK.
Department Of Microbiology, VIMSAR, Burla, Sambalpur

**Introduction:** Japanese Encephalitis (JE) is a leading viral cause of acute encephalitis syndrome (AES) with high mortality rate. JE is an important public health problem in South East Asian region as well as India as most of the outbreaks and sporadic encephalitis cases have been attributed to it.

**Aims and objectives:** To investigate Japanese encephalitis positivity amongst patients admitted with Acute Encephalitis Syndrome (AES) in VSS Institute of Medical Science and Research (VIMSAR), Burla, Sambalpur, Odisha.

**Methods:** It is a hospital-based cross-sectional study conducted from September 2018 to August 2019. All the patients admitted at VIMSAR, Burla satisfying the clinical case definition of AES as per the WHO guidelines, were included in the study. Serum samples were tested for Japanese encephalitis Virus specific IgM antibodies by MAC-ELISA method.

**Results:** Out of 210 patients admitted with acute encephalitis syndrome, 43(21%) were diagnosed as Japanese encephalitis with male to female ratio 1.7:1 and about 98% Japanese encephalitis positive cases were in pediatric age group. The major Clinical findings present in Japanese encephalitis positive cases were fever (100%), change in mental status (46.5%), seizure (52.8%) %. The majority of cases (91%) were from rural areas.

**Conclusions:** A higher incidence of Japanese encephalitis was observed in less than 15 yrs age group. So immunization of less than 15 years child with Japanese Encephalitis vaccine and other preventive public health measures should be taken to reduce the incidence of Japanese encephalitis in western Odisha.
INFLUENZA SEASON OF 2018 - EXPERIENCE FROM A TERTIARY CARE CENTRE

Ujjwayini Ray, Soma dutta
Apollo Gleneagles Hospitals, Kolkata

Introduction: Influenza virus is a typical human pathogen that can cause serious respiratory illness in susceptible people. It can cause widespread pandemics as it spreads easily from person to person.

Aims and Objectives: To detect the incidence, seasonal pattern, age and sex distribution, complications and mortality associated with influenza amongst patients admitted with influenza like illness in a tertiary care centre of Kolkata in 2018.

Methods: Patients hospitalized with influenza like illness and whose nasopharyngeal swab tested positive for Influenza A HINI 2009, Influenza AH3 and Influenza B by real time PCR between Jan-Dec 2018 were included in the study.

Results: 326 samples (18%) were positive for either Influenza B (131 cases), Influenza AH1N1 2009 (125 cases) or Influenza AH3 (n=67). The cases peaked between August and October (70% of cases) and a smaller peak of only Influenza B cases was observed in February and March (9% of total Influenza cases). 55% of the patients were male. Median age of the infection was 56 years (range 2 months - 89years). 18% cases comprised of children <5 years of age and another 37% of cases were adults > 65 years of age. About 10% of patients presented with respiratory failure (n=31). 13% (n=44) of patients required invasive or non-invasive ventilation. Three patients developed Aspergillus lung infection. 21 patients (12 patients of Influenza B, 5 patients of Influenza H1N1 2009 and 4 patients with AH3) with various risk factors like Diabetes mellitus, COPD, disseminated malignancy, heart disease, Chronic renal failure died. Of the patients who expired one was an infant with congenital anomaly (microcephaly) and the rest were adult patients (average age 68 years).

Conclusion: Influenza has the potential to cause serious infection. Awareness about its prevention and spread is essential. Vaccination of susceptible population with the tetra-valent vaccine is necessary.

MICP 338

ADENOVIRUS ASSOCIATED RESPIRATORY INFECTION. STUDY FROM A TERTIARY CARE HOSPITAL KOLKATA

Dr. Soma Dutta, Dr. Ujjwayini Ray
Apollo Gleneagles Hospitals, Kolkata

Introduction: Adenoviridae is a family of double-stranded DNA viruses that are a significant cause of upper respiratory tract infections in children and adults. The adenovirus family can cause a variety of gastrointestinal, ophthalmologic, genitourinary, and neurological symptoms. Most adenovirus infections are self-limited in the immunocompetent host and are treated with supportive measures. Infections with adenovirus often are endemic, mild, and most commonly seen in young children. In the year 2018 & 2019 we got an increased number of adenovirus respiratory tract infections that lead to hospitalisation.
Aims & Objectives: In this study, we describe the clinical symptoms, epidemiological features, clinical outcome and treatment of this cluster of adenovirus positive cases identified during September 2018–August 2019.

Methods: This is a retrospective study to identify adenovirus positive cases during September 2018–August 2019. Human adenovirus was identified from throat or nasopharyngeal sample by BioFireFilmArray System (BioMérieux). Patient’s files were taken from medical records department. The study was carried out in the Department of Microbiology, Apollo Gleneagles Hospitals, Kolkata.

Results and Conclusions: From September 2018–August 2019, we identified total 196 patients who had adenovirus positive respiratory specimen. Almost all the patients are resident of West Bengal. Patients ranged in age from 2 months to 86 years (median 8 years); 55% were male (M: F = 88:110). Most (67%) of the adenovirus we detected occurred during February–June 2019. Average length of hospital stay was 13.5 days; median was 5 days (range from 2-60 days). Most common presentation was fever (84.4%), followed by 71.25% with respiratory symptoms, 52% presented with GI manifestations, 33% patients having congested throat with tonsillitis, 4% with ophthalmologic symptoms. Most patients cured with symptomatic management but 8% patients (13) died with the disease condition.

MICP 352

CLINICAL AND EPIDEMIOLOGICAL STUDY OF H1N1 CASES IN WEST BENGAL

Alisha Acharya, Srima Adhikary, Bhaswati Bandyopadhyay
Department of Microbiology, Calcutta School of Tropical Medicine

Introduction: Influenza is an acute respiratory disease caused by Influenza virus belonging to family Orthomyxoviridae characterized by the sudden onset of high fever, coryza, cough, headache, prostration, malaise and inflammation of the respiratory tract.

Aims and Objectives: To study the epidemiological and clinical profile of Influenza A H1N1 cases among suspected Influenza like illness (ILI) patients who were admitted during the period June 2017 to September 2019.

Methods: A retrospective descriptive, record–based analysis of suspected cases of pandemic Influenza A (H1N1) virus infection in a tertiary care hospital from June 2017 to September 2019, using Real Time based reverse transcriptase Polymerase chain reaction (RTPCR) methods. RNA was amplified from naso-pharyngeal swab samples collected in VTM and transported in cold chain. The samples were tested for Influenza A and H1N1 infections.

Results: Among 399 samples collected from hospitalised suspected ILI cases, 139 (34.83%) samples and 103 (25.81%) samples tested positive for Influenza A and Influenza A H1N1 respectively. The commonest age groups affected were the 0 to 10 years followed by >50 years with males predominantly affected. The most common symptoms were fever, cough and respiratory distress. It was found that cases occurred mostly during August 2017, September 2018 and March–April 2019. However, sporadic cases of Influenza A also occurred during the period May to August 2019.

Conclusions: Since extremes of age group population are more affected timely vaccination, may lead to reduced number of cases and complications.
IDENTIFICATION AND SEROTYPING OF DENGUE VIRUS FROM CSF OF ACUTE ENCEPHALITIS SYNDROME CASES: TWO CASE REPORTS EYEING DENGUE ENCEPHALITIS

Dr. Rahul Sikdar, Dr. Srima Adhikari, Dr. Bhaswati Bandyopadhyay.
Calcutta School of Tropical Medicine, Kolkata

Introduction: Dengue, the second most common mosquito-borne human disease, is caused by a Flavivirus, Dengue virus (DENV), by any of its 4 serotypes. Though majority of Dengue cases are limited to febrile illness, in the past decade, an increasing trend of CNS involvement by DENV has been seen.

Aim: We report 2 cases with features of Acute Encephalitis Syndrome (AES) in which molecular analysis identifies DENV serotypes.

Brief history of Cases: Two patients, a 61y, male and a 51y, female, from Kolkata, were admitted with fever for 6 days and 8 days respectively, associated with chills and rigor, body rash, severe headache and retro-orbital pain. Both were unconscious during admission. No history of convulsions and yellowish discoloration of eyes and urine was given.

Methods: Serum and CSF were collected aseptically and referred to the Virology Unit, CSTM. The sera were tested for IgM of JE, Scrub Typhus, Chikungunya, Dengue, West Nile fever, and Leptospira by respective ELISA kits. CSF was tested for JE IgM by ELISA. Molecular tests for the presence of HSV, S. pneumoniae, H. influenzae, N. meningitides DNA and DenV, ChikV, ZikaV and enteroviral RNA were conducted from CSF by Real Time PCR. Besides, reports of routine laboratory investigations, and reports from bacteriology, mycology and parasitology units were collected.

Results: In both the cases, serum showed Dengue IgM REACTIVE by ELISA method. Samples were negative for all other AES pathogens. Platelet count ranged between 50,000-90,000 per cmm of blood. Molecular test of CSF identified DENV-1 and DENV-4 serotypes respectively.

Conclusion: DENV should be considered as a possible etiological agent of AES cases especially when samples are negative for other pathogens. Molecular analysis of CSF is valuable for confirmation of Dengue Encephalitis and its causative DENV serotype.

MICP 377

COMPARISON OF CBNAAT AND TAQMAN48 FOR HIV 1 VIRAL LOAD TESTING

Nayana Ingole, Gita Nataraj and Preeti Mehta
Department of Microbiology, Seth GSMA and KEMH, Mumbai

Introduction: HIV viral load testing is now recommended for the monitoring of anti-retroviral treatment failure in People living with HIV/AIDS. Nucleic Acid Testing (NAT) based technologies are considered as the gold standard for HIV-1 viral load estimation because of their high specificity, sensitivity and wide linear range of detection. However, most of the tests available for viral load testing require trained manpower, longer time, sophisticated infrastructure and a greater number of samples for batch processing. A robust, user friendly point of care testing for HIV 1 viral load assay is the need of the hour. GeneXpert®HIV-1 Quant Assay (Cepheid Innovations Pvt. Ltd., USA) is a recently
introduced fully automated integrated system. It is a rapid assay, simple and very safe to perform with minimal requirement of infrastructure.

**Aims and Objectives:** In the present study, we compared performance of GeneXpert® HIV-1 QuantAssay with the routinely used COBAS TaqMan 48 analyzer (Roche Molecular Systems) in a resource limited Indian setting.

**Methods:** A cross sectional study was conducted in the Microbiology Department of a tertiary care level ART centre and 100 patients coming for routine HIV viral load testing were tested by both GeneXpert® HIV-1 Quant Assay and COBAS TaqMan 48 analyzer.

**Results:** The GeneXpert assay compared well with the COBAS TaqMan 48 analyzer and the correlation between two assays ($r = 0.9667$) was statistically significant ($p < 0.01$).

**Conclusions:** GeneXpert HIV-1 Quant assay is recommended as a point of care assay for viral load estimation in resource limited settings. Its ease of performance and rapidity will aid in timely diagnosis of ART failures, integrated HIV-TB management and will facilitate the UNAIDS 90-90-90 target.
**Abstracts- Poster**

**INCIDENCE AND SUSCEPTIBILITY PATTERN OF PSEUDOMONAS AERUGINOSA IN BACTERIAL PNEUMONIA FROM A TERTIARY CARE HOSPITAL**

Dr. Ruchi Jain, Dr. Nita Pal, Dr. Rajni Sharma, Dr. Saroj Hooja  
SMS Medical College, Jaipur

**Introduction:** Pneumonia is an inflammatory condition affecting the lung, having higher incidence of morbidity and mortality. *Pseudomonas aeruginosa* is a common cause of community and hospital acquired pneumonia. The development of resistance of *Pseudomonas aeruginosa* to antibiotics is increasing globally due to overuse of antibiotics.  

**Aims & Objectives:** This retrospective study was undertaken to study the incidence of *Pseudomonas aeruginosa* in sputum samples and its antibiotic susceptibility pattern.  

**Methods:** Sputum specimens received were subjected to standard aerobic bacteriological culture for isolation and identification. Antibiotic susceptibility testing was performed by Kirby-Bauer disc diffusion and interpreted according to Clinical and Laboratory Standards Institute standards 2018.

**Result:** Of the sputum samples received over 6 months (Jan to May 2019) 601 samples had identifiable etiology. Gram-negative bacilli (GNB) accounted for 79.21% of infections and Gram-positive cocci (GPC) 20.79%. Among GNB, *Pseudomonas aeruginosa* was isolated in 11.13% cases. *Pseudomonas aeruginosa* was isolated in 33(62.26%) males and 20(37.73%) females. Highest susceptibility was observed for tobramycin (95.91%) and imipenem (86.79%). The rate of multi-drug resistance among various *Pseudomonas aeruginosa* isolates was 30.18%.  

**Conclusion:** Antimicrobial resistance observed among the *Pseudomonas aeruginosa* isolates was very high. Thus, there is need for an appropriate antibiotic policy to herald judicious antibiotic use.

**BACTERIOLOGICAL PROFILE OF COMMUNITY ACQUIRED PNEUMONIA (CAP) IN SOUTHERN ODISHA WITH SPECIAL REFERENCE TO MYCOPLASMA PNEUMONIAE**

Dr. Samir Kumar Sarangi, Dr. Sanghamitra Padhi, Dr. Bimoch Projna Paty, Prof. Dr. Banojini Parida  
Department of Microbiology, M.K.C.G. Medical College, Berhampur, Odisha

**Introduction:** CAP is one of the leading causes of morbidity and mortality in the world. CAP is divided into typical and atypical. The importance of the atypical pneumonias is due to their difficulty of diagnosis and their non responsiveness to recommended beta-lactam therapy.  

**Aims & Objectives:** The aim of the study was to isolate and identify the bacterial agents of community acquired pneumonia; to perform antimicrobial susceptibility testing of the isolated organisms and to detect *Mycoplasma pneumoniae* using IgM ELISA and culture.
Methods: This prospective study was undertaken in Department of Microbiology in collaboration with Department of Medicine, M.K.C.G. Medical College, Berhampur from November 2017 to July 2019. Total 287 patients of >14 years of age with clinical diagnosis of CAP were included in this study. Sputum/BAL fluid was collected into sterile containers and subjected for microscopy (Gram & ZN) & culture. All samples were inoculated on Blood, Chocolate and MacConkey’s agar & incubated at 37 degree Centigrade for 18 to 24 hrs. The isolated organisms were identified by standard identification techniques & subjected to AST. All samples were tested for Mycoplasma pneumoniae by inoculation on PPLO culture media & IgM ELISA.

Results: Out of 287 processed samples, 134 (46.7%) were culture positive. The most common isolate was Streptococcus pneumoniae 42 (31.3%) followed by Klebsiella spp. 24 (17.9%). Majority of Gram-positive bacteria were sensitive to linezolid and resistant to ampicillin. Most Gram-negative bacteria were sensitive to amikacin & tobramycin. Mycoplasma pneumoniae was detected by culture in 14 cases and by IgM ELISA in 27 cases.

Conclusion: Bacteriological etiology was found in 46.7% cases by culture method among which Streptococcus pneumoniae was found to be the prevalent organism followed by Klebsiella. 27 cases were found positive for Mycoplasma pneumoniae by IgM ELISA.

MICP 141

BACTERIOLOGICAL PROFILE AND THEIR ANTIBIOGRAM OF PATIENTS SUFFERING FROM VENTILATOR ASSOCIATED PNEUMONIA (VAP) IN ICU IN TERTIARY CARE HOSPITAL, RIMS RANCHI

Punam Kumari, Manoj Kumar, A.K.Sharma, Amber Prasad, Department of Microbiology, RIMS, Ranchi

Introduction: VAP is defined as pneumonia that develops 48 hrs. or more after endotracheal intubation or tracheostomy by the infectious agent that are not present during mechanical intubation. VAP is a serious life threatening nosocomial infection occurring in intensive care units.

Aims & Objectives: To isolate bacterial agents causing VAP from samples (ET Tube aspirate, Broncho alveolar lavage) and determine their antibiogram in department of microbiology, RIMS, Ranchi.

Materials and Method: This cross-sectional study was done during the 6 months (April 19-september 19). Endotracheal aspirate and Broncho alveolar lavage of the clinically suspected patients of ventilator associated pneumonia collected in a sterile container, were processed in the department of microbiology. Samples were cultured in Blood agar and MacConkey agar media and incubated in 37°C for 18-24 hrs. Organisms were identified by colony morphology and biochemical tests. Antibiotic sensitivity pattern was determined by using Kirby–Bauer disc diffusion method according to CLSI guidelines.

Result: During six month of study, 58 samples were processed. The age range between 18-70 yrs. The bacterial pathogens isolates were predominately E.coli, Klebsiella, Pseudomonas followed by CONS, Acinetobacter, Staphylococcus aureus, Proteus. In my study E.coli (26%), Klebsiella spp. (21%), Pseudomonas (17%), CONS (14%), Acinetobacter (10%), Staph. aureus (8.5%), Proteus (3.5%) were found. Thus, prevalence of E.coli is more than Klebsiella spp. and Pseudomonas in ventilator associated pneumonia. E. coli showed highly sensitive to imipenem, intermediate sensitive to levofloxacin and resistant to co-trimoxazole, cefotaxime, ampicillin, gentamycin, ofloxacin, ciprofloxacin, piptaz, amikacin, cefuroxime.
and ceftazidime, *Klebsiella* spp. showed sensitive to imipenem, tobramycin and amikacin. It is resistant to cotrimoxazole, cefotaxime, cefuroxime, ceftazidime, ampicillin, ciprofloxacin, piptaz. *Pseudomonas* showed sensitivity to imipenem, levofloxacin. *Staph.aureus* showed sensitive to vancomycin and linezolid only. *Acinetobacter* showed sensitive to levofloxacin and resistant to cephalosporins groups.

**Conclusion:** Better knowledge of local pattern of pathogens causing VAP can help in treatment choice, in turn reducing the ventilator days and hospital stay.

**MICP 153**

**SEROPREVALEANCE OF LEGIONELLA PNEUMOPHILA, CHLAMYDIA PNEUMONIAE AND MYCOPLASMA PNEUMONIAE IN PATIENTS WITH LOWER RESPIRATORY TRACT INFECTION ATTENDING A TERTIARY CARE HOSPITAL**

Dina Raja, Ajanta Sharma, ChimanjitaPhukan, Basanta Hazarika, Vaishali Sarma, Rohan Raj Kutum
Gauhati Medical College, Guwahati, Assam

**Introduction:** Community acquired pneumonia is one of the common causes of medical consultation in both hospital emergency departments and general practice. Pneumonia resulting from infectious organisms is one of the leading infectious causes of mortality and morbidity worldwide. The three most important atypical pathogens are *Mycoplasma pneumoniae*, *Chlamydia pneumoniae* and *Legionella pneumophila*. They are the common cause of lower respiratory tract infection (LRTI). However, the prevalence rate of these atypical organisms remains underestimated.

**Aims and Objectives:** To study the seroprevalence of *Legionella pneumophila*, *Chlamydia pneumoniae* and *Mycoplasma pneumoniae* among adult patients with lower respiratory tract infection.

**Methods:** The study was carried out in the department of Microbiology from April to September 2019 at Gauhati Medical College and Hospital. It is a cross sectional study. Serum samples (3ml in a clot vial) were collected from study cases and ELISA tests were conducted for IgM and IgG against *Mycoplasma pneumoniae*, *Legionella pneumophila* and *Chlamydia pneumoniae* respectively.

**Results and Observations:** Out of 30 patients enrolled in the study, we found *Mycoplasma pneumoniae* IgM accounts for (40.6%), *Legionella pneumophila* IgM (40%), *Chlamydia pneumoniae* IgM (13.3%), *Mycoplasma pneumoniae* IgG (80%), *Chlamydia pneumoniae* (63%) and *Legionella pneumophila* IgG (20%). Males are more commonly infected than females in the middle-aged group of 40 to 70 years. Coinfection was seen between *C. pneumoniae* and *M. pneumoniae* (36.6%), *C. pneumoniae* and *L. pneumophila* (3.3%), *M. pneumoniae* and *L. pneumophila* (16.6%), *C. pneumoniae*, *M. pneumoniae* and *L. pneumophila* (20%).

**Conclusion:** The role of these atypical pathogens cannot be excluded from those patients refractory to treatment for LRTI and therefore these pathogens need to be included in the routine diagnostic panel in Microbiology laboratories.
PREVALENCE OF SYMPTOMATIC AND ASYMPTOMATIC BACTERIURI A IN PREGNANT WOMEN ATTENDING ANTENATAL CLINIC IN A TERTIARY CARE HOSPITAL

Dr. Ashwini Mankar, Dr. Supriya Paranjpe, Dr. Gita Nataraj
Department of Microbiology, Seth. G. S. Medical College and KEM Hospital Parel Mumbai

Introduction: Urinary tract infections are the most common bacterial infection which complicates pregnancy. Symptomatic bacteriuria is an iceberg of total bacteriuria. Pregnancy is a provocation for the asymptomatic to become symptomatic. Asymptomatic bacteriuria in pregnancy if left untreated leads to maternal and perinatal morbidity and mortality.

Aims & Objectives: 1. To determine prevalence of Symptomatic and Asymptomatic bacteriuria in pregnant women attending antenatal clinic. 2. To determine the causative organisms of bacteriuria and study their antibiotic susceptibility pattern. 3. To correlate the various demographic factors with bacteriuria.

Methods: Three urine specimens were collected from patients on three consecutive visits in a dry, leak proof, sterile wide mouth container. Bacteriological isolation was done by inoculating the specimen on Blood and MacConkey’s agar and further identification was done by using various biochemical tests. Statistical analysis was done using the Chi square test.

Results: The percentage of significant bacteriuria was 10.6%. 9.0% of the women with significant bacteriuria, were asymptomatic. Asymptomatic bacteriuria was significantly higher in multigravida (26.4%). Asymptomatic bacteriuria was significantly higher in the 1st trimester and Symptomatic bacteriuria in 3rd trimester. Gram-negative (90.9%) organisms were isolated more than Gram-positive (9.1%) organisms. E. coli (72.5%) was the predominant organism isolated which was highly sensitive to Norfloxacin. Gram-positive organisms were pan sensitive.

Conclusion: Routine urine culture tests should be carried out for all antenatal women preferably in the first or second trimester and every positive case should be treated with appropriate antibiotic therapy. Regular monitoring is required to establish resistance pattern of uropathogens in a particular setting. All pregnant women should be counselled and educated regarding personal hygiene to decrease the prevalence of bacteriuria.

AEROBIC VAGINITIS: AN UNIDENTIFIED ENTITY IN REPRODUCTIVE WOMEN PRESENTING WITH VAGINAL DISCHARGE

Sweety Singh1, Shukla Das1, Rumpa Saha1, Amita Suneja2
1 Microbiology Department, 2 Gynaecology and Obstetrics Department, University College of Medical Sciences & Guru Teg Bahadur Hospital, Delhi

Introduction: Aerobic vaginitis (AV) is an inflammatory condition with abnormal vaginal flora which is distinct from bacterial vaginosis. AV is caused by displacement of normal vaginal Lactobacillus species with aerobic microorganism such as Escherichia coli, Streptococcus agalactiae, Staphylococcus aureus and Enterococcus faecalis which triggers local inflammation. Delay in the diagnosis and treatment of AV may lead to adverse
outcomes like preterm rupture of membrane, preterm birth and chorioamnionitis during pregnancy.

**Aim & Objectives:** To determine the prevalence AV and the most common age group affected in reproductive women presenting with vaginal discharge in gynaecological outpatient department (GOPD) of our tertiary care hospital.

**Methods:** Over a period of one year, high vaginal swabs were collected from 200 women with vaginal discharge to our GOPD. Smear was prepared from the vaginal swab and subjected to gram staining. AV score was determined by modified Donder’s score.

**Results:** The prevalence of AV in the present study was 21%. Light AV score was observed in 42.8% and moderate score in 57.2% in women with AV signifying low grade and moderate infection respectively. The most common age group affected was 31-35 years. Out of 42 cases gram-positive cocci was seen in 29 patients; gram-negative bacilli were present in 11 patients and both in 2 patients.

**Conclusion:** Often neglected, ‘aerobic vaginitis’ is an important clinical condition which requires clinical evaluation for a better understanding of its role in ascending infections. Light microscopy examination of gram stain of vaginal discharge allows differentiation of important abnormal vaginal conditions like bacterial vaginosis and aerobic vaginitis and vulvovaginal candidiasis which is prerequisite for appropriate treatment of the conditions.

**MICP 430**

**PREVALENCE OF BACTERIAL VAGINOSIS AMONG SEXUALLY ACTIVE WOMEN IN A TERTIARY CARE HOSPITAL**

Dr Syed Abdul Wajid PG (2nd Year), Dr IJahnavi MD (Professor & Head)
Department of Microbiology, GMC, Guntur

**Introduction:** Bacterial vaginosis (BV) is common but asymptomatic most often, so missed infection, characterized clinically by a malodorous vaginal discharge (only in Alkalinity) associated with a significant overgrowth in the number of *Gardnerella vaginalis, Mobiluncus* species with a concomitant decrease/absence in the numbers of normal vaginal *Lactobacilli*. Studies have established that BV has a significant impact on adverse pregnancy outcomes and a risk factor for preterm birth, BV is also considered as an effective tool in transmission of HIV.

**Aim and Objective:** To determine the prevalence of Bacterial vaginosis among sexually active women.

**Methods:** This was a prospective six-month study (January 2019-September 2019) conducted in the department of microbiology, GMC, Guntur in association with gynaecology and DVL departments, GGH, Guntur. A detailed history was taken and 3 vaginal swabs were collected, first one for wet mount and second one for Grams staining and the third for inoculation into 5% sheep blood agar and chocolate agar and processed by standard laboratory procedures including antibiotic sensitivity pattern. In this study, vaginal pH was noted using pH strips, whiff test was performed and Amsel’s criteria and Nugent’s score was used for diagnosis of Bacterial vaginosis.

**Results:** In this study, out of 209 samples 86 were positive for bacterial vaginosis (41.14%) with significantP value (P=0.005) and chi square value 10.59. Significant(P value < 0.001) number of cases were seen among women belonging to rural, low socio-economic and illiterate status and mean age was 28 years (25-40yrs group). Organisms isolated were *Gardnerella vaginalis* (40%), *Mobiluncus* (20%), *Lactobacilli* (10%).
Conclusion: Our study observed more Bacterial Vaginosis positivity among illiterate and low privileged groups where Health education on genital hygiene play an important role.

MICP 13

RETROSPECTIVE STUDY OF MDR BACTERIAL ISOLATES FROM WOUND INFECTIONS IN CANCER PATIENTS

Hemali Kadu*, Vivek Bhat, Preeti Chavan, Reshma Kamble, Madhura Salvi, Nayana Baraskar, Divya Ratheesh.
ACTREC, Navi Mumbai

Introduction: Multidrug resistant (MDR) bacteria are simultaneously resistant to a number of antimicrobials and are a cause of concern particularly in immunocompromised cancer patients. The incidence of MDR infections is increasing and contributes to the associated morbidity and mortality.
Aims & Objectives: To determine the incidence of MDR bacterial isolates that caused wound infection in cancer patients.
Methods: This study was conducted on wound swabs and frank pus received from 244 cancer patients for the period January to December 2018. Bacteriological culture and sensitivity were performed following standard microbiological techniques. The data was analysed for descriptive statistics.
Result: A total of 263 isolates were recovered from 219 culture positive specimens. Of these, 161 were Gram-negative & 102 were Gram-positive isolates. The commonest Gram-negative organism isolated was Escherichia coli (39.75%), followed by Pseudomonas aeruginosa (27.95%), Klebsiella pneumoniae (15.53%), Acinetobacter spp. (5.59%) and Shewanella spp. (3.11%). Among the Gram-positive organisms, Staphylococcus aureus (59.8%) & Enterococcus spp. (14.71%) were most common. Resistance of Escherichia coli to cefotaxime, cefepime and ceftazidime was 84.38, 81.25 and 59.38% respectively. Resistance of Klebsiella pneumoniae to cefotaxime, cefepime and ceftazidime was 68, 60 and 64% respectively. Among carbapenems, resistance of Escherichia coli and Klebsiella pneumoniae to imipenem was 46.88 and 48% respectively and to meropenem was 9.38 and 48% respectively. Resistance of Pseudomonas aeruginosa to ceftazidime, piperacillin-tazobactam and meropenem was 20, 20 and 15.56% respectively. Among Acinetobacter spp., resistance to ceftazidime, piperacillin-tazobactam and meropenem was 66.67, 66.67 and 44.44% respectively. Methicillin resistance among Staphylococcus aureus (MRSA) was 47.54%.
Conclusion: Bacterial isolates showed widespread resistance against different microbial classes. Increasing levels of resistance to higher antibiotics like carbapenems is alarming, and a cause for concern.

MICP 107

INCIDENCE OF SUSPECTED CARBAPENEMASE PRODUCER AMONG ENTEROBACTERIACEAE BY USING MODIFIED CARBAPENEM INACTIVATION METHOD AT A TERTIARY CARE HOSPITAL OF BIHAR

Dr. Vidyut Prakash, Dr. Kumar Saurabh, Dr. Namrata Kumari, Dr. S.K. Shahi
Dept of Microbiology, Indira Gandhi Institute of Medical Sciences, Sheikhpura, Patna
**Introduction:** Emergence and spread of carbapenem-resistant *Enterobacteriaceae* (CRE), which are usually extensively drug resistant, is becoming a serious public health threat. The mechanism of carbapenem resistance in *Enterobacteriaceae* is complex and include (a) productions of carbapenem-hydrolyzing $\beta$-lactamases and (b) resistance due to the presence of a combination of other factors (non-CP-CRE), like hyperproduction of AmpC $\beta$-lactamases or ESBLs combined with altered membrane permeability(non-CP-CRE). The distinction between CP-CRE and non-CP-CRE is important for infection control purposes because many carbapenemases are carried on mobile genetic elements (plasmids) that facilitate the horizontal transfer of resistance between Gram-negative organisms. Modified carbapenem inactivation method (mCIM) is an inexpensive, and specific phenotypic method for detection of carbapenemase production.

**Aims & Objectives:** To determine the incidence of carbapenemase producer among *Enterobacteriaceae* for infection control purpose

**Methods:** In this study we included 55 non-identical isolates belonging to family *Enterobacteriaceae*, from different samples like urine, blood, body fluids and exudates. These isolates were resistant to meropenem (10µg) /imipenem (10µg) by Kirby–Bauer disc diffusion method. Isolates were further confirmed for meropenem/imipenem resistance by minimum inhibitory concentration (MIC) detection in an automated system (BD Phoenix™ M50). Further these isolates were subjected to Modified Carbapenem Inactivation Method (mCIM) as per CLSI 2019 guidelines.

**Result:** Out of 55 isolates, 21(38%) isolates were carbapenemase positive and 4 (7%) isolates were carbapenemase indeterminate. Among carbapenemase positive isolates 13(60%) were isolated from pus, tracheal aspirates, and blood. Of these 21 isolates, 10 were *Escherichia coli*, 5 were *Klebsiella pneumoniae*, 3 were *Enterobacter aerogenes*, 2 were *Proteus mirabilis* and a single isolate was *Providencia species*.

**Conclusion:** The maximum number of carbapenemase producer is being isolated from samples like pus, tracheal aspirates and blood. Among the family *Enterobacteriaceae, Escherichia coli* is the leading carbapenemase producer.

---

**PREVALENCE AND ANTIBIOGRAM OF EXTENDED SPECTRUM BETALACTAMASE(ESBL) PRODUCING ESCHERICHIA COLI FROM PUS SAMPLE IN A TERTIARY CARE HOSPITAL**

Rinki Kumari, Manoj Kumar, Ashok Kumar Sharma, Amber Prasad, Kumari Seema.
Department of Microbiology, RIMS, Ranchi

**Introduction:** The incidence of extended spectrum beta lactamases (ESBL) producing strains among clinical isolates has been steadily increasing over the past years resulting in limitation of therapeutic options. They are mainly found in *Escherichia coli*, *Klebsiella* species and proteus species. There is not enough data on the prevalence of ESBL producing *Escherichia coli* in Jharkhand, India. Hence, the present study was undertaken.

**Aims and Objectives:** To detect prevalence of ESBL producing *Escherichia coli* and their antibiograms.
**Methods:** A cross-sectional study was carried out in the Department of Microbiology, RIMS Ranchi for a period of 6 months (January 2019 to June 2019). A total of 432 pus samples were processed from patients. All *Escherichia coli* isolated were included in the study. Antimicrobial Susceptibility was performed by Kirby-Bauer disk diffusion technique. ESBL screening was carried out by Kirby-Bauer disk diffusion technique. ESBL confirmation was done by using combined disk method, as per CLSI guidelines 2019.

**Results:** Out of 432 pus sample processed 296 (68.5%) yielded positive culture. Out of the yielded bacteria 31 (10.5%) isolates were identified as *Escherichia coli*. Out of 31 isolates of *Escherichia coli* 26 (83.9%) were detected as ESBL producers. Resistance to each antibiotic was significantly higher in ESBL producer isolates as compared to non-ESBL isolates.

**Conclusion:** The present study highlights the prevalence of ESBL producing *Escherichia coli* in clinical sample of pus in area of Jharkhand, India. The increasing frequency of ESBL producing isolates is an important problem for both microbiologist and clinicians.

**MICP 156 CB-P11**

**PREVALENCE OF EXTENDED SPECTRUM BETA LACTAMASE AND METALLOBETA LACTAMSE IN ENTEROBACTERIACEA ISOLATED FROM CLINICAL SAMPLES IN DR. BRAMC, BANGALORE**

Dr Sarah R, Dr Chandrasekhar M.R,  
Dr B R Ambedkar Medical College, Bangalore

**Introduction:** Extended spectrum beta lactamase and metallobetalactamase producing organisms constitute a challenge to clinical microbiologists and infection control professionals.

**Aims and objectives:** This study was conducted to determine the prevalence of extended spectrum beta lactamase (ESBL) and metallobetalactamse (MBL) in Enterobacteriaceae isolated from various clinical samples and the sensitivity pattern of the isolated organism in DR. BRAMC, Bangalore

**Methods:** This cross-sectional study was carried out from January 2019 to August 2019. Antimicrobial susceptibility testing was performed by Kirby-Bauer disc diffusion technique. ESBL production was detected by combined disc method using ceftazidime and ceftazidime/clavulanic acid discs and cefotaxime and cefotaxime/clavulanic acid discs. Similarly, MBL production was detected by combined disc assay using imipenem and imipenem/ethylenediaminetetraacetate discs. Bacteria showing resistance to at least three different classes of antibiotics were considered multidrug resistant. Disk diffusion methods were performed in accordance with CLSI guidelines.

**Results:** Of total 700 different clinical samples processed; 420 samples were culture positive. Among which, *K.pneumoniae* 168 (40%), *E.coli* 147 (35%), *Enterobacter* 63 (10%), *Citrobacter* 42 (9%) and *Proteus* 25 (6%) of the samples. Of the total isolates 113 (27%) were ESBL producers and 21 (5%) isolates were found to be MBL producers. High rates of ESBL production (27%) was noted among the clinical isolates from outpatients, however no MBL producing strains were isolated from outpatients. Among 147 *E.coli* and 168 *K. pneumoniae*, 32 (22%) *E.coli* and 62 (37%) *K. pneumoniae* were multidrug resistant. The lowest rates of resistance were seen toward imipenem followed by piperacillin/tazobactam, amikacin.
**Conclusion:** The early detection of ESBL and MBL is necessary for optimal patient management and for institution of infection control measures to prevent spread of these organisms.

**FAECAL CARRIAGE OF EXTENDED-SPECTRUM BETA-LACTAMASE PRODUCING ENTEROBACTERIACEAE IN ADMITTED PATIENTS AT A TERTIARY CARE HOSPITAL**

Nayannika Lakra, Manoj Kumar, Ashok Kumar Sharma, Amber Prasad
Rajendra Institute of Medical Sciences, Ranchi

**Introduction:** Antibiotic resistance is observed in both pathogenic bacteria and normal commensal flora. Members of family Enterobacteriaceae heavily colonize human gut. Extended-spectrum beta-lactamase producing Enterobacteriaceae (ESBL-E) are widely disseminated in India and ESBL-E carriers are known to develop subsequent clinical infection with the isolates colonizing the patients’ intestines. Resistant strains may spread to other host or transfer genetic resistance element to other members of microbiota and pathogens.

**Aims and Objectives:** To determine faecal carriage of ESBL producing Enterobacteriaceae in hospitalized patients at Rajendra Institute of Medical Sciences, Ranchi.
To isolate, identify and find out the antimicrobial susceptibility pattern of extended-spectrum beta-lactamase strains among Enterobacteriaceae from stool samples.

**Methods:** The study was carried out in the Department of Microbiology, Rajendra Institute of Medical Sciences, Ranchi for a period of 9 months from September 2018 to May 2019. Stool samples were processed by standard microbiological techniques for the identification and isolation of microorganisms. Antimicrobial susceptibility testing was done by Kirby-Bauer disc diffusion method and interpreted as per CLSI guidelines and potential ESBL producers were detected. Confirmation of ESBL-E was done by combination disc method using ceftazidime (30μg) and ceftazidime/clavulanate (30/10μg) discs and cefotaxime (30μg) and cefotaxime/clavulanate (30/10μg) discs.

**Results:** 24 out of 84 isolates were ESBL producing Enterobacteriaceae, most common being *Escherichia coli* (14/24) followed by *Klebsiella pneumoniae* (5/24). The ESBL-E isolates showed high resistance to ciprofloxacin and good susceptibility to imipenem and piperacillin-tazobactum.

**Conclusion:** The study provides an insight into the incidence and antibiogram of the ESBL producing Enterobacteriaceae in the gut of hospitalized patients. The admission into hospital of patients harbouring resistant bacteria increases the risk of other hospitalized patients contracting an infection. Thus, active surveillance is necessary for prevention and control of their dissemination in healthcare.

**PHENOTYPIC AND GENOTYPIC DETECTION OF CARBAPENEMASE PRODUCTION IN ESCHERICHIA COLI AND KLEBSIELLA PNEUMONIAE**
Introduction: Carbapenems are Beta-lactam antibacterial agents. Until recently, carbapenems were the drug of choice for the therapeutic management of multidrug-resistant Gram-negative bacterial infections. The spread of carbapenem resistant Gram-negative bacteria is of grave concern due to the limited choice of antibiotics remaining for treating infections. Metallo-beta-lactamases (MBLs) and plasmid-mediated Klebsiella pneumoniae carbapenemases (KPC) are threatening the utility of almost all currently available Beta-lactams including carbapenems. Detection of carbapenemases are important because infections with carbapenemase producers are often associated with extensive antibiotic resistance, treatment failures and infection associated mortality.

Aims and objectives: To study the Antimicrobial susceptibility pattern (AMST), to screen for and to study the proportion of carbapenem resistant strains among clinical isolates of E. coli and Klebsiella pneumoniae. To detect and confirm production of carbapenemase enzymes by phenotypic and genotypic (Molecular) methods.

Methods: A total of 200 non-repeat clinical isolates of E. coli (100) and K. pneumoniae (100) recovered from clinical samples of patients were studied by using Kirby Bauer disk diffusion tests (KBDDT) for AMST. Modified Hodge Test (MHT) Combined disk tests (CDT) and disk potentiation tests (DPT) were used to detect production of carbapenemases. PCR was done to detect presence of blaNDM and blaKPC gene.

Results: Among the 78/200 Carbapenem resistant isolates, high resistance was observed to most drugs with least resistance to ceftazidime. Carbapenem resistance by KBDDT was detected in 78/200. Carbapenemase production was detected by MHT in 62/78, MBLs (by DPT) and bla New Delhi Metallobetalactamase gene by PCR were positive in 66/78. None were positive for KPC (by CDT) & for blaKPC by PCR.

Conclusion: High prevalence of carbapenem resistance among these isolates were noted and to reduce this, antibiotic stewardship, judicious use of carbapenems, with stringent infection control measures is recommended.

MICP 236

METALLO - B - LACTAMASE PRODUCING ESCHERICHIA COLI AND KLEBSIELLA SPP. IN A TERTIARY CARE HOSPITAL IN NORTH EAST INDIA

   1.  Ph.D Scholar 2. Professor 3. Associate Professor 4. Demonstrator
   Regional Insititute of Medical Sciences, Imphal Manipur

Introduction: β-lactam antibiotics has been one of the treatment options for gram-negative organisms and with the rise of multi drug resistant bacteria, we have limited (and sometimes nonexistent) treatment options. Carbapenem resistant Enterobacteriaceae are increasingly reported worldwide and is a serious concern since carbapenems are considered the drugs of last resort for such infections.

Aims & Objectives: To determine the incidence of carbapenemase producing Escherichia coli and Klebsiella spp. isolates with special reference to metallo-β-lactamases.

Methods: Study was conducted in Department of Microbiology, Regional Institute of Medical Sciences, Imphal, Manipur during January 2019 to August 2019

- Clinical isolates were identified based on culture and biochemical characteristics.
Screening of carbapenemase producers by Kirby Bauer disc diffusion method as per (CLSI) M100 S29 2019 recommendations and by Vitek 2 compact system (bioMérieux, France)

- Phenotypic methods
  - for detection of carbapenemase producers by mCIM (Modified carbapenem inactivation method)
  - eCIM to further differentiate between serine and metallo-β-lactamase producers

**Results:** A total of 10185 samples were processed during the study period, of which 839 isolates were *Escherichia coli* and 223 were *Klebsiella spp*.

Screening for carbapenem resistance was done by disc diffusion and Vitek-2 compact system and 114 isolates were carbapenem resistant of which only 81 were put up for mCIM and eCIM.

MBL producers were detected in 55 isolates.

**Conclusion:** The presence of metallo β - lactamase producing gram-negative organisms in clinical isolates is an alarming concern due to its extensive drug resistance. Further genetic studies are recommended.

---

**MOLECULAR CHARACTERIZATION OF METALLO β LACTAMASE IN UROPATHOGENS AMONG PATIENTS AT TERTIARY CARE LEVEL SUPERSPECIALITY INSTITUTE IN NORTH INDIA**

Amit Kumar Singh, Manodeep Sen, Anupam Das, Jyotsna Agarwal
Department Of Microbiology, Dr Ram Manohar Lohia Institute of Medical Sciences, Lucknow

**Introduction:** Urinary tract infection (UTI) is the most common nosocomial infection. Several microbial agents are responsible for urinary tract infection and it has been associated with a threefold increased risk of mortality in hospitals, because of inappropriate use of antimicrobial agents leading to the spread of antimicrobial resistance and emergence of multidrug resistant uropathogens. Multi drug resistance (MDR) is a major concern among hospital associated UTIs and is being increasingly reported worldwide.

**Aim and objective:** Genotypic characterization of MBL production in predominant uropathogen isolated within the study period by Nucleic Acid Amplification Technique (NAAT).

**Methods:** This is a prospective, observational & clinical- laboratory based study, carried over 1 year period MAY 2018 - APRIL 2019; at DR.RML IMS, Lucknow, India. Urine samples from patients were collected and processed. Samples yielding positive growth were further analysed to identify the microbial profile and antimicrobial susceptibility according to CLSI. Phenotypic detection of MBL was done by MHT, E-Test &mCIM Test. DNA was extracted from 25 screened positive isolates by using commercial kit (HiPurATM Bacterial Genomic DNA Purification Kit MB505) following the standard protocol. The extracted DNA of each 25 isolates were subjected to the Real-time polymerase chain reaction (ABI 7500 Fast DX RT PCR) using kit HIMEDIA, MBPCR132 (Carbapenemase Gene Detection Kit[Multiplex]) for detection of MBL gene.

**Results:** In total 25 isolates 17 were *E. coli*, 3 were *Pseudomonas aeruginosa*, 2 were *Klebsiella pneumoniae*, 2 were *Citrobacter spp* & 1 was *Enterobacter spp*. NDM, IMP,
KPC, VIM, OXA-51, OXA-23, OXA-48 & OXA-58, genes were detected by RT-PCR in MBL producing different uropathogenic isolates (n=25).

**Conclusion:** The high level of resistance and spread of uropathogenic MDR isolates is a continuous threat in hospitalized patients. Regular molecular characterization of MDR uropathogens is the need of the hour to formulate an effective antibiotic policy.

**MICP 252**

**CB-P16**

UNUSUAL VIOLET COLORED PIGMENT PRODUCED BY BURKHOLDERIA CEPACIA COMPLEX – A REPORT OF FIVE CASES

Anuradha De, Jayanthi Shastri, Nazneen Malak, Manali Kedia, Harshita Sisodia
Department of Microbiology, T. N. Medical College, Mumbai

*Burkholderia cepacia* complex are a group of opportunistic pathogens most commonly found in association with hospital acquired infections, often resulting in significant morbidity. It causes severe infections in patients with cystic fibrosis and chronic granulomatous disease. However, we have come across five unusual cases of this pathogen producing an unusual violet colored pigment. Out of the five cases, three were patients of rheumatic heart disease, one was a case of acute myeloid leukemia and one a case of congestive cardiac failure with lower respiratory infection. All were from cases of sepsis and isolated from blood culture specimens in BACTEC 9120 system. Phenotypic identification was done with Vitek 2 ID-GNB card (BioMérieux, India). All these five cases will be discussed.

**MICP 257**

**CB-P17**

PREVALENCE OF MULTI-DRUG RESISTANT ACINETOBACTER BAUMANNII IN INTENSIVE CARE UNITS OF A TERTIARY CARE HOSPITAL IN WESTERN ODISHA

Mohanty S, Jena S, Sahu S, Sahu S.K
Sushruta hostel, p.chhhak, Burla, sambalpur, Odisha

**Introduction:** *Acinetobacter baumannii* is a ubiquitous pathogen that has emerged as a major cause of health care associated infections. They are of increasing importance because of its propensity to develop resistance to major groups of antibiotics.

**Aims & Objectives:** To find out the prevalence of multi-drug resistant *Acinetobacter baumannii* in all clinical samples from Intensive Care Units of a tertiary care hospital of western odisha.

**Methods:** All clinical samples from different ICUs were collected aseptically and cultured according to standard microbiological protocols. Antibiotic sensitivity test was done by Kirby-Bauer disk diffusion method according to CLSI guidelines.

**Results:** During the one-year study period from Nov 2018-Oct 2019, a total of 54 *Acinetobacter baumannii* isolates were obtained. Out of which most were from pus samples followed by respiratory tract specimens. However, out of 54 *Acinetobacter baumannii* isolates 40 were multidrug resistant. Among all isolates, maximum percentage of multi-drug resistance were found in respiratory tract specimens (90.9%) followed by pus samples (81.8%). Also, the organism showed high rate of resistance to gentamycin (85.1%) followed
by ciprofloxacin (81.4%), ceftazidime (79.6%) & ceftriaxone (75.9%). However, imipenem was the most effective antibiotic against *A. baumannii* and the rate of resistance for imipenem was (9.25%).

**Conclusion:** Multi-drug resistant *Acinetobacter baumannii* presents a grave challenge for the clinicians in treatment of ICU patients. Inadvertent use of antibiotics, mechanical ventilation and longer duration of ICU stay were the major risk factors for emergence of resistance in *Acinetobacter baumannii*. Hence there is need of strategies like Antimicrobial Stewardship to counter its emergence.

**MICP 278**

**BRUCELLA SPONDYLODISCITIS: AN UNUSUAL CASE IN A NON-ENDEMIC AREA**

Sridevi Dinakaran, Jayakumar B, Sandhya Bhat, Reba Kanungo
Department of Microbiology and Orthopaedics
Pondicherry Institute of Medical Sciences, Kalapet, Puducherry

**Background:** Brucellosis is one of the common zoonotic disease with worldwide distribution. In India, although there are pockets of prevalence, it is generally neglected. Brucellosis has varied manifestations with multi organ involvement thereby mimicking other illnesses. Musculoskeletal involvement and spondylitis occur in 40 –73% patients above 50 years of age, commonly presenting as spondylodiscitis of the lumbar spine. Conventional blood culture technique using biphasic medium has a drawback, in requiring prolonged incubation. Automated blood culture systems have improved the speed of detection. We present a case of *Brucella spondylodiscitis* in a non-endemic area.

**Case Presentation:** A 50 year old man presented with fever, low backache and bilateral lower limb pain. He had low grade fever on and off with chills and rigors, night sweats, loss of appetite, arthralgia and loss of weight in the past 2 months. He was a farmer who worked in a sheep pen in the Middle East. He was treated elsewhere for infective spondylodiscitis suspected of TB origin. His MRI showed cortical break in L4-L5 region, with ill-defined pre vertebral collection and mild diffuse bulge with narrowing neural lamina. Disc debridement and anterior lumbar interbody fusion was done. Postoperatively he developed high grade fever for which a blood culture done by BacT Alert, yielded gram-negative coccobacilli after 75 hours which was confirmed by MALDI-ToF as *Brucella* species. The patient was started on oral doxycycline with parenteral amikacin. Fever subsided following the treatment. He was discharged and advised follow up.

**Conclusion:** Involvement of spine and other skeletal systems are common in brucellosis, hence clinicians must consider this infection in patients with symptoms affecting the bones. Detailed history of occupation and geographic area of residence must be elicited. Using automated blood culture system will also help in detecting the etiological agent within a short turnaround time.

**MICP 287**

**PHENOTYPIC CHARACTERISATION, ANTIBIOTIC RESISTANCE PATTERN AND DETECTION OF METALLO β-LACTAMASES AND AMP C IN PSEUDOMONAS AERUGINOSA IN A TERTIARY CARE HOSPITAL**
**Dr. Seema Dhananjay, Dr. Mallikarjunkoppad**  
Shimoga Institute of Medical Science, Shimoga, Karnataka

**Introduction:** Nosocomial infections caused by *Pseudomonas aeruginosa* are often difficult to treat because of resistance to different antibiotics. Multidrug resistance in *P. aeruginosa* results from the bacterium’s notable antibiotic resistance by production of extended spectrum beta lactamases, Amp C and MBLs.

**Aims and Objectives:**
1. To isolate and identify *Pseudomonas aeruginosa* from various clinical samples.
2. To determine the antibiotic susceptibility pattern of these isolates.
3. To detect MBL and Amp C production in the isolates.
4. To detect biofilm formation and its correlation in antibiotic resistance.

**Methods:** The study was conducted on 100 consecutive *Pseudomonas aeruginosa* isolates from various clinical samples of patients received at the Microbiology laboratory from Mc Gann teaching hospital, attached to Shivamogga Institute of Medical Sciences for a period of 10 months. These samples were processed on blood agar, chocolate agar, and Mac Conkey agar and organism was identified as per standard conventional methods and antimicrobial susceptibility testing was done along with Amp C and MBL detection, according to the Clinical and Laboratory Standards Institute (CLSI) guidelines and also biofilm formation detected by microtitre plate.

**Statistical Analysis Used:** chi-square test

**Results:** In our study, out of 100 isolates, 82 isolated from exudates, 14 from blood and 4 from urine samples. 36 were Amp C producers, 22 MBL producers and 14 both Amp C and MBL producers. 61 isolates were biofilm producers among which 33(54%) were multidrug resistant in which 14(42.4%) Amp C producers, 07(21.2%) MBL producers and 12(36.3%) both Amp C and MBL producers. 39 isolates were non biofilm producers among which 11(28.2%) were multidrug resistant in which 08(72.7%) Amp C producers, 01(9%) MBL producers and 02(18.1%) both Amp C and MBL producers.

**Conclusion:** Detection of Amp C and MBL production is of great importance both in hospital and community isolates. This is because institutional outbreaks are increasing due to inadvertent use of expanded spectrum cephalosporins and lapses in effective control measures. So, timely recognition of infection and detection of Amp C and MBL among all pseudomonas isolates will help to choose proper antibiotics and effective treatment.
Aim and objectives: To study Metallo- β- Lactamase enzyme production by *Pseudomonas aeruginosa* with the following objectives:

1. To determine antimicrobial susceptibility of various strains of *Pseudomonas aeruginosa*, isolated from the samples.
2. To find out the proportion of Metallo- β- Lactamase enzyme producing isolates among Carbapenem- resistant strains of isolated *Pseudomonas aeruginosa*.

Methods: A cross sectional single site study was performed from 01.08.2018 to 31.07.2019 at Department of Microbiology, AGMC and GBP Hospital, Tripura. Isolation and identification of organisms were done by standard bacteriological methods and antimicrobial susceptibility pattern was ascertained as per CLSI protocol, 2018. Metallo-β- Lactamase production was determined phenotypically by Double disc diffusion method.

Results: Out of 124 strains isolated from 1,722 samples processed (proportion 7.2 %), 46 isolates were Carbapenem resistant (37.1%). Carbapenem resistance was more in males (67/124, 54%) and the age group most affected was between 21-40 years (52/124, 41.9%). Among the Carbapenems, Imipenem sensitivity (65.3%) was more compared to Meropenem (62.9%). Out of 46 Carbapenem resistant isolates, 11 (23.9%) produced Metallo- β- Lactamase enzyme.

Discussion: The study shows a high proportion of Carbapenem-resistant isolates (37.1%) and Metallo- β- Lactamase production was a major factor involved in it (23.9%). Further studies are necessary to determine the type of MBL enzymes produced by the organisms.

---

**MICP 302**

**PREVALENCE AND MOLECULAR CHARACTERIZATION OF CARBAPENEM RESISTANT NON FERMENTATIVE GRAM-NEGATIVE ISOLATES IN A TERTIARY CARE CENTRE**

Dr Naveen Grover, Dr Nikunja Das, Dr Lavan Singh, Dr T Chatterjee
Army Hospital (R&R), Delhi Cantt, Delhi

**Introduction:** Resistance to broad spectrum beta lactams and carbapenems mediated by carbapenemases is an increasing problem worldwide. Knowledge about their prevalence is essential to formulate an effective antibiotic policy and hospital infection control measures so as to further restrict emergence of multidrug resistant microbes. Present study was undertaken to determine the magnitude of problem of prevalence of carbapenem resistance in Non-fermentative Gram-negative bacteria (NFGNB) in ICU of a tertiary care centre.

**Aims and Objectives:** Study was undertaken to evaluate antibiotic profile and to detect genes responsible for carbapenem resistance in NFGNB isolates from acute wards of a tertiary care centre.

**Methods:** A total of 312 clinical isolates comprising of *Acinetobacter baumannii*, *Pseudomonas aeruginosa* and other non fermenters which were recovered from various clinical specimens over a one year period were studied. Antibiogram profile was determined to conventionally used antibiotics. Samples were collected from patients of intensive care and relevant clinical history was taken. Imipenem resistance detection and antibiotic susceptibility was done. A multiplex PCR was done on imipenem resistant isolates for detection of resistant genes.

**Results:** Out of a total of 312 isolates that were isolated, *Acinetobacter baumannii*(132) followed by *Pseudomonas aeruginosa*(121) were the predominant isolates. OXA-51(72) and...
NDM were the predominant genes detected in Imipenem resistant *A.baumannii* and *Pseudomonas aeruginosa* (39).

**Conclusion:** The carbapenem resistance in NFGNB in our hospital setting is mostly because of VIM, NDM, OXA-23, OXA-51. Strategies to keep a check on the emergence of such drug resistant microbes by hospital environmental surveillance and laboratory monitoring should form an important aspect of Hospital Infection control policy guidelines.

**MICP 304**

**POLYMICROBIAL CEREBELLAR ABSCESS DUE TO STREPTOCOCCUS CONSTELLATUS AND SPHINGOBACTERIUM MULTIVORUM: A CASE REPORT**

Dr. Padma Das, Dr. Mayuri Bhise, Dr. Archana Keche, Dr. Ujjwala N. Gaikwad, Dr. Sanjay S. Negi, Dr. Anudita Bhargava
All India Institute of Medical Sciences, Raipur

**Introduction:** Brain abscess is defined as a focal infection within the brain parenchyma which starts as a localised area of cerebritis which is subsequently converted into a collection of pus within a well vascularised capsule. Intracranial abscesses are life-threatening infection that pose a diagnostic challenge not only to the neurosurgeon but also to the microbiologists. Detailed studies documenting the spectrum of infecting agents involved in brain abscesses are limited from India.

**Case report:** A 17 year old boy presented to Trauma and emergency Department AIIMS Raipur in a drowsy state with complaints of severe headache and right sided ear discharge since 15 days, fever on and off and weakness over all limbs since 1 day. Patient had a history of chronic suppurative otitis media of right ear discharge witout any evidence of recent trauma or neurological procedure. Contrast enhanced CT brain showed cerebellar abscess with compressed fourth ventricle. Patient underwent emergency craniotomy, drainage of abscess and extraventricular drain. Pus sample on gram stain showed gram-positive cocci in chains and pairs and few gram-negative bacilli. Aerobic bacterial culture revealed pinpoint beta-haemolytic colonies along with few translucentnonhaemolytic colonies which failed to grow in MacConkey agar. The two isolates were identified as *Streptococcus constellatus* and *Spingobacteriummultivorum* by Vitek2. Antibiotic susceptibility pattern was performed by Kirby Bauer Disk diffusion and Vitek 2 automated ID/ AST system. Initial empirical antibiotics were replaced with IV vancomycin as both the organisms were found sensitive to it. Patient responded with improved Glasgow comma Score and gradual resolution of abscess size which was evident on successive postoperative CECT Scan findings.

**Conclusion:** *Streptococcus constellatus* and *Spingobacteriummultivorum* both are ubiquitous. Haematogenous spread from ear could have resulted in brain abscess. Appropriate sampling and use of automated instruments may increase isolation of new and unusual pathogens and result in early and appropriate management of brain abscess.

**MICP 315**

**CB-P23**
MOLECULAR CHARACTERIZATION OF CARBAPENEM RESISTANT KLEBSIELLA PNEUMONIAE ISOLATES IN BLOOD SPECIMEN IN A TERTIARY CARE HOSPITAL IN ASSAM

Dr Ranjita Khandait, Partha Pratim Das, Dr Gargi Choudhury, Dr Reema Nath
Assam Medical College and Hospital, Dibrugarh

Introduction: The emergence and dissemination of carbapenem resistance among Enterobacteriaceae, especially *Klebsiella pneumoniae*, constitute a serious threat to public health, since carbapenems are the agents of last resort in the treatment of life-threatening infections caused by drug resistant Enterobacteriaceae.

Objective: To determine Carbapenem resistance in *Klebsiella pneumoniae* blood culture isolates by phenotypic and genotypic methods.

Method: A total of 34 *Klebsiella pneumoniae* blood culture isolates were studied. Antibiotic susceptibility testing of the isolates was performed by Disk Diffusion method and interpreted as per CLSI 2019 guidelines. The Minimum Inhibitory Concentrations (MICs) of Imipenem, Ertapenem and Meropenem were determined by Vitek 2 automated system (BioMerieux France) and 18 isolates were found to be Carbapenem-resistant. These isolates were further processed by Polymerase chain reaction for the target genes *bla*NDM*-1* (Ambler class B carbapenemase), *bla*OXA*-48* (Ambler class D carbapenemase) and *bla*VIM*-1* (Ambler class B carbapenemase) using specific primer pairs.

Results: A total of 18 (52.9%) isolates of *Klebsiella pneumoniae* by disk diffusion method were resistant to Imipenem, Ertapenem and Meropenem and 13 showed high MIC (≥ 16 μg/ml). Out of these 18 isolates, *bla*NDM*-1* gene was detected in 14 (77%) isolates and *bla*OXA*-48* gene was detected in 3 (16.6%) isolates. None of the isolates showed presence of *bla*VIM*-1* gene.

Conclusion: In the present study the prevalence of Carbapenem Resistant *Klebsiella pneumoniae* was found to be high. For routine clinical laboratories both phenotypic and genotypic tests need to be performed to detect various mechanisms of carbapenem resistance and this is of epidemiological relevance also.

MICP 328 CB-P24

PHENOTYPIC DETECTION OF METALLO β LACTAMASE IN UROPATHOGENS AMONG PATIENTS AT TERTIARY CARE LEVEL SUPERSPECIALITY INSTITUTE IN NORTH INDIA

Manodeep Sen, Amit Kumar Singh, Anupam Das, Jyotsna Agarwal
Department Of Microbiology, Dr Ram Manohar Lohia Institute Of Medical Sciences, Lucknow

Introduction: Urinary tract infection (UTI) is the most common nosocomial infection. Several microbial agents are responsible for Urinary tract infection and it have been associated with a three fold increased risk of mortality in hospitals, because of inappropriate use of antimicrobial agents leading to the spread of antimicrobial resistance and emergence of multidrug resistant uropathogens. Multi drug resistance (MDR) is a major concern among hospital associated urinary tract infection and is being increasingly reported worldwide.
Aim and Objective: To determine the frequency of metallo-beta-lactamase (MBL) producing MDR uropathogens in patients and their susceptibility to the antibiotics, used commonly for the treatment of UTI.

Methods: This is a prospective, observational & clinical- laboratory based study, carried over 1-year period MAY 2018 - APRIL 2019; at DR.RMLIMS, Lucknow, India. Urine samples from patients were collected and processed. Samples yielding positive growth were further analysed to identify the microbial profile and antimicrobial susceptibility according to CLSI. On disk diffusion method, if zone diameter difference between Imipenem and Imipenem EDTA was >7 mm, organism was considered as MBL producer. In E-test -MIC ratio of IP (Imipenem)/IPI (Imipenem-EDTA) of >8 or >3 log2 dilutions indicates MBL production.

Results: Out of total 100 urine isolates found to be positive for MBL producing Gram-negative bacilli. *Escherichia coli* was the most common organism (60%), followed by *Pseudomonas aeruginosa* (17%), *Klebsiella pneumoniae* (13%), *Citrobacter spp* (6%), *Enterobacter Spp.* (2%) & *Acinetobacter Spp* (2%). All organisms showed high resistance to most of the antibiotics.

Conclusion: The high level of resistance and, spread of uropathogenic MDR isolates is a continuous threat in hospitalized patients. So reduction of HAIs and antimicrobial resistance is a challenge. Continuous surveillance for multidrug resistant strains is necessary to prescribe appropriate empirical treatment and also to assess effectiveness of infection control practices.

MICP 342

INCIDENCE OF AAC(6')-Ib-cr EXPRESSION IN ENTEROBACTERIACEAE ISOLATES

Basu, S. Kumar, M. Bandyopadhyay, M. Chatterjee
R G Kar Medical College, Chandannagar, West Bengal

Introduction: The extensive use of fluoroquinolones has led to rapid development of resistance to these agents. Resistance to fluoroquinolones is multifactorial and can be via one or a combination of target-site gene mutations, increased production of multidrug-resistance (MDR) efflux pumps, modifying enzymes, and/or target-protection proteins. AAC(6')-Ib-cr, a variant of AAC(6')-Ib is a transferable plasmid mediated quinolone resistant gene (PMQR) which encodes an aminoglycoside acetyltransferase that confers reduced susceptibility to ciprofloxacin or norfloxacin and is often combined with extended-spectrum beta-lactamases (ESBLs) leading to organisms possessing multidrug resistance.

Aims & Objectives: To study the incidence of AAC(6')-Ib-cr expression in Enterobacteriaceae isolates by phenotypic method.

Methods: 100 clinical Enterobacteriaceae isolates exhibiting quinolone resistance were included in this study. They were grown in Brain Heart Infusion Broth (BHI broth) containing norfloxacin (8 µg/ml), with intermittent shaking for 18h at 35°C. Ten microliters of each culture medium was applied on the blank disk set on a Mueller-Hinton agar plate inoculated with E.coli ATCC 25922 and incubated for 18h at 35°C. A significant decrease of a growth-inhibitory zone by ≤10mm was considered as a positive test for the production of AAC(6')-Ib-cr, while AAC(6')-Ib-cr production was considered not to be produced in strains which did not show any reduction in the zone of inhibition.

Results: Of the 100 isolates included in this study, *E. coli* was the predominant isolate (52%) followed by *K. pneumoniae* (46%). The overall expression of AAC(6')-Ib-cr was
found to be 37% , which is slightly less compared to previous studies. 20% were *E. coli* isolates and 17% were *K. pneumoniae*. Thus 38.46% of *E. coli* isolates and 36.95% of *K. pneumoniae* were found to express AAC(6')-Ib-cr.

**Conclusion**: AAC(6')-Ib-cr has high degree of expression in Enterobacteriaceae isolates. However, its lower incidence, compared to other studies, may possibly be due to restricted use of fluoroquinolones over the last decade.

**MICP 373**

**A CASE REPORT OF MENINGIOCOCAL SEPTICAEMIA IN 2 YEARS OLD CHILD**

Panicker Sreejith, Gohel Tejash, Gaikward Vaishali, Mangalkar Santosh, Chincholkar Vijay SethGSMC & KEMH, Mumbai

**Case**: A case of Meningococcal septicaemia presenting as Purpura Fulminans in 2 year old male child in a tertiary care hospital. The main features were fever, increase respiratory activity since 4 days and purpuric rashes all over the body, including palms and soles. The microbiologist was called upon and bedside Gram stain from the slit skin smear from the purpuric sites showed Gram-negative diplococci suggestive of Neisseria meningitidis. Further, blood culture and culture from the slit skin smear also grew Neisseria meningitidis which was confirmed by biochemical reactions.

**Discussion**: In case of meningococcal disease, some patients develop acute meningococcaemia whilst others develop meningitis. The mechanism is unknown, but the case fatality of acute meningococcaemia is tenfold than that of meningococcal meningitis, the initial treatment for both conditions is the same. Immediate intravenous antibiotic, either penicillin G or ceftriaxone is appropriate. Maculopapular rash alone in meningococcal disease has, however, also been reported in fatal cases and it is possible that the delay in diagnosis of meningococcal disease with a maculopapular rash alone might contribute to mortality as these children are thought to have viral illnesses and are not started on antibiotic treatment. Early recognition and treatment of Meningococcal septicaemia presenting as Purpura Fulminans is essential to reduce mortality and to prevent major long-term health sequelae. However, management strategies require accurate identification of the underlying cause.

**Conclusion**: Thus the early recognition of this life threatening condition emphasized the importance of bedside Gram stain smear and culture from the purpuric sites for an early diagnosis of the underlying disease.

**MICP 435**

**CHARACTERIZATION OF CARBAPENEM RESISTANT ENTEROBACTERIACEAE IN INTENSIVE CARE SETTINGS AT A UNIVERSITY HOSPITAL**

Anuragini Verma, Vimala Venkatesh, Piyush Ram Tripathi, Sheetal Verma, R.K. Kalyan KGMU, Lucknow
**Introduction**: Carbapenem-resistant Enterobacteriaceae (CRE) are Enterobacteriaceae that has acquired resistance to carbapenems. CRE infections are associated with higher mortality rates. Combination therapy for treatment of CRE is associated with improved survival rates as compared with monotherapy.

**Aim and Objectives**: Primary Objectives: To determine the proportion of CRE among Enterobacteriaceae isolate from the Intensive care units of KGMU. Secondary objectives: 1)To determine the proportion of CRE due to carbapenemase 2)To evaluate Colistin MIC against CRE by Broth dilution method.

**Methods**: Consecutive, non-duplicate isolates of Enterobacteriaceae from blood and urine samples of selected ICU’s patients were screened for the presence of carbapenem resistance by standard disk-diffusion method using the Clinical and Laboratory Standards Institute guidelines. Colistin MIC was done in all CRE and Non CRE isolates. For the detection of CP-CRE perform mCIM, eCIM and MHT phenotypic test. Carbanpemase-encoding gene NDM and OXA48 were amplified by polymerase chain reaction.

**Result**: of 210 Enterobacteriaceae isolates tested, 148 (70.5%) were CRE, 62 (29.5%) were Non-CRE. Of these 148, Genotypic screening of carbapenemase indicated that NDM gene was present in 66 (44.59%) isolates while OXA48 gene was present in 36 (24.32%) isolates and both OXA48 & NDM genes were present in 10 (6.75%) isolates only. 53.33% (112/148) CP CRE were identified by molecular test. Colistin MIC levels of CRE isolates (0.718±0.557) were found to be higher as compared to Non-CRE isolates (0.621±0.477). The mortality rate was higher among CRE infected patients as compared to Non-CRE infected patients (86.8% vs. 69.6%).

**Conclusions**: Genotypic test were 100% corresponded with mCIM phenotypic test. mCIM was more sensitive phenotypic test of detection for carbapenemase. Proportion Klebsiella Pneumonae CRE (58.1%) was found to be higher in this study. 100% of CRE isolates were sensitive to colistin. Our study identified presence of carbapenemases in a large proportion of CRE isolates. Delineation of resistance mechanisms is important in view of future therapeutics concerned with the treatment of CRE and for aiding control efforts by infection control interventions.

**MICP 443 CB-P28**

**IN VITRO EFFICACY OF CEFEPIME - SULBACTAM COMBINATION AGAINST ESBL PRODUCING ENTEROBACTERIACEAE ISOLATES**

Dr Harender Simar¹, Dr Bharti Arora²

1. Assistant Professor, Microbiology, MAMC, Agroha, Hisar
2. Professor, Microbiology, MAMC, Agroha, Hisar

**Aim &Objective**: The objective of the present study was to determine the in-vitro efficacy of Cefepime - sulbactam combination against ESBL producing enterobacteriaceae isolates.

**Methods**: All the samples received from OPD & Indoor were processed & isolates were identified by standard conventional methods. Enterobacteriaceae isolates resistant to ceftaxone and cefotaxime were subjected to phenotypic DDDT as per CLSI guidelines using both cefotaxime (30 µg) and ceftazidime (30 µg) disks with & without clavulanate (10 µg) for confirmation of ESBL production. Total 47 ESBL entrobacteriaceae isolates were included for detecting antimicrobial susceptibility against cefepime-sulbactam combination. Quality control strains Klebsiella pneumoniae ATCC 700603 (ESBL positive) and E. coli ATCC 25922 (ESBL negative) were used.
**Results:** Out of 82 enterobacteriaceae isolates, 47 (57.31%) were ESBL producer. *Escherichia coli* 21/35 (60%) & *Klebsiella* spp. 19/30 (63%) were the most prevalent ESBL producing isolates. The antimicrobial susceptibility testing of these ESBL producing isolates shows sensitivity against cefepime-sulbactam combination as follows- *E.coli* 20/21 (95.24%), *Klebsiella pneumoniae* 17/19 (89.47%), *Proteus mirabilis* 3/3 (100%), *Citrobacter freundii* 2/3 (66.67%) and *Enterobacter* spp. 1/1 (100%).

**Discussion:** *E. coli* & *Klebsiella* spp. were the most prevalent ESBL producing isolates. The study showed remarkable sensitivity of cefepime-sulbactam combination in ESBL producing enterobacteriaceae isolates.

**Conclusion:** It is concluded that ESBL producing enterobacteriaceae isolates showed good sensitivity for cefepime-salbactam combination in vitro. More extensive study is required in vitro to recommend the clinical use of this combination for treating the ESBL isolates which are very difficult to treat.

---

**MICP 445**  
**CB-P29**

**PHENOTYPIC DETECTION OF CARBAPENEMASE PRODUCING KLEBSIELLA PNEUMONIAE FROM SPUTUM SAMPLES IN A TERTIARY CARE HOSPITAL – A DESCRIPTIVE STUDY**

Dr Maheeswari R, Dr SageeraBanoo  
Dhanalakshmi Srinivasan Medical College and Hospital, Perambalur

**Introduction:** The emergence and spread of Carbapenemase producing gram-negative rods is a worldwide emerging public health threat. Carbapenemase, a type of ß-lactamase resistant to all ß-lactam antibiotics including carbapenems such as imipenem and meropenem. This resistance is mediated by plasmid that carries klebsiella pneumoniae carbapenemase (KPC) enzyme for *Klebsiella pneumoniae*. Early diagnosis and confirmation of the carbapenemase producing organism is must needed for the current hour to distinguish carbapenemase producers from non-carbapenemase producers.

**Aim:** To detect the carbapenemase producing *Klebsiella pneumoniae* from sputum samples.

**Methods:** A total of hundred *Klebsiella pneumoniae* isolates from sputum samples identified by colony morphology, standard bio-chemical reactions was taken for carbapenemase detection by modified carbapenemase inactivation method (mCIM) and EDTA modified carbapenemase inactivation method (eCIM) based on Central Laboratory Standard Institute (CLSI) guidelines 2019.

**Results:** Out of the hundred *Klebsiella pneumoniae* isolates, 17 were carbapenemase producers. Out of the 17 tested, 2 (11%) were metallo-beta-lactamase producers and 1 (5%) was serine-beta-lactamase producer.

**Conclusion:** Rapid phenotypic detection of carbapenemase resistance mechanism is important for epidemiological purposes, to know the antibiogram pattern for the hospital, to prevent the occurrence of untreatable infections and for limiting the spread of resistant strains by specific infection control practices.

---

**MICP 14**  
**CB-P30**
EPIDEMIOLOGY AND ANTIBIOTIC GRAM OF VIBRIO CHOLERAE ISOLATES IN A TERTIARY CARE HOSPITAL IN NORTH INDIA

Satija S, William A, R Kaur
Department of Microbiology, Lady Hardinge Medical College, New Delhi

**Introduction:** Cholera is considered as an important health problem in India and is a leading cause of outbreak in various parts of the country.\(^1\)

**Aim:** To estimate the prevalence of cholera and its antibiotic susceptibility pattern in patients suffering from diarrhea in a tertiary care hospital in Delhi.

**Methods:** In this retrospective study from January 2018 to December 2018, a total of 1872 stool specimens were examined in the Department of Microbiology, Lady Hardinge Medical College, New Delhi. All samples were processed by Microscopy along with culture. The confirmation of Vibrio species was done by standard identification tests and further speciation by serotyping. The sensitivity was done on Mueller Hinton agar by Kirby Bauer Disc Diffusion Method.

**Results:** Out of 1872 specimens, *V. cholerae* positivity was seen in 38 (2%) specimens with the prevalent serotype O1 Ogawa. It has shown 81% (30 specimens) positivity in the pediatric age group. Maximum cases (29 specimens) of cholera were seen in monsoon season (July and August). The organism showed 100% resistance to ampicillin and nalidixic acid, 38% resistance to ceftazidime. Resistance rate in aminoglycosides (gentamicin and amikacin) and ciprofloxacin was 21% and 2% respectively. *V. Cholerae* showed 100% susceptibility to Tetracycline.

**Conclusion:** The stringent need for continuous and regular vigilance of resistance patterns is imperative for proper treatment of cholera. Also, provision of safe drinking water by sanitation, and hygiene interventions are required to prevent morbidity and mortality in the population.

**MICP 32**

HAEMOPHILUS INFLUENZAE AND LOWER RESPIRATORY TRACT INFECTIONS

D. Dash*, G. Sarangi, P. Patro
Bhima Bhoi Govt. Medical College, Balangir

**Introduction:** Lower respiratory tract infections (LRTIs) are more frequent community acquired infections affecting both the paediatric and adult population. A variety of respiratory pathogens such as *S. pneumoniae, H. influenzae, Klebsiella spp. etc.* are responsible for causing LRTIs. *H. influenzae* is an obligate human parasite that is transmitted from person to person by the respiratory route. There is a lack of information regarding *H. influenzae infections* in India.

**Aims and objective:** To determine the prevalence and antibiotic susceptibility pattern of *H. influenzae* in patients suffering from LRTIs.

**Methods:** This is a cross-sectional study conducted over a period of two years. The study population includes patients having symptoms of LRTIs. All the samples were collected aseptically and subjected for both microscopy and culture. The specimens were inoculated and identified according to standard protocols. Antibiotic susceptibility test was done according
Results and Discussion: A total of 337 clinically diagnosed cases of LRTI were included in the study. 64.1% were males and 35.9% were females. 62.3% were culture positive. In 47.6% there is a concordance between Gram stain and culture with a sensitivity of 76.38% and a PPV of 73.08% to predict culture positivity. *K. pneumoniae (23.3%)* was the most common organism isolated. *H. influenzae* was isolated in 14.7% of cases. Among the *H. influenzae* isolates maximum isolation was observed in paediatric age group (58.1%). Analysing the biotypes *H. influenzae* isolates, 41.9% were found to be biotype I and II each while 16.1% were of biotype IV. Amoxicillin/Clavulanic acid and Azithromycin were found to be the most sensitive drug with a sensitivity of 90.3% each.

Conclusion: Lower respiratory tract infection is a common cause of morbidity and mortality in various age groups all over the world. *H. influenzae* is an important respiratory pathogen. Measure should be taken to isolate this fastidious organism to augment better therapy in LRTI.

**MICP 21**

**CLINICO-MICROBIOLOGICAL CORRELATION OF STAPHYLOCOCCAL WOUND INFECTION WITH HOST FACTORS AT TERTIARY CARE HOSPITAL, JHALAWAR (RAJASTHAN)**

Dr Pawan Kumar Sharma, Dr Rahul Soni
S.R.G Hospital & Medical College, Jhalawar

**Background:** Staphylococcus species do not directly cause infection but invade an already existing wound and cause extensive tissue necrosis and enlarging existing wound. Wound infection is the third most common nosocomial infection. It represents a substantial burden to the health system including increased length of hospitalization and cost of post discharge care.

**Objective:** To know the rate of wound infection and determine the frequencies of staphylococcal infection with their antibiotic resistance pattern.

**Methods:** A retrospective observational study was conducted from Jan 2019 to June 2019. A total of 421 samples of patients with wound infection were included. The specimens taken from various types of wound infection were screened for staphylococcus species as per standard microbiological guidelines (CLSI). After obtaining pure colonies, further identification was done by using standard microbiological techniques. Antimicrobial susceptibility testing was carried out as recommended by Clinical & Laboratory Standards Institute (CLSI).

**Results:** Total 421 Staphylococcus species were isolated from various clinical samples, out of which 159 (37.7%) were isolated from wound infections. 142 (89.3%) were *Staphylococcus aureus* and 17 (10.7%) were *S. epidermidis*. Diabetes mellitus 20 (18.2%) and hypertension were found to be major host factor facilitating infection. Methicillin resistant staphylococcus aureus were 98 (61.6%) while methicillin resistant *Staphylococcus epidermidis* (MRSE) was not found. Inducible clindamycin resistant strain was found in 58 (36.5%) while 33 (20.8%) strains were true susceptible. All isolates were 100% sensitive to linezolid, vancomycin and ceftriaxone.

**Conclusion:** Diabetics are more prone to get infection with staphylococcus species infection which leads to uncomplicated infection emergence MRSA have left very few therapeutic alternatives. Hence local microbiological data is crucial as it varies from different geographical areas.
TESTING FOR INDUCTION OF CLINDAMYCIN RESISTANCE IN ERYTHROMYCIN-RESISTANT ISOLATES OF STAPHYLOCOCCUS AUREUS

Soofia Firdaus, Manoj Kumar, Ashok Kumar Sharma
RIMS, Ranchi

Introduction: Erythromycin (a macrolide) and clindamycin (a lincosamide) represent two distinct classes of antimicrobial agents that inhibit protein synthesis by binding to the 50S ribosomal subunits of bacterial cells. In staphylococci, resistance to both of these antimicrobial agents can occur through methylation of their ribosomal target site. Such resistance is typically mediated by erm genes. Inducible clindamycin resistance in staphylococci can be detected by disk diffusion method using clindamycin and erythromycin disks.

Aims & Objectives: To check for inducible resistance in clindamycin due to resistant erythromycin in clinical isolates of Staphylococcus aureus.

Methods: A total of 50 positive samples from clinical isolates of Staphylococcus is taken and D test is performed. D test is performed by disk diffusion, placing a 15-μg erythromycin disk in proximity to a 2-μg clindamycin disk on an agar plate that has been inoculated with a staphylococcal isolate; the plate is then incubated overnight. A flattening of the zone of inhibition around the clindamycin disk proximal to the erythromycin disk (producing a zone of inhibition shaped like the letter D) is considered a positive result and indicates that the erythromycin has induced clindamycin resistance (a positive “D-zone test”).

Results: A total of 50 patients were enrolled. Out of 50 samples 22(44%) were erythromycin-resistant isolates in which 19(38%) showed inducible clindamycin resistance.

Conclusion: The increasing prevalence of methicillin-resistant S. aureus and the co-resistance against other therapeutic options like clindamycin is becoming an obstacle in the treatment of infections which need attention from concerned bodies.

D TEST – A SIMPLE METHOD TO DETECT INDUCIBLE CLINDAMYCIN RESISTANCE IN STAPHYLOCOCCI

Dr. Shreya Pradhan, Dr. P.K. Khatri (Sr. Professor) and Dr. R. S. Parihar (H.O.D).
Dr. Sampurnanand Medical College, Jodhpur

Introduction: The resistance to antimicrobial agents among staphylococci is an increasing problem and has led to renewed interest in Macrolide-Lincosamide-Streptogramin B (MLSB) antibiotics to treat Staphylococcus aureus and CoNS infections. The resistance to macrolide can be mediated by msr A gene, coding for efflux mechanism or via erm gene, encoding for enzymes that confer inducible/ constitutive resistance to MLSB antibiotics. In vitro routine test for susceptibility may fail to detect inducible clindamycin resistance due to
erm gene, resulting in treatment failure, thus necessitating the need to detect it by a simple D test on routine basis.

**Aim and Objective:** To determine the significance of D test to detect inducible clindamycin resistance in Staphylococci.

**Method:** In a study conducted from May to September 2019, total 518 blood cultures were processed by BACT/ALERT, where standard microbiological culture techniques were used. Out of these, 187 were reported positive as, 120-gram-positive cocci, 52-gram-negative bacilli and 15gram-positive bacilli. These 120-gram-positive cocci were isolated from 64 females and 56 males of age group 0-85 years and were differentiated as 96 CoNS and 24 *Staphylococcus aureus*. These samples were subjected to routine antibiotic susceptibility testing by Kirby Bauer disc diffusion method, on Muller Hinton Agar, along with the “D test”, using erythromycin and clindamycin by disc approximation test, as per CLSI guidelines.

**Results:** 13 (10.8%) isolates i.e., 8 CoNS and 5 *Staphylococcus aureus* showed inducible clindamycin resistance and were D test positive. However, linezolid and vancomycin were found sensitive in all the 120 cases.

**Conclusion:** As clindamycin is kept as a reserved drug for severe MRSA infections, this study showed that D test should be used as a mandatory method in routine susceptibility testing for the proper treatment of patients.

**MICP 283**

**PHENOTYPIC AND GENOTYPIC CHARACTERIZATION OF METHICILLIN RESISTANT COAGULASE NEGATIVE STAPHYLOCOCCAL ISOLATES FROM A TERTIARY CARE HOSPITAL**

Komal Keswani, Sourav Sen, Santosh Karade
Department of Microbiology, Armed Forces Medical College, Pune

**Introduction:** Coagulase-negative staphylococci (CoNS) are emerging cause of nosocomial infections, particularly bloodstream infections and infections related to prostheses. Clinically significant CoNS isolates are generally tested for methicillin resistance by phenotypic means, however certain strains in spite of being phenotypically sensitive to methicillin, shows the presence of meca gene by PCR. Thus, there is need for genotypic detection of MRCoNS in clinically significant samples.

**Aim and objectives:** The aim of this study was to characterize CoNS isolates from clinical samples submitted to microbiology lab of a tertiary care hospital. The objectives were to determine methicillin resistance phenotypically using 30µg cefoxitin disc and to ascertain genotypic resistance by PCR for resistance causing meca gene.

**Methodology:** A total of 120 non repeat consecutive CoNS isolates were characterized by VITEK 2 and conventional methods over a period of 6 months. These were tested for methicillin resistance phenotypically using cefoxitin disc(30µg) and thereafter for the presence of meca gene using PCR.

**Results:** Out of total 120 CoNS isolates, 85(70.8%) were found to be phenotypically resistant to methicillin. Out of the 85 phenotypically resistant isolates, 70(53.8%) showed the presence of meca.

On the other hand, out of the 35(29.1%) phenotypically methicillin sensitive isolates, 5(4%) showed absence of meca gene, rest 30 (25.1%) isolates showed the presence of meca gene.
Conclusion: Our study indicated rising resistance trend among clinically significant CoNS isolates. Presence of meca gene in 25.1% of phenotypically sensitive CoNS isolates stresses the need to supplement phenotypic methods with genotypic methods.

MICP 27

COMPARISON OF PHENOTYPIC AND MOLECULAR METHODS FOR RAPID AND ACCURATE DETECTION OF MRSA

Kundan Tandel, M Kumar, SpsShergill, Gs Bhalla, Kavita Sahai, Rm Gupta
Army Medical Corps, Lucknow Uttar Pradesh

Introduction: Accurate and rapid identification of methicillin-resistant Staphylococcus aureus (MRSA) in clinical specimens is essential for timely decisions on isolation procedures and effective antimicrobial chemotherapy. Numerous approaches that improve turnaround time for the identification of MRSA have been described.

Aims & Objectives: Rapid, accurate detection of MRSA using three different phenotypic methods and comparison of these phenotypic methods with gold standard molecular method.

Methods: A total of 88 isolates of Staphylococcus aureus were selected for this study. They were identified using phenotypic methods like gram stain, catalase test and slide as well as tube coagulase test. All these isolated were further tested using automated antimicrobial susceptibility testing using VITEK-2 Compact, MRSA Chrom agar, MRSA Latex Agglutination Test and mecA femB PCR (Polymerase chain reaction).

Results: All the 88 samples were identified as Staphylococcus aureus by VITEK-2 Compact. 79 of these were identified as MRSA whereas 09 isolates were labeled as methicillin sensitive (MSSA). VITEK was found to have 100% sensitivity and 36% specificity when compared to PCR. MRSA Chromagar was found to have 96.83% sensitivity and 96% specificity. MRSA latex agglutination test was having 98.44% sensitivity and 87.50% specificity. However, as compared to VITEK and MRSA Chromagar which were taking 14-20 hours (overnight incubation) for MRSA identification, MRSA latex agglutination was taking only 10-15 minutes for MRSA identification.

Conclusion: Rapid and reliable detection of MRSA plays a huge role not only in treatment of infected patents but also in effective implementation of infection control practices. In this study, MRSA latex agglutination test was found to have very high sensitivity, specificity, PPV & NPV when compared to the PCR and was found to have very short turn around time (TAT).

MICP 91

A RETROSPECTIVE STUDY OF METHICILLIN RESISTANT STAPHYLOCOCCUS AUREUS AND ITS ANTIBIOTIC SUSCEPTIBILITY PATTERN IN PDU GOVERNMENT HOSPITAL, RAJKOT

Dr. Sweety Patel, Dr. Manish Pattani, Dr. Prakash Modi
Department of Microbiology, P. D. U. Government Medical College, Rajkot
Saurashtra University, Rajkot
**Introduction:** *Staphylococcus aureus* produces a wide range of infections from soft skin infections to fatal septicemia. Methicillin-resistant *Staphylococcus aureus* infection in hospital leads to significant mortality and morbidity. The emergence of infection and growing resistance to antibiotics is making treatment of infections difficult.

**Aims and Objectives:** To detect MRSA and its antibiotic susceptibility pattern from various clinical samples.

**Methods:** A total of 9443 various clinical samples received in the microbiology laboratory, PDU Hospital, Rajkot was included in the study from January 2019 to June 2019. A total of 195 Staphylococcus aureus was isolated which identified by standard procedures (gram staining, catalase test, slide and tube coagulase test, mannitol fermentation). Antibiotic susceptibility of isolates were performed by disk diffusion method according to CLSI guidelines. Methicillin resistance was detected by cefoxitin disk diffusion method as per CLSI guidelines 2019.

**Results:** In this study a total of 195 Staphylococcus aureus was isolated from various clinical samples, out of which 71 were MRSA. MRSA isolates were predominantly from Pus (49); followed by Blood (17), Sputum (4), and Pleural Fluid (1). The resistance rate of MRSA isolates to antibiotics were 98.59% to ciprofloxacin, 70.42% to erythromycin, 42.25% to clindamycin, 53.52% to gentamicin, 23.94% to cotrimoxazole, 7.04% to tetracyclin, 0% to rifampin, 0% to linezolid, 0% to chloramphenicol.

**Conclusion:** This study reveals 36.41% MRSA among isolated staphylococci. MRSA isolates were more resistant to ciprofloxacin, erythromycin, gentamicin, and clindamycin. All MRSA isolates were sensitive to rifampin, linezolid, and chloramphenicol. Isolation of MRSA patients and carriers in the hospitals, regular surveillance, and monitoring of antibiotic susceptibility pattern of the hospital and community regularly and formation of antibiotic policy may help in reducing MRSA.

**Key Word** - *S.aureus*, MRSA

---

**MICP 185**

**CB-P38**

**PREVALENCE OF MULTIDRUG-RESISTANT, EXTENSIVELY DRUG-RESISTANT AND PANDRUG-RESISTANT STAPHYLOCOCCUS AUREUS ISOLATES FROM CLINICALLY SUSPECTED SEPSIS CASES, IN A TERTIARY CARE PAEDIATRIC HOSPITAL, NEW DELHI**

Anusha Rathi, Neha Lal, V.S. Randhawa, Ravinder Kaur
Dept of Microbiology, L.H.M.C and associated Kalawati Saran Children’s Hospital, New Delhi

**Introduction:** The emergence of resistance to multiple antimicrobial agents in *Staphylococcus aureus* has become a significant public health threat. The clinical and financial burden to patients and health care providers for MDROs is challenging. New drug development is challenged by the fast paced emergence of resistance. We determined the prevalence of multidrug-resistant (MDR), extensively drug-resistant (XDR) and pandrug-resistant (PDR) isolates of staphylococci amongst the paediatric population.

**Aim & Objective:** To determine the prevalence of MDR, XDR, PDR amongst *Staphylococcus aureus* isolates from clinically suspected sepsis cases in a Tertiary Care Paediatric Hospital, New Delhi.

**Methods:** The study was conducted between May to September 2019 in the Department of Microbiology, L.H.M.C and associated Kalawati Saran Children’s Hospital, New Delhi. Blood
samples received from patients aged 0-18 years were tested by automated blood culture technique (BACT/Alert 3D). The isolates were identified as *Staphylococcus aureus* by standard techniques (VITEK2 technology) and were categorised as *MDR, XDR and PDR* as per criteria described by European Centre for Disease Prevention and Control (ECDC) and the Centres for Disease Control and Prevention (CDC).

**Results:** In this cross-sectional study, 300 non duplicated *Staphylococcus aureus* isolates were tested. 74% (222/300) isolates were MDR and 2% (6/300) were XDR isolates. None of the isolates were PDR. MDR isolates were more predominant in <5 years age group (84%) than others. They were significantly more isolated from ICU as compared to other hospital locations.

**Conclusion:** High prevalence of MDR in our hospital, mandates close monitoring of multi-drug resistance. The presence of XDR also in the hospital is a matter of concern. This requires implementation of active surveillance and monitoring of these levels, to combat the menace of antimicrobial resistance.

**MICP 276 CB-P39**

**TO STUDY THE PROPORTION OF MEC A GENE IN MRSA POSITIVE ISOLATES SHOWING INDUCIBLE CLINDAMYCIN RESISTANCE AT A TERTIARY CARE CENTRE**

Shreya Mahesh, Raj Kumar Kalyan, Vimala Venkatesh, Prashant Gupta, Sheetal Verma
King George medical college, Lucknow

**Introduction:** *Staphylococcus aureus* is one of the most important bacterial pathogens in clinical practice and a major diagnostic focus for the routine microbiology laboratory.

**Aim & Objective:** Aim of the study is to find out the proportion of *mecA* gene in MRSA positive isolates showing inducible clindamycin resistance at a tertiary care centre.

**Method:** 140 clinical isolates of *S. aureus* were enrolled. Antibiotic susceptibility testing was performed by the Kirby–Bauer disc diffusion method. Methicillin resistance was detected using the cefoxitin (30 μg) antibiotic disc while inducible clindamycin resistance was detected by the D-zone test. Data were analyzed using SPSS version 21.0

**Results:** Out of 140 isolates, majority of them were from male patients (52.1%). Total proportion of MRSA and MSSA were 66.3% and 33.6% respectively. A higher proportion of MRSA was found in the samples which came from In-patient department (65.6%). Pus (59.3%), was the most predominant clinical sample. Maximum isolates were isolated from surgical ICU (33.3%) We also observed that, as the duration of stay increased in ICU, more percentage of MRSA were isolated from the samples of the patients (29.2%). *S. aureus* showed higher resistance to penicillin (98.6%) followed by erythromycin (80.7%). All were sensitive to vancomycin and linezolid. 29.3% showed inducible clindamycin resistance with D test positive and was more common among MRSA isolates (35.4%). *mecA* gene was present in 60% of MRSA isolates. Among patients positive for *mecA* genotype, maximum had Constitutive MLSB (39.7%) phenotype.

**Conclusion:** Detecting inducible clindamycin resistance is of prime importance otherwise this may lead to treatment failure. Clinician must be fully acquainted with the changing
antibiotic resistance pattern in order to effectively control further emergence of resistance in the hospital.

**MICP 319**

**INDUCIBLE CLINDAMYCIN RESISTANCE AMONG METHICILLIN RESISTANT STAPHYLOCOCCUS AUREUS ISOLATE FROM CLINICAL SAMPLE**

Akankshabali, Sujata Dharmshale, Nasirasheikh, Suresh Kandale
Department of Microbiology, V. M. G. C. Solapur

**Introduction:** Clindamycin is preferred antimicrobial agent for the treatment of infection caused by *Staphylococcus aureus*, especially methicillin resistant strain. 

**Aim:** To study the rate of inducible clindamycin resistance among MRSA isolates from clinical sample. To detect inducible clindamycin resistance among MRSA strains using D-test & to determine the occurrence of inducible clindamycin resistance in different types infections caused by MRSA.

**Methods:** A total 334 Methicillin resistant *Staphylococcus aureus* isolates from various clinical samples received from July 2016 to June 2019, Susceptible to routine antimicrobial agents was carried out using modified Kirby Bauer method. Methicillin resistance was detected by oxacillin disk on Muller Hinton agar supplemented with 2% NaCl. D-test was performed on all erythromycin-resistant Staphylococcus aureus strains to detect inducible clindamycin resistance as per CLSI guidelines.

**Results:** Out of total 334 isolates of Methicillin resistant *Staphylococcus aureus* 95 strains are D-test positive. Among 95 strains 67 isolates from male & 28 from female.

**Conclusion:** The study showed that D-test is a simple & reliable method in routine disc diffusion testing to detect inducible clindamycin resistance.

**MICP 22**

**STUDY OF PREVALENCE AND ANTIMICROBIAL SUSCEPTIBILITY PATTERN OF BLOOD CULTURE ISOLATES FROM TERTIARY CARE HOSPITAL AT JHALAWAR MEDICAL COLLEGE JHALAWAR**

Dr Rahul Soni, Dr Pawan Sharma
S.R.G Hospital & Medical College, Jhalawar

**Background:** Bacteremia is defined as the continuous or transient presence of microorganisms within the blood stream. Bacterial blood stream infections (BSI) are an important cause of morbidity and mortality in intensive care units with case fatality rate between 35-50%.

**Aim:** to assess prevalence and drug sensitivity patterns of isolates from blood culture.

**Methods:** A cross sectional observational study was conducted on blood isolates sent to microbiology department for culture and sensitivity from July 2018 to June 2019 at a tertiary care hospital. Blood samples were collected with aseptic guidelines and cultured in appropriate media upto 7 days. Isolation and identification were based on the Gram staining, motility, biochemical tests and colony morphology on culture media. Antimicrobial susceptibility was performed for all confirmed isolates by modified Kirby-Bauer disc
diffusion method. Interpretations were made using the Clinical and Laboratory Standards Institute, USA standards.

**Result:** Out of 963 blood specimens, positive blood cultures were obtained in 29.39% (283). Gram-positive bacteria accounted for 54.06% (153), Gram-negative 39.93% (113) and *Candida* 6.01% (17). Predominant bacteria in GPC were *S.aureus* (64.71%) followed by *Coagulase-negative staphylococci* (29.41%) and in GNB were *E. coli* (38.05%) followed by *K.pneumoniae* (27.43%). GPC showed 98.6% sensitivity to vancomycin while all GNB were sensitive to imipenem and meropenem.

**Conclusion:** There is an alarming increase in antibiotic resistance among the blood stream pathogens. Local knowledge of bacteriological profile and antimicrobial sensitivity patterns helps rationalize empiric treatment strategies.

**MICP 84**

**ASSESSMENT OF BACTERIAL PROFILE AND ANTIMICROBIAL RESISTANCE PATTERN OF BACTERIAL ISOLATES FROM BLOOD CULTURE AT RIMS, RANCHI, JHARKHAND**

VidushiTopno, Manoj Kumar, Ashok Kumar Sharma, Amber Prasad

RIMS, Ranchi

**Introduction:** Blood stream infection can lead to life threatening sepsis which require immediate antimicrobial treatment. Early diagnosis and appropriate treatments of bacterial blood stream infections decreases morbidity and mortality of patients. It also helps to prevent development of drug resistance. Blood culture is the most widely used diagnostic tool for detection of bacteraemia and fungemia. It assists in diagnosis of blood stream infection etiology and provides antimicrobial susceptibility testing of etiological agent.

**Aims and Objectives:** This study is done to determine the bacterial profile blood stream infection and their antibiotic resistance pattern in RIMS Ranchi, Jharkhand.

**Methods:** This is a one year retrospective study from the month of June 2018 to May 2019. Identification of isolates was done by standard biochemical tests and antimicrobial resistance pattern according to CLSI guidelines 2018. Data was entered and analysed by SPSS version 16. Tables and graphs were used to summarize the result.

**Results and Conclusion:** Total 248 blood samples were collected over a period of one year, out of which 162 blood samples were positive (65.3%). Among them, gram-positive bacteria accounted for 45.7%, *Staphylococcus aureus* (32.7%) was the commonest, followed by CONS (11.1%) and *Enterococcus* (1.85%). Among Gram-negative isolates, predominant isolate was *Klebsiella spp.* (11.7%) followed by *E.coli* (4.3%) and *Acinetobacter* (3.7%), 100% sensitivity to vancomycin and linezolid was seen in case of *Staphylococcus aureus*, CONS and *Enterococci*. Present study shows overall blood culture positive bacterial isolate rate was 65.3%. The most predominant blood culture isolates were *Staphylococcus aureus*, Coagulase negative staphylococci and *Klebsiella spp*. Present study would assist in effective antibiotic use in case of management of patients with blood stream infection.
MICROBIAL SPECTRUM AND DRUG SENSITIVITY PROFILE OF ISOLATES CAUSING BLOODSTREAM INFECTION AT A TERTIARY CARE CENTRE IN BIHAR

Kumar Saurabh, Dr Wasim Ahmad, Dr Namrata Kumari, Dr Shivendra Kumar Shahi
Department of Microbiology, Indira Gandhi Institute of Medical Sciences, Sheikhpura, Patna, Bihar

Introduction: Incidence of blood stream infection (BSI) and drug resistance among organisms causing BSI is increasing nowadays. The trend of such infections and the antibiotic sensitivity pattern may vary from region to region. It is therefore important to know the pattern, as it would help in better patient management and in the formulation of hospital antibiotic policy. This type of study will also help in assessing the disease burden of multi-drug resistant organisms in any locality.

Aims & Objectives: To know the spectrum of organisms causing BSI along with its antibiotic sensitivity pattern.

Methods: The data of blood cultures received in the Department of Microbiology, Indira Gandhi Institute of Medical Sciences, Patna, over a period of one year from January 2018 to December 2018 were retrospectively analysed. Common demographic parameters of patients were noted. The organisms causing BSI and their susceptibility pattern was studied.

Results: A total of 1767 blood cultures were processed with 272 (15.4%) showing positive cultures. A total of 277 organisms were isolated, out of which 165 (59.5%) were Gram-positive cocci (GPC), 101 (36.5%) were Gram-negative bacilli (GNB) and 11 (4%) were non-albicans Candida. Coagulase negative Staphylococcus (58.8%) followed by Staphylococcus aureus (29.1%) were the main isolates among GPC, whereas, Escherichia coli (31.6%) followed by Klebsiella pneumoniae (27.7%), Pseudomonas aeruginosa (15.8%), Acinetobacter sp (14.7%) and others were the GNB. The most effective antimicrobials against GNB were tigecycline, colistin, carbapenems and aminoglycosides and against gram-positive cocci were vancomycin and linezolid.

Conclusion: Gram-positive bacteria were predominant cause of BSI in this study. Resistance to higher antibiotics like vancomycin and linezolid could be seen among GPC. Among GNB, resistance to cephalosporins, fluoroquinolones and most of the beta-lactams was found.

INCIDENCE AND MICROBIOLOGICAL PROFILE OF SEPTICAEMIA IN PEDIATRIC HEMATOLOGY-ONOLOGY UNIT OF TERTIARY CARE HOSPITAL

Dr Jaina Shah, Dr Vikash Ranjan, Dr Sujata Baveja
Dept of Microbiology, LTMMC and LTMGH, Sion, Mumbai

Introduction: In India, cancer is the 9th most common cause of death among children, leukaemia being the most common of all malignancies. Infections are a major cause of morbidity and mortality in these patients due to alteration in host defense mechanisms. So the study was carried out with the following objectives.

Aims and Objectives: To determine the incidence of septicaemia in paediatric haematology-oncology unit in this tertiary care hospital. To identify the etiologic agents of septicaemia and to determine their antibiotic susceptibility pattern.
Methods: An observational study was conducted including 138 patients for a period of one year. Inclusion criteria: Paediatric patients with haematological malignancies admitted in this hospital with clinical suspicion of sepsis. Exclusion criteria: History of fever after receiving blood products, within 24 hours after administration of chemotherapy and subsiding within next 24 hours. Blood samples were collected aseptically and processed using automated blood culture system, following which the growth positive samples were subjected to culture and antibiotic sensitivity testing.

Results and Discussion: Culture positive septicaemia was seen in 17 (12.3%) suspected cases, out of which 9 (53.3%) were Gram-negative, while 5 (29.4%) isolates were Gram-positive and 3 (17.6%) of all isolates were yeast. Amongst Gram-negative organisms, 3 isolates of *E. coli* and 4 of *Klebsiella* species showed susceptibility to amikacin, ciprofloxacin, ceftriaxone, piperacillin-tazobactum, cefepime, ampicillin-sulbactum, imipenem respectively. Amongst Enterobacteriaceae, 1 isolate showed carbapenem resistance. *Pseudomonas aeruginosa* was isolated from 1 case. MRCONS was the most common isolate seen in Gram-positive organisms, showing 100% susceptibility to gentamycin, vancomycin, linezolid, netilmicin. MSSA and Enterococcus were isolated from 1 case each.

Conclusion: Knowledge of the local panorama of organisms causing sepsis and antibiotic resistance are essential parts of management of haematological malignancies, thus improving patient outcome.

MICP 238

CB-P45

BACTERIOLOGICAL PROFILE AND ANTIBIOGRAM OF AEROBIC BLOOD CULTURE ISOLATES FROM ICUs OF A TERTIARY CARE HOSPITAL IN MANIPUR

Daniel Ningthoujam, Urvashi Chongtham, Smeeta Huidrom, Supriya Laifangbam
Department of Microbiology, Jawaharlal Nehru Institute of Medical Sciences, Imphal

Introduction: Blood stream infections (BSIs) are one of the most significant serious infections, which cause morbidity and mortality among hospitalized patients worldwide. Many studies have shown wide range of both the Gram-positive as well as Gram-negative bacteria causing blood stream infections. Antimicrobial resistance among these causative organisms, esp. in ICUs have become a public health issue.

Aims & Objectives: To determine the bacteriological profile of blood culture isolates and their antibiotic susceptibility pattern from ICU patients admitted in JNIMS Hospital, Imphal.

Methods: Hospital based cross-sectional study carried out in the Department of Microbiology, JNIMS from September, 2018 to August, 2019. A total of 179 blood cultures were received from various ICUs. The isolates were identified morphologically and biochemically by adopting standard laboratory procedures and antibiogram was determined as per the CLSI guidelines.

Results: Of the 179 blood culture samples processed in this period, positive culture was obtained in 57 (31.85%) samples. Among 42 (73.68%) Gram-positive isolates, *Staphylococcus aureus* (88.09%) was the most common followed by CONS (9.52%) and *Enterococcus* species (2.39%). *Pseudomonas aeruginosa* (46.66%) was the most common
Gram-negative isolates, followed by *Klebsiella pneumoniae* and *Acinetobacter baumannii* (26.67% each). Most of the Gram-positive isolates were sensitive to vancomycin and linezolid and Gram-negative isolates to imipenem. Most of the isolates were resistant to ceftriazone and cefotaxime.

**Conclusion:** The present study highlights the bacteriological profile of blood culture isolates with the antibiogram in the ICUs. Blood culture is an important tool in suspected cases of bloodstream infection. This study may be a useful guide for initiating empirical therapy for patients admitted in the ICUs and formulation of antibiotic policy in our institute.

**MICP 308**

**PROCALCITONIN–A BIOMARKER FOR MULTIDRUG RESISTANCE IN NEONATAL SEPSIS?**

Apurva Rautela, Vikramjeet Singh, Anupam Das, Jaya Garg, Jyotsna Agarwal
Dr. RMLIMS, Lucknow

**Introduction:** Neonatal sepsis is the most common cause of mortality. In India, incidence of neonatal sepsis is 30 per 1000 live births. It encompasses systemic infections of the newborn including meningitis, pneumonia, arthritis and urinary tract infection of the newborn.

Procalcitonin (PCT) a precursor of calcitonin, has been intensively investigated for its diagnostic role in neonatal sepsis. A well described approach for determining the necessary and optimal duration of antibiotic therapy is the use of the biomarker PCT, which becomes upregulated during bacterial infections and mirrors the severity of infections.

**Aims and Objectives:** To corelate values of procalcitonin with the causative organism and its antimicrobial susceptibility testing in neonatal septicemia.

**Methods:** This study was conducted in the Department of Microbiology, Dr. RMLIMS, Lucknow for a period of 3 months (July 2019 to September 2019). All the blood culture samples of neonates suspected of septicemia were tested by automated blood culture system (VERSATREK). Blood culture positive samples were further processed for speciation of microorganisms followed by Antimicrobial susceptibility test (AST) for bacterial isolates by disc diffusion method and also tested for procalcitonin by VIDAS (BRAHMS PCT).

**Results:** Out of 35 samples, 20 samples were blood culture positive and tested for PCT. Out of 20 samples, 60% were positive for Gram-negative bacteria, 25% were positive for non albicans candida and 15% were positive for Gram-positive bacteria. The most common organism isolated was *Klebsiella pneumoniae*. Most of the isolates were resistant for Gentamicin.

**Conclusion:** According to my study, the higher values of Procalcitonin were related to Gram-negative bacteremia and the AST of these organisms showed multidrug resistance pattern. I hypothesize that the addition of PCT to an established antibiotic stewardship program would thwart unwarranted antibiotics and decrease adverse outcomes.

**MICP 312**

**BLOOD STREAM INFECTIONS IN PATIENTS WITH HEMATOLOGICAL DISORDERS IN A TERTIARY CARE HOSPITAL**

Swati Deshpande, Sunil Kuyare, Gita Nataraj, Chandrakala S, Shashir Wanjare
Introduction: Patients with haematological malignancies are at high risk of hospital associated infections mainly, blood stream. Changing pattern of common bacterial and fungal infections over time in different localities plays an important role in planning the empiric/prophylactic therapy.

Aims and Objectives: The present study is carried out with an aim to estimate the bacterial and fungal causes of blood stream infections, analyse the resistance pattern and determine risk factors associated with them.

Methods: After ethics committee’s permission, a prospective study was conducted for a period of one year on patients with suspected bacteremia/septicaemia. Demographic details, results of microbiological investigations with reference to blood culture growth, the resistance pattern of the isolate were noted. Association of risk factors was also analysed.

Results: A total of 250 patients with hematological disorders were recruited for the present study with male to female ratio of 1.6:1. Of 250, 101(40.4%) were benign and 149(59.6%) were malignant. 81(32.4%) patients had central line catheter. Blood cult ure positivity for patients with benign and malignant conditions was 26.7% (27/101) and 28.2% (42/149). Amongst benign disorders, commonest organisms isolated were CoNS [7/27; 25.9%] followed by Klebsiella spp [6/27; 22.2%]. In malignant disorders, Klebsiella spp [21/42; 50%] was predominant followed by CoNS[11/42;26.2%]. The blood stream infection was maximum in severely neutropenic patients of both benign [18/66;27.3%] and malignant origin[34/118;29%]. 63% (17/27) of Klebsiella spp isolated were sensitive to only colistin. No MRSA was isolated while 38.9% CoNS were methicillin resistant. Patients with high MASCC risk index developed CRBSI in both the groups. Risk factors for BSI in malignant cases was increased length of hospital stay while for both benign and malignant was increased duration of indwelling catheter

Conclusion: CoNS still remains the commonest organism raising the doubt to initiate treatment. Training of bundle care for health care workers as well as the patients/patient’s relatives is the need of the hour.

MICP 322

BACTERIOLOGICAL PROFILE AND ANTIBIOGRAM OF BLOOD CULTURE ISOLATES FROM A TERTIARY CARE HOSPITAL OF WESTERN INDIA

Palewar M, Mudshingkar S, Kongre V, Kagal A, Bharadwaj R, Karyakarte R
BJ GMC Pune

Introduction: Clinical manifestations of bloodstream infections range from transient bacteremia to fulminant septic shock with high mortality. Regular surveillance of blood stream infection etiology is important in monitoring the spectrum of bacterial pathogens and their sensitivity pattern in a particular area and thus helps in rationalizing therapy.

Aims and Objectives: The present study was undertaken to know the bacteriological etiology of blood stream infections and the antibiotic susceptibility pattern of the isolated strains to formulate effective empirical treatment.

Methods: During the 1-year study period, 5588 blood samples from patients with a clinical diagnosis of sepsis were processed at Microbiology Laboratory of a 2500-bedded tertiary care hospital of Western India. Bacteriological identification and antimicrobial susceptibility testing were performed for all bacterial isolates by following the standard protocol.
Results: Culture positivity was seen in 10.73% of the septicemic cases. Contamination was observed at a rate of 1.96%. Out of the total 600 bacterial isolates gram-negative Enterobacteriaceae, Gram-negative non fermenters and gram-positive cocci contributed to 38%, 31% and 31% respectively. The predominant organisms were Acinetobacter spp followed by Klebsiella spp. and Staphylococcus aureus. All gram-negative bacteria showed low sensitivity to fluroquinolones and beta lactam drugs like ampicillin and cephalosporins. aminoglycosides, carbapenems, chloramphenicol, beta lactam-β lactamase inhibitor combinations like piperacillin tazobactum were effective in treating Gram-negative bacteremia. Chloramphenicol, glycopeptides and linezolid were effective in treating gram-positive bacteremia. All gram-positive isolates showed low sensitivity to fluroquinolones

Conclusions: This study stresses the need for the continuous screening and surveillance for antibiotic resistance in septicemic cases.

MICP 456

A CASE OF PULMONARY NOCARDIOSIS IN AN APPARENTLY IMMUNOCOMPETENT ADULT, WITH NO PREEXISTING CO-MORBIDITIES

Dr.Priyank Trivedi, Dr.Priyanka Prasad, Dr.Gita Nataraj,
Department of Microbiology, Seth G.S. Medical College and KEM Hospital, Mumbai

Case report: Pulmonary nocardiosis is a disease primarily reported in immunocompromised hosts and is very rare in immunocompetent people. It is caused by an aerobic actinomycete of the genus Nocardia via direct inoculation or direct inhalation of the organism. Here we report a case of a 50 year old apparently immunocompetent female, with no other predisposing conditions who presented with complaints of progressively increasing cough and dyspnea with cavitations in the upper lobe of the right lung over a period of 1 month. CT scan demonstrated a right-sided upper lobe lung abscess and right hydropneumothorax with indentation and peripheral collapse of adjacent right lung parenchyma. She was treated with a combination of piperacillin-tazobactam and metronidazole. She also underwent intercostal drainage multiple times to relieve the symptoms. When she did not respond a lobectomy was done and specimen was sent to the laboratory for culture. Culture grew a gram-positive filamentous bacillus which was identified as Nocardia species by conventional methods and was confirmed as Nocardia farcinica by MALDI TOF system. As per the literature available regarding treatment of this organism, the antibiotics were changed to imipenem and cotrimoxazole. Due to complications following surgery and further deterioration in her condition, she had to undergo a final pneumonectomy. After the procedure, the patient improved clinically and was discharged after a week with continued treatment and follow up instructions.

This paper highlights the importance of considering Nocardia as a differential diagnosis in cases of undiagnosed progressive lung disease with no improvement after adequate therapy in an immunocompetent patient. Early diagnosis and therapy in such patients would lead to effective remission and decreased morbidity and mortality.

MICP 375

CB-P50
BACTERIOLOGICAL PROFILE OF NEONATAL SEPSIS IN A TERTIARY CARE HOSPITAL OF WESTERN ODISHA

Kerketta A.S., Jena S, Sahu S.K., Sahu S
VIMSAR, Burla

Introduction: Neonatal septicemia is the leading cause of neonatal mortality and morbidity. Neonatal septicemia accounts for approximately 25% of the neonatal deaths in the world and mostly in developing countries.

Aims and Objectives: The aim of the study was to isolate and identify causative organisms from blood samples of neonates and evaluate its antibiotic susceptibility pattern.

Methods: This study was done from October 2018 to September 2019. Blood was collected aseptically and cultured by standard microbiological procedures. Antibiotic susceptibility test was done by Kirby-Bauer Disc Diffusion Method according to CLSI guidelines.

Results: Out of 580 clinically suspected cases of neonatal sepsis, 454 were culture positive, from which 389 were bacterial isolates. Out of 389, there were 239 (61.44%) males and 150 (38.56%) were females. Early onset sepsis was seen in 98 (25.19%) cases and late onset sepsis was seen in 291 (74.8%) cases. Gram-positive isolates were 159 (40.87%) and gram-negative isolates were 230 (59.13%). Staphylococcus aureus (38.82%) was predominantly isolated in gram-positive isolates and Pseudomonas species (28.79%) was predominantly isolated in gram-negative isolates.

Conclusion: Septicemia is a lifethreatening condition especially in neonates. The empirical use of antibiotics may promote the emergence and dissemination of resistant isolates. It needs judicious use of broad-spectrum antimicrobial agents and periodic review of antibiotic policy for rationalized use of antibiotics.

MICP 393

A 5 YEAR REVIEW OF MICROBIOLOGICAL PROFILE AND SIGNIFICANCE OF DIFFERENT BLOOD CULTURE MEDIA IN EARLY DIAGNOSIS OF BACTERAEMIA

Sunil Jayakar, Anurag Kumar Bari, Rashmi Kokare, Lakshana Gurav, Joanna Pereira, Aruna Poojary
Dept. of Pathology & Microbiology, Breach Candy Hospital Trust, Mumbai

Introduction: Blood culture is the gold standard investigation for diagnosis of bacteraemia. Aerobic and Anaerobic media are often used as a BC set for diagnosis of bacteraemias.

Aims and Objectives: To review the microbiological profile of organisms causing bacteraemia and to determine if different BC media have a role to play in early diagnosis.

Methods: This was a retrospective study on positive BCs between 2014 to 2018 in a 222-bed tertiary care centre in Mumbai. BACTEC Fx automated BC system was used. Vitek 2 Compact was used for identification & susceptibility. A BC set comprised of aerobic and anaerobic media for wards and OPDs and included an additional fungal medium when the patient was in the intensive care unit (ICU).

Results: 1173/14900 (7.87%) BC were true positive. Of them, 788 (67%) were gram-negative bacilli (GNB), 211 (18%) gram-positive cocci (GPC), 18 (1.7%) anaerobes & 156 (13.3%) yeasts. The average contamination rate was 1.63% (243/14900). The most common pathogen causing BSI was Escherichia coli (220/1132) followed by Klebsiella pneumoniae (205/1132).
**Bacteroides fragilis** & *C. hemolunii* were the most common anaerobe and yeast isolated respectively. 39% of GNBs were extremely drug resistant (XDR) while 40% of *Staphylococcus aureus* were MRSA and 15.9% Enterococci were VRE. Anaerobic media flagged positive earlier than the corresponding aerobic media in facultative GPCs & GNBs by 3.31 and 3.66 hours respectively. Similarly, fungal media flagged 3.1 hours earlier than aerobic media in case of yeasts. The average time to positivity (TTP) for aerobic GNB, GPC, anaerobes and yeast were found to be 22.57, 16.95, 45.65 and 40.60 hours respectively.

**Conclusion:** *Escherichia coli* was the commonest cause of BSI with increasing drug resistance seen across all pathogens. Dedicated anaerobic and fungal media may play an important role in early diagnosis and appropriate management of patients with bacteraemias.

---

**MICP 402**

**ISOLATION OF EXTENDED-SPECTRUM β-LACTAMASES ENTEROBACTERIACEAE AND MRSA FROM NEONATAL SEPSIS IN NICU AT IGIMS PATNA, A TERTIARY CARE HOSPITAL**

Md Shabbir Azad, Md Nazish Ayubi, Keshav Kumar Bimal, Namrata Kumari, S. K. Shahi
Indira Gandhi Institute of Medical Sciences, Patna

**Introduction:** Neonatal sepsis is responsible for about 30-50% of total neonatal deaths in developing countries. Incidence of neonatal sepsis according to the data from National Neonatal Perinatal Database (NNPD, 2002-03) is 30 per 1000 live births. The emergence of extended spectrum β–lactamase (ESBL) producer and methicillin resistant *Staphylococcus aureus* (MRSA) in neonatal intensive care unit patients is posing a great challenge in therapeutic management.

**Aims & Objectives:** To identify the bacterial isolates in neonatal sepsis and study their antimicrobial susceptibility pattern including detection of ESBL producers and MRSA.

**Methods:** Study was conducted in one year duration from January 2018 to December 2018 at IGIMS Patna, tertiary care hospital. Total of 142 blood samples collected aseptically were processed following standard laboratory protocol. Antibiogram was done by Kirby-Bauer disc diffusion method. Isolated *Staphylococcus aureus* were tested for methicillin resistance using Cefoxitin disc (30μg). ESBL producer was detected using combined disc method.

**Results:** Out of the 142 cases, 51(35.9%) were culture positive. Four (23.5%) of early onset sepsis cases had Gram-negative bacteria (GNB) and 10 (29.4%) of late onset sepsis cases had Gram-positive bacteria. Out of the total pathogens, 9 (17.65%) were *Klebsiella pneumoniae* and 12 (23.5%) were *Staphylococcus aureus*. Nine (75%) of *Staphylococcus aureus* were found to be MRSA and they were 100% sensitive to vancomycin. Nine (64.3%) of Enterobacteriaceae were ESBL producers. ESBL isolates were 100% sensitive to Imipenem.

**Conclusion:** *Klebsiella spp.* and *Staphylococcus aureus* were the commonest bacteria causing neonatal sepsis in this centre. Many isolates were ESBL producers and MRSA. Imipenem and vancomycin respectively were the effective drugs against these ESBL producers and MRSA. Local microbiological database of commonly isolated organisms along with their drug resistance pattern is important for effective empirical therapy.

---

**MICP 408**

---

---

167
BACTERIOLOGICAL PROFILE AND ANTIBACTERIAL SUSCEPTIBILITY PATTERN OF ISOLATES IN BLOODSTREAM INFECTIONS

Dr. Saransh Mittal, Dr. R. S. Parihar
Dr. S. N. Medical College, Jodhpur

Introduction: Septicemia is major cause of illness and death among hospitalized patients, therefore, early detection of causative pathogens and rational use of antimicrobials is essential for treatment of septic patients.

Objective: To identify bacteria causing septicemia and determine their Antibacterial susceptibility pattern.

Methods: Blood cultures from suspected cases of sepsis were processed in automated BacT/Alert system. Positive growths were examined and isolates were identified by biochemical tests. Antibacterial susceptibility pattern was determined using Kirby-Bauer disk diffusion method.

Results: Total 537 blood cultures were processed from which 171 microorganisms were isolated. In these isolates, 111 were gram-positive cocci followed by gram-negative bacilli (52). 8 were gram-positive bacilli, probably environmental contaminants. Among gram-positives most common being CoNS spp. (65) followed by Staphylococcus aureus (36), Enterococci (10), whereas Acinetobacter spp. (15) were common in gram-negative isolates followed by Citrobacter (11), Escherichia coli (9) and Pseudomonas spp. (7). Staphylococcus aureus were mostly resistant to penicillin (94.44%) and erythromycin (72.22%) where 77.77% were MRSA. CoNS spp. also showed high resistance to penicillin (92.30%) and erythromycin (81.53%) and where 75.38% were MRCoNS. Among Enterococcus spp. showed complete resistance to penicillin, cloxacillin, erythromycin and doxycycline (100%), also one isolate was vancomycin resistant. However, Enterococcus spp. was 100% sensitive to linezolid. In Gram-negative isolates, Acinetobacter spp. shown high resistance to 3rd generation cephalosporins [ceftazidime(100%) and ceftriaxone(93.33%)]. Citrobacter spp. Isolates were equally sensitive to meropenem and levofloxacin (81.81%) while sensitivity to tobramycin, co-trimoxazole & piperacillin-tazobactam was 72.72%. Klebsiella spp. showed 100% resistance to meropenem and amikacin whereas 60% sensitivity to levofloxacin. Piperacillin-tazobactam and levofloxacin were 100% resistant in Escherichia coli and meropenem sensitivity was at 77.77%.

Conclusion: Increasing incidence of drug resistant among organisms raises serious concerns about antibiotic resistance and mandates strict antibiotic policy to prevent emergence and spread of antibiotic resistance.

MICP 108

CORRELATION OF C-REACTIVE PROTEIN (CRP) AND BLOOD CULTURE IN DIAGNOSIS OF NEONATAL SEPTICEMIA IN CIVIL HOSPITAL, RAJKOT

DrApurva Pathak*, DrMadhulika Mistry **, Dr Prakash Modi ***.
*2nd yr Resident Doctor, ** Associate Professor, *** Professor & Head of the Department.
Dept. of Microbiology, P. D.U Medical College & Hospital, Rajkot

Introduction: Neonatal septicemia constitutes a significant cause of morbidity and mortality in India. The diagnosis of neonatal septicemia based on clinical manifestations is nonspecific which leads to initiation of unnecessary antibiotic treatment. Blood culture remains the gold
standard for the diagnosis of neonatal sepsis but the technique is time consuming, demands a proper laboratory setup and is positive in only 40% cases. CRP is very sensitive marker in detection of neonatal sepsis and is less time consuming.

**Aim & Objectives:** Compare and Evaluate CRP result with blood culture status in diagnosis of neonatal septicemia.

**Method:** This retrospective study was conducted in Dept. of Microbiology, P. D.U Medical College & Hospital, Rajkot from January 2019 - March 2019 and total of 161 samples of pediatric patients admitted in NICU. Screening for CRP was carried out from serum by rapid slide agglutination test qualitatively and semi quantitatively. Cut off value of CRP was taken as 0.6mg/dl. Simultaneously, blood culture was done by conventional system. 1-3 ml of blood was inoculated in BHI broth. Gram stain smear were prepared from positive blood culture samples. Subculture were done on MacConkey’s and blood agar and incubated at °C for 18-24 hours. If no growth is obtained after 5 days of incubation then it was considered negative blood culture.

**Result:** Out of 161 samples, 93 were culture positive and 106 were CRP positive. Considering blood culture as gold standard, sensitivity, specificity, PPV, and NPV of CRP are 79%, 51.5%, 69%, 63.4% respectively.

**Conclusion:** Clinical diagnosis of neonatal septicemia is non specific. CRP provide a feasible, rapid and relatively economic method to diagnose neonatal septicemia even at basic health care level. The combination of both CRP and blood culture yield better results than single tests and proved to be an invaluable aid for early diagnosis of neonatal sepsis.

---

**MICP 453**

**AN UNUSUAL CASE OF POST-OPERATIVE VENTRICULITIS DUE TO CORYNEBACTERIUM STRIATUM IN A TERTIARY CARE PEDIATRIC HOSPITAL**

Dr. Shaheen Shaikh, Dr. Suverna Kirolikar, Dr. Amish Vora
SRCC-NH Hospital, Mumbai

We report an unusual case of ventriculitis post operative due to Corynebacterium striatum. 1 year female child operated for Astrocytoma 45 days prior at another hospital was transferred with ventriculitis, severe hyponatremia treated as SIADH / CSW and CSF leak from the suture site. The child presented with severe respiratory distress and neurogenic stridor with focal seizures and pupillary dilatation and later on developed non obstructive hydrocephalus and cerebral venous thrombosis.

The child was started on Meropenem, Voriconazole and Teicoplanin along with daily CSF drainage - 10 ml through the Ommaya reservoir. CSF analysis showed cell counts of 300 cells / cu mm (75% polymorphs and 25% lymphocytes), Gram stain showed few gram-positive bacilli. Culture on 5% sheep blood agar showed pure growth of greyish, smooth colonies within 24 hours of aerobic incubation at 37°C.

Identification of the isolate was done by both Phoenix and Maldi as Corynebacterium striatum. Susceptibility performed on Phoenix BD showed the isolate sensitive to Vancomycin, Linezolid, and Teicoplanin and resistant to Penicillin, Cotrimoxazole, Clindamycin, Ciprofloxacin, Gentamicin and Erythromycin. The susceptibility was reported as per CLSI M45 guidelines. The patient was given Vancomycin (5 mg/day once a day)
intraventricularly and (20 mg/kg/every 8 hours) IV. for 3 weeks. Cultures were also sent from EVD exit site which grew the same organism with similar susceptibility. CSF cultures were serially repeated 10 times over a period of 45 days till 2 consecutive cultures were negative and the reservoir was removed and VP shunt placed. Intra ventricular Vancomycin was continued for 4 weeks post the 2 negative CSF cultures. CSF sent during the surgery didn’t grow the organism A follow up of this patient will be done closely to monitor outcome.

MICP 119

MAGNITUDE OF VANCOMYCIN RESISTANT ENTEROCOCCI AMONG ENTEROCOCCI ISOLATED FROM INDOOR PATIENTS IN A TERTIARY CARE HOSPITAL

Dr. Saniya Ohri, Dr. Kanwardeep Singh, Dr. Shailpreet K. Sidhu, Dr. Loveena Oberoi, Dr. Sita Malhotra.
Department of Microbiology, Government Medical College, Amritsar

Introduction: Enterococci are indigenous flora of the intestinal tract, oral cavity & genitourinary tract of humans. The genus Enterococcus consists of Gram-positive, catalase negative, non spore forming, facultative anaerobes that often occur in pairs or short chains. This genus comprises of Enterococcus faecalis, E. faecium, E.durans, E.gallinarum, E.avium, E.italicus, etc. E.faecalis is the most common species found in clinical specimens whereas E.faecium is notorious for being drug resistant. Over recent years, there is increased interest in enterococci not only because of their serious infections but because of their increasing resistance to many antimicrobials. Vancomycin is an important drug used in treatment of resistant strains of enterococci but over time, there has been increase in vancomycin resistance and spread globally.

Aims & Objectives: The aim of the present study was to determine the prevalence of Vancomycin Resistant Enterococci (VRE) isolated from various clinical specimens.

Methods: The present study was conducted from 1st July 2018 – 30th June 2019 in the Department of Microbiology, Government Medical College, Amritsar. Clinical specimens received from the patients admitted in various departments of a tertiary care hospital were processed and Enterococcal isolates were identified using standard microbiological techniques and their antimicrobial susceptibility was performed as per CLSI standards.

Results: Enterococci were isolated in 71 specimens out of 11,098 samples. E.faecium (59%) was most common species followed by E.faecalis (41%). VRE were isolated from 6% of the cases and all vancomycin resistant isolates were E.faecium.

Conclusion: VRE has emerged as important nosocomial pathogen and pose serious threat to patients. Vancomycin should be cautiously used else we would be left with very few therapeutic options. Early detection of patients infected with VRE is an essential component to prevent its nosocomial transmission.

MICP 186

VANCOMYCIN RESISTANT ENTEROCOCCI: STUDY OF PREVALENCE
AND ANTIMICROBIAL SUSCEPTIBILITY TESTING PATTERN

Dr. Rashmi Hadke, Dr. Kavita Bhilkar, Dr. Chhaya Chande, Dr. Jyoti Bade, Dr. Shilpa Naik, Dr. Ameeta Joshi
Department of Microbiology, Grant Government Medical College, Mumbai

Background: Enterococci are natural inhabitants of the oral cavity, gastrointestinal tract (GIT) and the female genital tract in both humans and animals. They have emerged as important nosocomial pathogen associated with various clinical manifestations, including bacteremia, infective endocarditis, intraabdominal and pelvic infections, urinary tract infections, central nervous system infections. Vancomycin-resistant enterococci (VRE) were first reported in 1986, nearly 30 years after vancomycin was clinically introduced. VRE are common cause of nosocomial infections and are hard to treat because of expanding resistance patterns.

Aim: To evaluate the prevalence and antibiotic resistance pattern, especially glycopeptide resistance exhibited by enterococcus species.

Methods: A total of 420 isolates of Enterococci from various clinical samples over a period of 1 year were studied. Enterococcus species were identified as per standard conventional methods. Complete Antibiogram and VRE were screened by the Kirby–Bauer disc diffusion method by CLSI 2018 guidelines.

Results: Among 420 enterococci maximum were from urine (62.38%) followed by pus (23.33%), blood (9.76%), body fluids (2.85%) and sputum (1.67%). 9.28% were VRE among which VAN A and VAN B were 51.28% and 20.51% respectively. All the isolates except three were linezolid sensitive.

Conclusion: The prevalence of vancomycin resistant enterococci (VRE) in our study is relatively high as compared to other studies. Hence regular monitoring of vancomycin resistance is very crucial for early detection, treatment, application of preventive and control measures.

MICP 310

IDENTIFICATION AND DETERMINATION OF VANCOMYCIN RESISTANCE IN ENTEROCOCCUS SPECIES ISOLATED FROM BLOOD AND URINE IN A TERTIARY CARE HOSPITAL

Dr. Poonam Katoch, Dr. Partha Pratim Das, Dr. Jayanta Kumar Das, Dr. Reema Nath
Assam Medical College, Dibrugarh

Introduction: Enterococcus is an important pathogen causing Urinary tract infection and septicaemia. Vancomycin Resistant Enterococci (VRE) is a therapeutic challege as this resistance is highly transmissible. As Vancomycin resistant Enterococcus is on rise in other parts of India, hence this study was conducted to know the propotion of Vancomycin resistant Enterococcus infection in Northeast region of India.

Aims and Objectives:
- Identification of Enterococcus species from suspected cases of septicaemia and UTI
- Determination of proportion of VRE.
Methods: This laboratory based prospective study was conducted over a period of three months in Assam Medical College and Hospital, Assam. All consecutive samples of blood and urine were taken and Enterococcus species were identified conventionally as well as by Vitek 2 system. Antibiotic susceptibility was done according to CLSI 2019 guidelines. Vancomycin resistance in isolates were identified and confirmed by multiplex PCR.

Result: Out of total 2643 samples, 1837(69.5%) samples were from urine and 806(30.49%) were blood samples. Enterococcus isolates were identified 81(4.40%) and 15(1.86%) from urine and blood samples respectively. *Enterococcus faecium* 70(72.9%) is the most prevalent species in blood as well as in urine followed by *Enterococcus faecalis* 21(21.87%). Vancomycin resistant Enterococcus was 2(2.04%) and vanA is positive genotype in both the isolates. Enterococcus isolates were most resistant to Ciprofloxacin 77(80%) followed by Ampicillin 63(65%). A high-level gentamicin resistant was present in 56(60.2%) of isolates. Highest sensitivity was seen with Linzolid 96 (100%) and Teicoplanin 94(97.9%).

Conclusion: Vancomycin resistant Enterococcus is low as compared to other reports from India. Though we are in a better situation we should be careful and give importance to strict enforcement of antibiotic policies coupled with greater adherence to infection control measures to prevent emergence and spread of antibiotic resistant bacteria.

---

MICP 349

THE EMERGENCE OF LINEZOLID RESISTANCE IN ENTEROCOCCI IN A TERTIARY CARE HOSPITAL AT JAIPUR, INDIA

Dr. Preeti Chaudhary, Dr. Ved Prakash Mamoria, Dr. Mohit Agrawal
Mahatma Gandhi Medical College and Hospital, Jaipur

Introduction: Enterococci are gram-positive bacteria that inhabit human gastrointestinal tract as harmless commensals. In recent years there has been an upsurge of enterococcus as a nosocomial pathogen. (*Enterococcus faecalis* and *Enterococcus faecium*.) and their multidrug resistance is a global threat. Linezolid is an oxazolidinone antibiotic that inhibits bacterial protein synthesis by binding to the 50S ribosomal subunit. Its spectrum includes all Gram-positive cocci infections, including multidrug resistant *Staphylococcus aureus* and vancomycin-resistant *Enterococcus*. Known mechanisms of linezolid resistance include mutations in the 23S rRNA gene, ribosomal proteins or acquisition of cfr gene.

Aims and Objectives: To study Linezolid resistance pattern among Enterococcus species in Clinical samples received at Microbiology Laboratory, MGMCH over one year (1st October 2018 to 30th September 2019).

Methods: All the isolated strains of Enterococci were identified and their antibiotic Susceptibility was done on Vitek2 Compact.

Results: A total of 219 enterococci were isolated from different clinical samples in the study period: Urine(n=120,54%); blood(n=36; 16%), pus (n=24;10.9%), semen(n=18;8.2%), high vaginals wabs (n=10;4.5%); 11(5%) from others. Species isolated were Enterococcus faecalis (n=115;52%), Enterococcus faecium (n=101;46%) and Enterococcus avium (n=3;1.3%). Linezolid resistance was found in 9 isolates of enterococci (4.1%). All the resistant strains were Enterococcus faecium; no resistance was found in Enterococcus faecalis or avium. 3 out of the 9 Linezolid resistant strains were Vancomycin resistant too.
Conclusion: Since increasing empirical use of linezolid is associated with the rise in Linezolid resistant enterococcus spp hence it is recommended that susceptibility testing of isolates should always be performed prior to its therapeutic use. This is of significant clinical importance because only a limited number of drugs are available to treat resistant gram-positive infections.

EMERGENCE OF OXAZOLIDINONE RESISTANCE AMONG GLYCOPEPTIDE RESISTANT ENTEROCOCCI ISOLATED FROM CLINICAL SPECIMENS

Dr. Devyashree Medhi, Dr. Bulbul Roy, Dr. Suranjana Chaliha Hazarika, Dr. Ajanta Sharma, Dr. Lahari Saikia
Department of Microbiology, Gauhati Medical College and Hospital, Guwahati

Introduction: Infection with Vancomycin-resistant enterococci (VRE) have emerged as a leading cause of several infections with substantial morbidity and mortality. Linezolid, which belongs to oxazolidinone, is almost the last resort to treat vancomycin-resistant enterococci. However, the occurrence of linezolid-resistant strains shows an increasing trend.

Aims and objectives: To evaluate the occurrence of linezolid resistance among the vancomycin resistant E. faecalis and E. faecium.

Methods: From February to August 2019, a total of 22 vancomycin resistant enterococci (E. faecalis=11, E. faecium=11) were recovered from various clinical specimens. Their identification and speciation were done by Vitek-2 automated system. Antimicrobial susceptibility pattern was studied by Kirby-Bauer disc diffusion technique whereas minimum inhibitory concentration of antibiotics was determined by Vitek-2 automated system. Detection of VanA and VanB was done by PCR.

Results: Out of the total 22 isolates of VRE, 19 (86.36%) were VanA positive (E. faecalis=10, E. faecium=9) and 3 (13.64%) were VanB positive. Among the 19 VanA positive strains, 10 (52.63%) were resistant to linezolid (MIC ≥8, E. faecalis=5, E. faecium=5). All the 5 E. faecalis and 2 E. faecium strains were isolated from urine, whereas 3 E. faecium strains were isolated from blood of ICU patients. All these 5 E. faecium strains were resistant to high-level gentamicin and fluoroquinolones. Among 5E. faecalis strains, all were resistant to fluoroquinolones and 2 were resistant to high-level gentamicin. Among the 3 VanB positive isolates (E. faecalis=1, E. faecium=2), linezolid was resistant in 1 (33.33%) isolate (E. faecium) and high-level gentamicin along with fluoroquinolones were resistant in 2 isolates one each of E. faecalis and E. faecium.

Conclusion: The emergence of linezolid resistant enterococcus is a serious threat to the drying pipeline of new antibiotics. Judicious use of antibiotics, strict surveillance and containment are now the need of the hour.

URINARY TRACT INFECTION DUE TO AEROMONAS SPECIES: AN UNCOMMON CAUSATIVE AGENT

Srujana Mohanty1, Vinay Kumar Hallur1, Bijayini Behera1, Prasant Nayak2
Department of Microbiology 1 and Urology 2, AIIMS Bhubaneswar
**Introduction:** Members of the genus *Aeromonas* are Gram-negative bacilli, belonging to family *Aeromonadaceae*, and are widely found in various aquatic environments. The most common species associated with human infections are *A. hydrophila*, *A. caviae*, and *A. veronii* biovar sobria. *Aeromonas* species are recognized as emerging opportunistic pathogens in humans mainly causing gastrointestinal infections and wound infections with or without progression to sepsis. These organisms rarely cause urinary tract infection (UTI) and are not known uropathogens.

**Aims & Objectives:** To report a series of cases of UTI due to *Aeromonas* species with an aim to increase the clinical and microbiological vigilance required to promptly identify this uncommon uropathogen and to increase familiarity with the epidemiological features of *Aeromonas* bacteria as a uropathogen.

**Methods:** The available medical records/charts and microbiology requisition forms of the patients with culture-proven UTI due to *Aeromonas* species were reviewed for relevant clinical details and results of microbiological investigations.

**Results and Conclusion:** Total three cases of UTI due to *Aeromonas* species occurred in three adult patients, specifically identified as *A. veronii* biovar sobria in two patients and *A. hydrophila* in one patient. Two were male and one was a female patient. Two patients had history of occupational exposure to aquatic environment. All the patients were apparently immune-competent. Therapy consisted of oral levofloxacin, parenteral ceftriaxone, and oral trimethoprim-sulfamethoxazole. Repeat urine cultures after 15 days of therapy were sterile in two patients. The cases highlight another expanded range of infections caused by *Aeromonas* spp. that can be encountered in a community setting and indicate that infections with *Aeromonas* spp. should be kept in mind while investigating for the etiology of UTI, especially in adult patients with occupational exposure to aquatic ecosystems.

**MICP 104**

**UTILITY OF CHROMOGENIC MEDIUM IN CHARACTERIZATION OF ENTEROCOCCI IN URINARY TRACT INFECTION**

Dr. Betu Rama Soujanya, Dr. Banashankari G S.
M S Ramaiah Medical College and Hospital, Bangalore

**Introduction:** Enterococci from being intestinal commensals have evolved in becoming pathogens and are associated with significant morbidity and mortality.

**Aims & Objectives:** This study was done to speciate the Enterococci using the chromogenic media and to determine the antibiogram of the urine isolates.

**Methods:** The study included a total of 30 uropathogenic Enterococci isolated over a period of 6 months. Speciation was done using HiCrome Enterococcus faecium agar base. Antibiotic sensitivity was done by Kirby Bauer Disc Diffusion method as per CLSI guidelines.

**Results:** Amongst the 30 enterococci isolates, 17 were Enterococcus faecalis (E. faecalis) (56.66%) & 13 were Enterococcus faecium (E. faecium) (43.33 %). 100% of the E. faecium were sensitive to Linezolid, Vancomycin & Teicoplanin. Majority of the isolates showed resistance to Ampicillin, High level Gentamicin, Ciprofloxacin.

**Conclusion:** Most common isolated species were Enterococcus faecalis. The changing patterns of antibiotic sensitivity to Enterococci in patients with urinary tract infection possess a difficulty in selection of the antibiotics. Failure to synergistic therapy is seen in cases of resistance to High level Gentamicin. Therefore, speciation and antibiotic sensitivity pattern
will help in setting up an empirical therapy and thereby help in reduction of morbidity and mortality.

**PREVALENCE OF URINARY TRACT INFECTION AND ANTIBIOTIC SENSITIVITY PATTERN OF URINARY ISOLATES IN DIABETIC PATIENTS IN TERTIARY CARE HOSPITAL MAHARASHTRA**

Mohammed Sultan Husain, Mohammed Abbas Hussain, Dr. Ovhal R.S., Dr. Nilekar S.L.
SRTR GMC Ambajogai

**Introduction:** Diabetes is one of the top 10 causes of death in world due to its complications. Diabetes mellitus associated health problems are wide, may cause genitourinary complications due to impairment in immune system, poor metabolic control and incomplete bladder emptying. The emergence of multi-drug resistant uropathogens in diabetes validate the need of study.

**Method:** A cross sectional study was performed on diabetic patients regardless of whether symptomatic or not symptomatic of UTI; all the samples were inoculated on MacConkey agar, blood agar and nutrient agar. Antibiotic sensitivity testing was performed by Kirby-Bauer disc diffusion method.

**Results:** Prevalence of urinary tract infection in diabetics was 14.58%. Urinary tract infection was more common in females; and common organisms were *E. coli*, *Pseudomonas*, MRSAand*Klebsiella*. *E. coli* was sensitive to nitrofurantoin, norfloxacin, amikacin. *Pseudomonas* was sensitive to ceftazidime, meropenem and norfloxacin.

**Conclusion:** Gram-negative organisms are more common uropathogens with *E. coli* being one of the most common. Gram-negative bacilli showed good sensitivity to amikacin, norfloxacin, nitrofurantoin and gentamicin.

**URINARY TRACT INFECTIONS IN PEDIATRIC AGE GROUP AND ITS ANTIMICROBIAL SUSCEPTIBILITY PATTERN IN A TERTIARY CARE HOSPITAL**

Shobha K.L
Department of Microbiology, MMMC, MAHE, Manipal

**Introduction:** Urinary tract infection (UTI) is a common health problem during the childhood period and it is an important cause of morbidity and mortality.

**Aims and Objectives:** The study was designed to assess the common bacterial microorganisms causing UTI and their antimicrobial susceptibility patterns at a tertiary care hospital.

**Methods:** This is a cross sectional study conducted from March 2018 to July 2019. A total of 1532 non-repetitive urine specimens of pediatric patients (0–18 years in different age groups) suspected of UTI were obtained in the Microbiology laboratory. Culture media were blood agar and Mac Conkey’s agar for sample inoculation. Bacterial identification was done by
using MALDI-ToF mass spectrometry and antimicrobial susceptibility testing by VITEX 2 system (bioMerieux,Inc, Durham, NC)

Results: Among 1532 samples, 780(50.9%) were males and 752(49.1%) were females. Large number of samples were from the age group of less than one year 459 (30%) and in one to five years 458 (29.9%). 550 (35.9%) samples were positive for bacterial infection and 982 (64.1%) samples were sterile for bacterial growth (Pearson Chi-square test value 4.528, P<0.05). Highest number of urinary tract infection was seen in the age group of less than one year in both males and females 94 (38.84%) and 148 (49.33%). Escherichia coli 349 (63.45%) was the most common pathogen followed by Klebsiella pneumoniae 90 (16.36%). Multidrug resistant (MDR) isolates accounted for 4% (23) and 34.54% (190) were ESBL producers. Susceptibility to imipenem was 96% (527).

Conclusion: Since UTI varies with age and gender, an extensive evaluation is required for the age group of less than one year in both genders. Pediatric UTI cases with MDR strains and ESBL strains itself is alarming. Regular surveillance is required to determine the local prevalence of microorganisms and its antimicrobial susceptibilities for the proper management in children.

**MICP 146**

**MULTI-DRUG RESISTANT GRAM-NEGATIVE URINARY TRACT INFECTIONS AND PREVALANCE OF CARBAPENEM RESISTANCE IN A TERTIARY CARE CANCER CENTRE**

Dr Sanjay Biswas, Dr Vivek Bhat, Dr Rohini Kelkar  
Dept of Microbiology, Tata Memorial Centre, Mumbai, India

Introduction: Urinary tract infections (UTI) are one of the most common infections in both the community as well as in hospital settings. It is mostly caused by Gram-negative bacteria (GNBs). An increasing proportion of urinary tract infections (UTIs) are due to multidrug-resistant (MDR) pathogens for which there are limited treatment options. This results in prolonged hospital stay, marked increase in the cost as well as increase in morbidity and mortality.

Aims & Objectives: This retrospective study was undertaken to identify the pattern of infections, distribution of causative pathogens, antimicrobial susceptibility pattern and carbapenem resistance among the isolates.

Methods: A total of 12457 urine samples were received from 8444 patients between January 2017 and August 2019. All the samples were processed as per routine microbiological procedures and antimicrobial susceptibility testing was performed as per CLSI guidelines.

Results: Out of the total 12457 urine samples received, 2050 samples showed growth. *E. coli* was the commonest isolate followed by *Klebsiella pneumoniae, P. aeruginosa, Enterococcus spp, Acinetobacter spp*, and *S.aureus*. Colistin and Fosfomycin were the most susceptible antibiotics for gram-negative organisms followed by nitrofurantoin, amikacin, cefoperazone-sulbactam and piperacillin-tazobactam. For gram-positive pathogens, linezolid was the most susceptible antimicrobial followed by tetracyclin, vancomycin, and clindamycin. Carbapenem resistance was seen in 86.6% isolates.

Conclusion: The rapid and global spread of antimicrobial-resistant organisms in recent years is a global challenge. Early diagnosis and start of empirical therapy is the key to the success of a management strategy. In view of the high rates of MDROs, it is necessary to implement
strategies to control the spread of these organisms with good infection control practices and a robust antimicrobial stewardship programme.

MICP 173

Carbapenem resistant Gram-negative bacteria in urinary isolates at a tertiary care hospital in Delhi

Indira Kumari Verma, Sanjib Gogoi, Sonal Saxena, Ravinder Kaur
Department of Microbiology, LHMC, New Delhi

Introduction: Drug resistance among gram-negative pathogens is a risk factor for inappropriate empiric treatment. Infections caused by carbapenem resistance have limited treatment options and have been associated with high mortality rates. Carbapenem resistant Gram-negative bacteria such as Enterobacteriaceae (CRE) (including Escherichia coli [CREC] and Klebsiella pneumoniae [CRKP]), Pseudomonas aeruginosa (CRPA) and Acinetobacter baumannii (CRAB) are important emerging pathogens.

Aim: This was a retrospective study needed to determine antibiotic resistance patterns and appropriate empiric antibiotic selection for Carbapenem resistant Gram-negative bacteria (GNB) such as Enterobacteriaceae (CRE) (including Escherichia coli [CREC] and Klebsiella pneumoniae [CRKP]), Pseudomonas aeruginosa (CRPA) and Acinetobacter baumannii (CRAB) in urinary isolates.

Methods: The samples tested were clinical samples from in-patients and out-patients sent from March 2019 to August 2019 to the Department of Microbiology, Lady Hardinge Medical College. Semi-quantitative test using a standard calibrated loop of 10µl and counts of colony forming units calculated. Isolates were identified by conventional biochemical tests and AST was interpreted in accordance with Clinical and laboratory standards institute guidelines (M 100, 29th edition).

Results: Of 15,872 urine sample received, 5.6% showed significant growth of gram-negative urinary pathogen. Carbapenem resistance was seen in 49% of these gram-negative urinary isolates. The commonest carbapenem resistant organism was Escherichia coli (40%), followed by Klebsiella spp. (5.47%), Acinetobacter spp. (1.47%) and Pseudomonas spp. (1.26%). It was seen that there was highest resistance in imipenem (89%), followed by ertapenem (56.8%) and meropenem (28.4%).

Conclusion: The study shows significant level of Carbapenem resistance in urinary isolates. Emergence of Carbapenem-resistant Enterobacteriaceae (CRE) highlights the importance of appropriate empiric antibiotics selection needed to maintain the safe usage in long term to help in reducing morbidity and mortality.

MICP 343

A STUDY OF ANTIMICROBIAL SUBSTANCE(AMS) IN URINE, IN PATIENTS ATTENDING OUTPATIENT DEPARTMENT IN A TERTIARY CARE HOSPITAL

Arundhuti Paul, Shripad Taklikar, Sujata Baveja
Department of Microbiology, Lokmaniya Tilak Municipal Medical College, Sion, Mumbai
Introduction: Urinary tract infection (UTI) is a major public health problem affecting bulk of out-patient attendees. High prevalence rate, recurrence rates and increasing antimicrobial resistance are emerging problems. Over the counter availability of antibiotics, insufficient doses, reduced compliance and the poor quality of drug supply complicates UTI diagnosis. This leads to the presence of antibiotics in urine specimens submitted for culture. Poor sensitivity of urine cultures enforces the need to take proper history hence avoiding sending such samples for culture to the microbiology laboratory.

Aims and Objectives:
- Study the presence Antimicrobial substances (AMS) in urine, prior to Urine culture and perform the quality audit.
- Correlate presence of AMS in urine with culture outcome and study antibiotic susceptibility pattern.

Materials and Method: A prospective study was conducted over a period of 1 year and 6 months on three hundred symptomatic outpatients and their detailed history was recorded. Midstream urine samples were subjected to routine microscopy and microbiological assay for the presence of AMS. Identification and Susceptibility was performed as per CLSI guidelines. Correlation between AMS in urine and corresponding culture outcome were analysed.

Results: The presence of AMS in urine among symptomatic O.P.D patients of suspected UTI was found to be 23%.
44.9% of AMS cases had No growth and 15.9% insignificant Growth 11.6% showed E Coli, 5.8% Mixed organism and 15.9% coagulase negative staphylococcus. 40.8% of the cases of reported AMS gave a positive history of antibiotic consumption. AMS compromised the recovery of uropathogens, producing a possible false negative result. Thus, prior unreported antibiotic consumption affected culture results.

Conclusion: Adequate history improves sensitivity of urine cultures and helps in analyzing the effects of AMS on culture results thus reducing the duration of treatment.

BACTERIOLOGICAL PROFILE OF ASYMPTOMATIC BACTERIURIA IN ANTENATAL WOMEN ATTENDING TERTIARY CARE HOSPITAL, WESTERN ODISHA

Mohapatra S, Jena S, Sahu S, Sahu S.K
VIMSAR, Burla

Introduction: Urinary tract infections (UTIs) are one of the most common medical complications of Pregnancy. Asymptomatic bacteriuria is common in women with prevalence of 4-7% in pregnancy. Failure to detect during antenatal period causes increase risk to mother and fetus.

Aim: To study the bacteriological profile and antibiotic sensitivity pattern of UTI pathogens in antenatal women attending tertiary care hospital.

Methods: A total of 230 antenatal women who had no clinical features of urinary tract infection were recruited for this study from May 2019 to October 2019. Clean catch mid-
A STUDY ON FLUOROQUINOLONES RESISTANCE AMONG BACTERIAL ISOLATES OF URINARY TRACT INFECTION AT A TERTIARY CARE HOSPITAL

Dr. T. Divya, Dr. Pushpalatha.H, Dr. Mariraj.J
Vijayanagara Institute of Medical Sciences(Vims), Ballari

Introduction: Urinary tract infection is one of the most common and painful human illness. Its also a most common nosocomial infection worldwide contributing to increase in the duration and cost of hospitalization. Antimicrobial resistance among uropathogens of UTI is a global menace, varies from region to region and impacts an approach to empirical treatment.

Objective: The study aims to detect the resistance pattern of fluoroquinolones in UTI’s.

Methods: The present study was conducted in a bacteriology laboratory of VIMS, Ballari, Karnataka, India, a tertiary health care center from June 2018 to June 2019. A retrospective analysis of data taken from 100 midstream urine samples, suspected of UTI was analyzed. A total of 135 isolates were identified by standard laboratory procedures for which fluoroquinolones susceptibility was analyzed by performing antibiotic sensitivity testing by Kirby – Bauer’s disc diffusion method as per clinical and laboratory standards institute guidelines.

Results: Citrobacter Koseri(24.44%) was the leading uropathogen followed by klebsiella oxytoca(16.29%), Escherichia coli(15.55%), Klebsiella pneumoniae(10.37%), Staphylococcus aureus(8.14%), Pseudomonas aeruginosa(7.40%), Enterobacter(5.92%), Enterococcus species(4.44%), Streptococcus species(3.70%), Acinetobacter(2.22%), Proteus mirabilis(1.48%). Overall resistance to ciprofloxacin(80.74%), norfloxacin(77.77%), ofloxacin (74.81%), sparfloraxin(78.51%), when compared to levofloxacin(49.6%) was higher.

Conclusion: The isolates showed higher sensitivity to levofloxacin compared to other fluoroquinolones. Rational prescribing and use of these fluoroquinolones following local susceptibility data is thus recommended.
Introduction: Preterm labour is one of the foremost reasons of neonatal morbidity and mortality. Evidence suggests that infection plays a role in pathogenesis of preterm labor and delivery. These genito urinary infection is associated with preterm labor.

Aims and objective: To determine the Prevalence association between urine infection and preterm labour.

1) To compare the urine infection in preterm and term pregnancy
2) To determine the antibiotic sensitivity of isolated organisms.

Methods: Total 102 pregnant population were included in this cross-section study. They were categorized into preterm and term pregnancy groups. Urine samples from both groups were processed by routine procedures in the laboratory (Urine wet mount and Culture) and isolated organisms were tested for antibiotic sensitivity.

Results: Out of 102 pregnant population, 51 (50%) were preterm and 51(50%) were term labour patients. In urine culture test for micro-organism, organism growth was present in 26 (84%) preterm labour patients while only 5 (16%) cases in full term labour patients. Twenty-four patients (32%) showed negative in pre term labour for urine culture while 46(68%) in full term labour patients. This study shows significantly higher prevalence of urine infection in preterm labour patients (p value < 0.05) and is strongly associated with preterm labour (Odd’s ratio = 11.07). Among 26 preterm labour culture positive patients, 24 patients had bacterial and 2 had fungal growth. E. coli was the most common organism isolated. E. coli had maximum sensitivity to nitrofurantoin.

Conclusion: Urine infection is significantly associated with preterm labour patients and E. coli is the most common organism isolated. The comparative study of urine infection in preterm and term pregnancy showed increase in the prevalence among preterm labour patients.
Methods: In this retrospective study conducted in a tertiary care center in North India, data from 1st January 2018 till 31st December 2018 were obtained where samples received for culture were processed following standard operative procedures.

Results: A total of 6445 cultures were received from children <= 12 years of age for the study period of one year with males being more affected. There were 1101 unique isolates for which majority were gram-negatives. Overall male predominance was seen having UTI (n=756;69%). A total of 26 different organisms were isolated with the commonest being *E. coli* (n=603; 55%) followed by *Klebsiella pneumoniae* (n=159;14%), *Pseudomonas aeruginosa* (n=62;6%), *Enterococcus faecium* (n=31;3%), *Proteus mirabilis* (n=43,4%), *Morganella morganii* (n=32,3%), *Enterococcus faecalis* (n=31,3%). Among *Enterobacteriaceae* and all gram-negative group of organisms, the most sensitive drugs are Nitrofurantoin and Amikacin from the first line drugs while Fosfomycin and Colistin from the second line. Among all *Enterococcus* species, Nitrofurantoin and Vancomycin showed good sensitivity even though the rate of Vancomycin Resistant *Enterococci* (VRE) was 22%.

Conclusions: Hence, we conclude that in our center, there were more males with UTI and Nitrofurantoin shows good sensitivity for both gram-negative and gram-positive organism. Colistin, Fosfomycin and Linezolid are to be used for treatment as and when all other drugs are resistant.

MICP 54

CURRENT CEFTRIAXONE AND CEFIXIME MIC TREND OF SALMONELLA TYPHI AND PARATYPHI BLOOD ISOLATES OF PAEDIATRIC ENTERIC FEVER PATIENTS

Dr. P. Sulochana Putli Bai1, Ms. Surekha Surendranathan2, Ms. Akshaya Vanamalidaran2
1 - Kanchi Kamakoti CHILDs Trust Hospital, Chennai; 2 - CHILDs Trust Medical Research Foundation, Chennai

Introduction: Enteric fever caused by *Salmonella typhi* and *paratyphi* is endemic in India. Ceftriaxone and cefixime is commonly used to treat enteric fever, but resistance to these antibiotics is emerging. This study was undertaken to determine the current trend of ceftriaxone and cefixime MIC of *Salmonella typhi* and *paratyphi* isolated from blood of pediatric enteric fever patients.

Aims & Objectives: To determine the current Ceftriaxone & Cefixime MIC of *Salmonella typhi* and *paratyphi* isolated from blood of pediatric enteric fever patients and to compare it with the ceftriaxone and cefixime MIC of *Salmonella typhi* and *paratyphi* isolated from blood of pediatric enteric fever patients in 2014 &2015.

Method: *Salmonella typhi* and *paratyphi* isolated from blood of pediatric patients with enteric fever at KKCTH from Dec 2017 to Apr 2019, were tested for ceftriaxone and cefixime MIC through E- test. These values were compared with ceftriaxone and cefixime MIC of *Salmonella typhi* and *paratyphi* isolated from blood in 2014 -2015 to determine the trend.

Results: 100 *Salmonella* (80 *S. typhi*, 19 *S. paratyphi A and 1 *S. paratyphi B) isolates were included in this study. Around 80 % of Salmonella isolates had Ceftriaxone MIC of 0.19 - 0.38, and 85% of isolates had Cefixime MIC of 0.38 – 0.75. When it was compared with the 2014-15 blood isolates MIC data (97 % of Salmonella isolates had Ceftriaxone MIC of 0.125 - 0.19, and 91% of isolates had Cefixime MIC of 0.25 – 0.5) an increase in MIC was observed.


**Conclusion:** Our study observed an increasing trend in the Ceftriaxone and Cefixime MIC of S. typhi and S. paratyphi, when the MIC of 2017-19 Salmonella blood isolates was compared with MIC of 2014 -2015 Salmonella blood isolates. This increasing trend may lead to the emergence of Cephalosporins resistance in S. typhi & S. paratyphi.

**MICP 184**

**EPIDEMIOLOGICAL PROFILE AND ANTIMICROBIAL RESISTANCE PATTERN OF ENTERIC FEVER IN A TERTIARY CARE HOSPITAL OF NAVI MUMBAI – A 4 YEAR RETROSPECTIVE STUDY**

Dr Shalini Yadav, Dr Badrunnesa Khatun, Dr Kalyani Sen, Dr Nitin Kadam
Microbiology Department, MGM New Bombay Hospital, Vashi, Navi Mumbai

**Introduction:** Enteric fever is an endemic disease in developing country like India & caused by Salmonella Typhi & Salmonella Paratyphi. It causes 720 million infections globally, resulting into 700000 deaths annually. Though sporadic cases occur throughout the year, epidemics break out occurs whenever there is a break-down insanitary practices particularly in mansoon season June to September. After observing resistance against amoxicillin, trimethoprim-sulfamethoxazole and chloramphenicol, in 1980 fluoroquinolones (FOs) were introduced for treatment. Later ciprofloxacin & nalidixic acid also became resistant in vitro. Now extended spectrum cephalosporin & macrolide azithromycin is used for treatment.

**Aims & Objectives:** The aim of this study was to determine the prevalence of Salmonella Typhi & Paratyphi infection in various age group & gender and trends in the antimicrobial resistance of Salmonella Typhi & Paratyphi A in tertiary care hospital in Navi Mumbai.

**Methods:** This retrospective study was conducted on 176 blood-culture isolates of S. Typhi, S. Paratyphi A obtained from 8089 blood cultures received at a 183 bedded tertiary-care hospital in Navi Mumbai from 2016– June 2019. Identification is done by serotyping and antibiograms were obtained by Vitek-2 compact and Kirby-Bauer’s disc diffusion method.

**Results:** S. Typhi and S. Paratyphi A in a ratio of 2.3:1 were seen predominantly between 16–45 year age group. Males have higher rate of infection for both Salmonella Typhi (58.59%) & Paratyphi A (54.16%). In this study most of Salmonella Typhi & Paratyphi A are either resistant or intermediate towards ciprofloxacin. 10.15% Salmonella Typhi and 4.16% Salmonella Paratyphi A are sensitive to ciprofloxacin. All the strains are sensitive to other Antibiotics except 3.12% Salmonella Typhi & 6.25% Salmonella Paratyphi A are resistant to ampicillin.

**Conclusion:** Enteric fever is a major public health problem in India. But the Salmonella strains isolated in Navi Mumbai are sensitive to most of the Antibiotics except ciprofloxacin & ampicillin. The prevalence of infection is more in males in the age group 16-45 as this group is mostly working group having outside food and hand hygiene facilities are still not upto standard in our set up.

**MICP 271**

**MINIMUM INHIBITORY CONCENTRATION OF CETRIAXONE AND AZITHROMYCIN FOR NALIDIXIC ACID RESISTANT ISOLATES OF SALMONELLA ENTERICA (NARS) CAUSING ENTERIC FEVER**

182
Introduction: Enteric fever caused by *Salmonella enterica serovars* continues to be a major public health problem in India. After the emergence of Nalidixic acid resistant Salmonella (NARS), ceftriaxone and azithromycin have become the drugs of choice for treating enteric fever. Recent reports of emergence of resistance to these drugs from India have made the treatment of enteric fever furthermore challenging. Knowing MICs of these antimicrobials would therefore help in optimizing their use when combined with their PK-PD properties.

Aims and Objectives: To evaluate the Minimum Inhibitory Concentration (MIC) of ceftriaxone and azithromycin for blood culture isolates of NARS using the manual Broth Microdilution (BMD) method.

Methods: This is a retrospective study of blood culture isolates of NARS from 2016 to 2018. BMD for ceftriaxone and azithromycin was performed in accordance with CLSI guidelines. *Escherichia coli* ATCC25922 and *Klebsiella pneumoniae* ATCC700603 were used as quality control strains.

Results: Of 155 blood culture isolates of NARS: *S. Typhi* (n=112) and *S. Paratyphi A* (n=43) were included in the study. 81.9% (127/155) isolates were susceptible, 6.4% (10/155) isolates were intermediate while 11.6% (18/155) isolates were resistant to ceftriaxone. NARS showed 100% susceptibility to azithromycin. For ceftriaxone, MIC50 & MIC90 was 0.125 μg/ml and 2 μg/ml whereas for azithromycin, MIC50 & MIC90 was 1 μg/ml respectively.

Conclusion: This study documents an alarming increase in resistance to ceftriaxone among NARS while azithromycin continues to be 100% susceptible in vitro. The above finding mandates MIC reporting of ceftriaxone to allow dose modification based on PK-PD properties to optimize treatment.

Key words: NARS, MIC, Ceftriaxone, Azithromycin
A STUDY TO DETERMINE THE PREVALENCE OF ENTERIC FEVER IN ASSOCIATION WITH SEASONAL DYNAMICS

Dr. Shalini Kanaparti (II\textsuperscript{nd} yr PG); Dr. Prasanthi Kolli, Asso. Prof; Dr. I. Jahnavi Prof & Head, Dept. of Microbiology, Guntur Medical College, Guntur

Introduction: Enteric fever is a febrile illness caused by Salmonella enterica serovar Typhi and Paratyphi A, B and C. Major risk factors for disease transmission are contaminated food and water. In several Asian and African countries, enteric fever tends to follow a seasonal pattern, with a regular recurrence of peak incidence around the same time each year. The monsoon season presents greater opportunity for water-borne diseases to spread.

Aims and Objectives: To study the prevalence of enteric fever and its correlation with seasonal changes.

Methods: Patients with suspected enteric fever who were found positive by Widal test from January 2016 to September 2019 were included in the study. The positivity criteria of \(\geq 160\) titres for H antigen of Salmonella Typhi and Paratyphi A and B was considered. The information of seasonal categorisation was obtained from Indian Meteorological Department.

Results: Patients with suspected enteric fever were 15\% in 2016 and also in 2017, 23\% both in 2018 and 2019. Out of these, widal positives were 16\% in 2016, 15\% in 2017, 7\% in both 2018 and 2019. More number of enteric fever positives (32\%) were observed during April in 2016, during May in 2017(24\%), (17\%) during May and July in 2018 and (13\%) during July, August in 2019, showing higher preponderance in Pre-monsoon and Monsoon seasons.

Conclusion: Seasonal pattern in distribution of seropositive enteric fever was noted in this study, with maximum cases during Pre-Monsoon and Monsoon seasons. Studies from various parts of the country have reported increased cases of enteric fever during these periods of the year corresponding to increased contamination of water. This kind of information could lead to a better understanding of the local mechanisms that drive the seasonality and transmission of enteric fever, which could aid in improving surveillance and control efforts.

MICP 392

DRUG RESISTANCE IN SHIGELLA AND PRODUCTION OF EXTENDED SPECTRUM BETA LACTAMASES – A MATTER OF CONCERN

Gulati N, Singh M, Kumar MB, Gupta V, Chander J
Government Medical College Hospital, Chandigarh

Introduction: Shigella dysentery is a global human health problem including India. Among four species of Shigella, S. flexneri is the most common species, S. sonnei and non-agglutinable shigellae seem to be steadily surfacing. However, S. dysenteriae has temporarily disappeared from the northern and eastern regions. The concern is about the emergence of antibiotic-resistant strains of Shigella species that have emerged all over the world, especially third generation cephalosporins which is due to production of extended spectrum beta lactamases (ESBLs). The increase in resistance has also been noticed in fluoroquinolones and azithromycin.

Aims & Objectives: In this study, we determined the antibiotic resistance pattern and ESBL production by Shigella isolates.

MICP 392 CB-P77
Methods: In the present study, *Shigella* spp. were isolated from diarrheal patients and identified by conventional biochemical tests. Speciation was done using commercially available polyvalent antiserum. The antibiotic susceptibility profile was also determined by disk diffusion test method. The double disc synergy test (DDST) was performed for detecting ESBLs.

Results and Conclusion: Fifteen *Shigella* spp. were isolated from stool samples in a period of ten months. *Shigella flexneri* was the predominant species isolated (80.0%) followed by *Shigella sonnei* (20.0%). No isolate was susceptible to ciprofloxacin. The second highest resistance percentage was related to tetracycline (80%) and co-trimoxazole (73.4%) followed by ampicillin and chloramphenicol (66.6%), furazolidone (60%). 33.3% of isolates were resistant to ceftriaxone, cefixime and mecillinam and 6.7% to azithromycin. Four (26.6%) of the isolates were positive for ESBLs. Continuous monitoring of the susceptibility patterns of *Shigella* spp. is important to notice the emergence of drug resistance as also for deciding periodically the appropriate antimicrobial therapy for Shigellosis. The emergence of ESBL production is also to be monitored as it could also become a serious threat to public health.

**MICP 51**

**INCIDENCE OF GROUP B STREPTOCOCCAL COLONIZATION AMONG PREGNANT WOMEN AND THEIR PREGNANCY OUTCOMES IN A TERTIARY CARE HOSPITAL IN PONDICHERRY**

Sheela Devi C, Sangeetha A V, Mary Daniel*, Reba Kanungo
Department of Microbiology and Obstetrics and Gynecology*, Pondicherry Institute of Medical Sciences, Puducherry

Introduction: Infections by Group B Streptococci (GBS) are increasingly gaining importance as a cause of perinatal morbidity, both in the mother and the newborn. The rate of GBS colonization in the vagina and/or rectum among pregnant women varies with ethnic group, geographic area and age.

Objectives: To estimate the incidence of GBS colonization among pregnant women attending the antenatal clinic of a tertiary care hospital and document their pregnancy outcomes.

Methods: Pregnant women in their third trimester, who attended the antenatal clinic of the Obstetrics Department, were screened for GBS colonisation. High vaginal swabs were collected from the subjects and processed in the Microbiology laboratory by standard procedures. GBS were identified by standard tests. Antibiotic susceptibility tests were performed according to the CLSI 2018 standards.

Results: A total of 1280 antenatal women were screened for GBS colonization from January 2018 to June 2019. The organism was isolated from 49 antenatal women giving a rate of 3.8% vaginal colonization. Among these, 46 women had an institutional delivery at the study site of whom 23 had normal vaginal delivery, 16 had LSCS while the remaining 7 had assisted vaginal delivery. Premature rupture of membranes (PROM) was observed in 17 cases. Among the 23 who had normal vaginal delivery, 8 presented with PROM and 2 had low birth weight babies. Among those who had LSCS, 9 presented with PROM while 2 had low birth weight babies. The immediate neonatal outcome was good in 39 neonates while 7 babies were kept in neonatal ICU for tachypnoea and low birth weight. Antibiotic susceptibility pattern of the GBS revealed inducible clindamycin resistance in 7.6% of the isolates.
Conclusion: Although GBS colonization in the present study was low, there appeared to be some association with low birth weight and PROM.

ANTIBIOGRAM OF KLEBSIELLA PNEUMONIAE STRAINS ISOLATED FROM URINARY SAMPLES OF ADULT PATIENTS WITH UTI COMING TO RIMS RANCHI FROM JANUARY 2019 TO AUGUST 2019

BhuvanShome, Manoj Kumar, Ashok Kumar Sharma, Amber Prasad
RIMS, Ranchi

Introduction: Klebsiella is gram-negative bacilli, immobile and produces a prominent polysaccharide capsule. Klebsiella pneumoniae is one of the important causes of urinary tract infection. Resistant strains of Klebsiella pneumoniae, especially to several antibiotics of different drug classes have become very prevalent.

Aims and Objectives: Evaluate the pattern of susceptibility and resistance of Klebsiella pneumoniae to some antibiotics isolated from patients of urinary tract infection.

Methods: In this cross-sectional study, we collected 2343 samples of urine for culture and sensitivity in Department of Microbiology, RIMS, from 1st January, 2019 to 31st August 2019, out of which 232 samples were found to have Klebsiella pneumoniae isolates. Initially we selected theses strains using standard laboratory and microbiology methods, and for antibiotic sensitivity and resistance pattern study was performed by Kirby-Bauer disk diffusion method and results were interpreted as per CLSI guidelines 2019.

Results: The highest degree of resistance of Klebsiella pneumonia isolates were respectively to gentamycin (32.83%) and tetracycline (27.78%). Antibiotic with highest susceptibility was cefoperazone with sulbactam- 98.9%, imipenem- 98.6%.

Conclusion: Considering the high prevalence of resistance to antibiotics, early and timely detection of resistant strains seems necessary to select appropriate treatment options and to prevent the spread the resistance. As compared with a study done on similar topic by SevaLeisyAzae and Amir Reza Ebadi in 2015 suggested similar susceptibility to imipenem of around 99% but also showed susceptibility to amikacin around 98% which was not found corresponding in our study.

PREVALENCE AND ANTIMICROBIAL RESISTANCE PATTERN OF KLEBSIELLA SPECIES ISOLATED IN A TERTIARY CARE HOSPITAL IN KOLKATA

Dr. Sampa Sadhukhan¹, Dr. Somnath Bhunia², Dr. Soma Sarkar³, Prof. Chitrita Chattopadhay⁴.
NRS Medical College & Hospital

Introduction: Emergence of MDR Klebsiella species in the hospital is of great concern worldwide. It is one of the major causes of treatment failure that leads to increased morbidity, mortality, length of stay in hospital as well as health care expenditure. The acquisition of antimicrobial resistance by extended-spectrum betalactamases (ESBLs) and carbapenemase (MBL, KPC etc) is rapidly increasing.
**Aim & objectives:** The aim of this study is to observe the prevalence and antimicrobial resistance pattern of *Klebsiella species*.

**Methods:** Over a period of 6 months (1st December 2018 to 31st May 2019) different types of samples from various wards were processed. Species were identified conventionally as per standard laboratory protocol and antimicrobial susceptibility testing was done according to CLSI guideline.

**Results:** A total number of 7521 samples were processed. Among them 487 *Klebsiella* were isolated from which 236 were from pus samples (48%), 106 were from respiratory samples (21.76%), 86 were from urine (17.65%) and 59 were isolated from blood samples (12.11%) of total *Klebsiella* isolates. Among these isolates, resistance to ampicillin, amoxiclav, ceftriaxone, gentamicin, imipenem, meropenem and colistin were 85.03%, 70.71%, 72.96%, 58.79%, 31.23%, 53.01% and 5% respectively. It was found that 63% of *Klebsiella* species isolated from pus, 30% from respiratory samples, 14% from urine samples and 23% from blood samples were ESBL producers.

**Conclusion:** Infection with ESBL producing *Klebsiella* species is increasing in our hospital. Active surveillance for ESBL producing pathogens on regular interval and adherence with the infection control policy should be done to control the spread of infection.

**MICP 395**

**PREVALENCE OF HYPERMUCOVISCOUS RESISTANT STRAINS OF KLEBSIELLA PNEUMONIAE (hvKP) AMONG CRITICALLY ILL PATIENTS AT TERTIARY CARE HOSPITAL IN HYDERABAD**

Hagera Gulam Ahmed 1, Sandeep Kumar Tipparthi 1, Raj Kumar HRV 1, Ravi Shankar Reddy A 1, Lakshmi Venuti* 1

1 Department of Microbiology, Kamineni Academy of Medical Sciences and Research Centre, LB Nagar, Hyderabad

**Introduction:** Hypervirulent *K. pneumoniae* (hvKP), and their main feature is the ability to cause severe infection in young and immunocompetent hosts. This hvKP was first described by Fang et al in patients with primary liver abscess and septic metastatic complications. They identified a virulence gene, magA in these isolates. The clinical spectrum includes liver abscess, pneumonia, meningitis and endophthalmitis and the ability to metastatically spread, an unusual feature for enteric Gram-negative bacilli in the immunocompetent hosts. hvKP strains are becoming multidrug resistant via acquisition of mobile elements carrying resistance determinants. These strains are associated with a significant mortality rate (3 to 42%). The aim of this study is to describe the phenotypic and genotypic characteristics of hvKP isolates from immunocompetent host with unusual infections at our hospital.

**Methods:** The study is a prospective study from the Department of Microbiology, Kamineni Academy of Medical Sciences and Research centre, Telangana state, for a period of 8 months (Jan 2019 to August 2019). In 50 clinical hvKP isolates which are hypermucoviscous on chrome agar plate were included and phenotypic characterization, Antimicrobial susceptibility testing were performed by VITEK2 system. The genotypic characterization for detection of ESBL genes ACC, SHV-1, TEM-1, CMY, CTX was done, Carbapenamase genes which are OXA48, KPC, VIM, NDM, IPM, OXA23 were carried out by multiplex PCR according to published protocol.

**Results:** Of the 50 hvKP isolates, 7 (14%) were susceptible to carbapenems and were genotypically negative to the resistant genes. The remaining 43 (86%) isolates had high level
resistance to cephalosporins and carbapenems. Genotypic analysis showed that 16(37%) isolates carried ESBL genes only while 7(16.2%) carried resistance genes for carbapenems. The remaining 20(46.5%) isolates were positive for both ESBL and carbapenemase genes. The genotypic resistance correlated with the vitek2 results. Mortality among the patients infected with hvKP was 14%.

**Conclusion:** A high prevalence of drug resistance among hvKP was documented. Early recognition of such highly virulent pathogens along with antibiotic stewardship and good infection control practices will help reduce mortality.

**MICP 411**

**IN-VITRO COMBINATION TESTING FOR MULTIDRUG AND EXTENSIVELY DRUG RESISTANT KLEBSIELLA PNEUMONIAE FROM BACTERAEMIA**

Chaitra Shankar, Baby Abirami Shankar, Kalaiaarasi Arumugam, Lavanya Natarajan, Shalini Anandan, Balaji Veeraraghavan
Department of Clinical Microbiology, Christian Medical College, Vellore

**Introduction:** Resistance to antimicrobials is the chief problem in tackling *Klebsiella pneumoniae* infections. Carbapenem resistant *K. pneumoniae* (CRKp) is on the rise globally, hence effective combination therapies are necessary for treatment. There is lack of *in-vitro* data on effective combinations for NDM and OXA48-like producing CRKp.

**Aim and objectives:** We aim to evaluate the *in-vitro* efficacy of combinations: meropenem-minocycline, meropenem-tigecycline, tigecycline-colistin and ceftazidime/avibactam-aztreonam against CRKp using checkerboard and time kill assays (TKA). Association of carbapenemases with the effectiveness of combinations being tested were also assessed.

**Methods:** A total of 94 non-duplicate bacteremic CRKp from 2013 to 2016 were included. Minimum inhibitory concentration (MIC) was determined by broth-micro dilution method (BMD) for meropenem, minocycline, tigecycline, colistin, ceftazidime/avibactam and aztreonam. Checkerboard assay (CB) and TKA was performed to determine synergy and bactericidal effect. Carbapenemases were determined by multiplex PCR.

**Results:** Among 94 CRKp, 68% (n=64), 26% (n=13) and 38% (n=19) each were resistant to minocycline, tigecycline and colistin respectively. MIC₅₀ and MIC₉₀ of meropenem were 64µg/ml and 256µg/ml respectively. OXA48-like was predominant in 49 (52%) followed by NDM in 22 (23%) and co-production of NDM/OXA48-like in 18 (20%). By CB assay, tigecycline-colistin had higher synergy of 38% than other combinations. Among 18 isolates tested by TKA for tigecycline-colistin, 10 (56%) showed synergy and 16 (89%) had bactericidal effects. For ceftazidime/avibactam-aztreonam (n=12), all showed synergy by CB assay irrespective of the carbapenemase profile. For colistin resistant Kp (n=17), 80% synergy and 41% bactericidal effect was seen for tigecycline-colistin.

**Conclusion:** The best combination though includes tigecycline and colistin as seen; they are reserved drugs which need to be judiciously used. Combination testing varies with each isolate and results can be different for isolates with similar meropenem MIC and carbapenemase profile. Ceftazidime/avibactam and aztreonam combination is promising.

**MICP 130**

**CB-P83**
INTRODUCTION: Diarrheal disease remains one of the leading causes of preventable deaths in developing countries, especially among children, of which Diarrheagenic *Escherichia coli* (DEC) are one of the most important bacteriological cause. Development of multidrug resistance have also been reported in all pathotypes of *E. coli* isolated from children with diarrhoea. Taking these points into consideration, there is a need for a rapid, sensitive, and inexpensive detection technique to determine not only the prevalence of DEC but also to study the antibiotic resistance patterns among the DEC strains.

Aims and Objectives: To study the antibiotic resistance pattern of Diarrheagenic *Escherichia coli* (DEC) amongst the paediatric age group (<18 years) with and without diarrhoea.

Methods: A prospective study was conducted in the Department of Microbiology of a tertiary care centre over a period of one year (January to December, 2015). Stool samples were collected from paediatric patients (<18 years) with and without diarrhoea and were subjected to Multiplex real-time PCR for detection of specific virulent genes of DEC pathotypes. The antibiotic resistance pattern was then determined using AST-N280 card in VITEK 2 identification System. The AST and Minimum Inhibitory Concentration were evaluated and interpreted in accordance to Clinical and Laboratory Standards Institute 2015 guidelines (CLSI-2015).

Results: The antibiogram of all isolated 42 diarrheagenic *E. coli* strains was determined against 18 different members of antibiotics. Among the total DEC isolated, 94.74% were resistant to trimethoprim-sulfamethoxazole and nalidixic acid, 84.21% to ampicillin, 42.11% to amoxicillin-clavulanic acid, 15.79% to gentamicin, 68.42% to ciprofloxacin, 52.63% to ceftriaxone and 15.79% to piperacillin-tazobactum.

Conclusion: Diarrheagenic *Escherichia coli* (DEC) strains are among the important causative bacterial agents of diarrhoea among children in developing countries like India. This study has highlighted the importance of emerging antibiotic resistance among the DEC pathotypes.
recent times, the resurgence of diphtheria is being reported in India despite the widespread immunization. Here we present a case report from Tirunelveli Medical College Hospital, Tirunelveli.

**Case report:** A 9 year old male child, native of Sankarankovil, Tirunelveli district was admitted with history of fever, sore throat, breathlessness and dysphagia for 4 days in Paediatric Intensive Care Unit (PICU), Tirunelveli Medical College Hospital, Tirunelveli. Immunization was complete and up-to-date. On examination, thick grayish pseudo membrane covering the tonsils was observed. Throat swabs and bits of membrane were sent to Department of Microbiology upon the clinical suspicion of diphtheria. On receipt of the sample, preliminary tests i.e direct Gram’s staining and Albert’s staining were done. The specimen was inoculated into Loeffler’s Serum Slope, Potassium tellurite agar and Blood agar plate and *Corynebacterium diphtheriae* was isolated. The culture was sent to Christian Medical College (CMC), Vellore for confirmation and toxigenicity testing by PCR. The isolate was positive for the tox gene. Meanwhile the child was treated with antibiotics and received Diphtheria antitoxin. Child recovered over a period of 3 weeks.

**MICP 203**

**ISOLATION OF Corynebacterium diphtheriae FROM SUSPECTED CLINICAL CASES OF DIPHTHERIA**

Dr Shruthi Rao, Dr Ambica R, Dr Shwetha J V
Microbiology laboratory, Victoria Hospital, BMCRI, Bangalore

**Introduction:** *Corynebacterium diphtheriae* is Gram-positive bacillus. Pathogenic strains result in severe localized upper respiratory infection, localized cutaneous infection and rarely systemic infection. Despite success of mass immunization in India diphtheria continues to play a major role as a potentially lethal resurgent infection. Early, accurate diagnosis is imperative since delay in specific therapy may result in death.

**Aims and Objective:** To isolate and identify *Corynebacterium diphtheriae* from throat swabs of patients clinically suspected of diphtheria.

**Methods:** Study design- Prospective study
Study period – 1 year
Place of study – Microbiology laboratory, Victoria Hospital, BMCRI
Sample size – 319

Throat swabs of suspected diphtheria patients were received from various districts of Karnataka in Amies transport media with charcoal and cold chain. Following media were inoculated- Loffler’s serum slope, potassium tellurite agar and Blood agar. Direct smear was prepared for Gram stain and Albert’s stain. After 4 hours subculture from Loeffler’s serum slope was done on a fresh potassium tellurite agar. Also smear was prepared from Loffler’s serum slope for Gram stain and Albert’s stain. After 48 hours of incubation if there was any growth, a smear was prepared and was put on Tinsdale agar and biochemical reactions such as catalase test, sugar fermentation, nitrate reduction test and urease test was performed.

**Results:** 319 Samples were received from 25 districts of Karnataka. For most of the samples the transit time from time of collection to time of receiving the sample in the laboratory was more than 48 hours. Out of 319 samples 17 were culture positive for *Corynebacterium diphtheriae*.

**Conclusion:** Diphtheria is re-emerging infection. Increased surveillance, decrease in transit time and molecular methods will probably increase the isolation of organism.
MICROBIOLOGICAL PROFILE OF EXTERNAL OCULAR INFECTION IN A TERTIARY CARE HOSPITAL IN SOUTHERN ODISHA

Dr. Maitreyi, T., Dr. Paty B.P., Dr. Padhi S., Dr. Sahu S., Dr. Narasinham M.V., Dr. Mohanty I., Dr. Parida. B.
MKCG Medical College and Hospital, Berhampur

Aim: To isolate and identify microorganisms causing external ocular infections and determine their antibiotic sensitivity.

Methods: A Prospective study was carried out among 130 patients having External ocular infection includes (Conjunctivitis, Dacrocystitis, Keratitis, Episcleritis, Lacrimal Abscess and Orbital Cellulitis) attending Ophthalmology OPD from November 2017 to July 2019. Specimens were collected using sterile swabs and inoculated on MCA, BA and SDA. In Dacrocystitis anaerobic culture was also done using Gaspak (HI media). Isolates were identified according to standard protocols. Antimicrobial susceptibility was done by disk diffusion method. MRSA detection done by using cefoxitin (30 micrograms) disc and ESBL by Double disk diffusion method using cefotaxime (30 micrograms) and cefotaxime + clavulanic acid.

Results: Keratitis was found to be predominant infection (57.6%). Maximum number of patients were in age group of 41-60 years (35.3%) and most were males (62%). Most common risk factor was Diabetes mellitus (45%). Ninety-five of 130 samples (73.07%) showed growth. Ninety-one (95.7%) showed bacterial growth and rest were fungal. Majority of isolates (74.7%) were Gram-positive bacteria. Predominant gram-positive bacteria isolated was Staphylococcus aureus (61.7%) followed by Enterococcus. Clostridium perfringes was isolated in 4 cases of dacrocystitis. Predominant gram-negative bacteria were Enterobacter (8.8%) and Klebsiella (5.8%) followed by Pseudomonas aeruginosa.

Gram-positive isolates were 100% sensitive to linezolid and vancomycin. Twenty-eight (60.8%) isolates of Staphylococcus aureus were MSSA and rest 18 were (39.1%) MRSA. Most of the gram-negative isolates were sensitive to tobramycin and ciprofloxacin. ESBL production was seen in (40%) of gram-negative bacteria.

Conclusion: To prevent increasing rate of antimicrobial resistance the practice of starting empirical therapy should be avoided and identification through culture and AST should be practiced.

SPECTRUM OF ETIOLOGICAL AGENTS OF ENDOPHTHALMITIS AND ANTIMICROBIAL RESISTANCE PATTERN OF BACTERIAL ISOLATES

Dr. Sukhjinder Singh, Dr. Loveena Oberoi, Dr. Karamjit Singh, Dr. Anuradha Malhotra
Government Medical College, Amritsar

Introduction: Eye is a complex and sensitive organ and is therefore more vulnerable to trauma and various infections. Infectious endophthalmitis is a threatening and potentially devastating intra-ocular infection caused by an array of organisms. Exogenous endophthalmitis is an infective complication of primary cataract, intraocular surgery and...
ocular trauma due to the introduction of infectious pathogens like bacteria and fungi, whereas
the endogenous one is commonly due to systemic dissemination of the pathogens.

**Aims and Objectives:** To isolate and identify bacteria and fungi from vitreous humour
specimens and to study antimicrobial resistance pattern of aerobic bacterial pathogens
isolated.

**Methods:** The present prospective study was carried out from July 2018 to August 2019 in
the Department of Microbiology of Government Medical College, Amritsar. Vitreous humor
samples received from the Department of Ophthalmology of Government Medical College,
Amritsar were processed and bacterial and fungal isolates were identified using standard
microbiological procedures. Antimicrobial susceptibility testing of bacterial isolates was
performed as per the latest CLSI guidelines.

**Results:** Out of the 51 vitreous humor specimens processed 22 (43.1%) were positive on
culture. Amongst 22 isolates, 14 (63.6%) bacterial isolates were obtained, 6 (27.2%) fungi
were isolated while 2 (9.1%) samples showed both bacterial and fungal isolates. Amongst
bacteria, *Staphylococcus epidermidis* (42.8%) was the most predominant isolate, followed by
*Pseudomonas aeruginosa* (21.4%). Highest resistance was observed to fluoroquinolones
followed by cephalosporins. No isolates showed resistance to vancomycin or imipenem.
Amongst the fungi, *Aspergillus flavus* (50%) was the most common isolate followed by
*Candida albicans* (16.6%) cases.

**Conclusion:** Our study highlights the importance of various etiological agents causing
endophthalmitis with their antimicrobial resistance patterns. High prevalence of bacterial
infections necessitates strict adherence to the standardised protocols which can prevent and
provide better treatment for this dreaded intraocular complication.

**MICP 405**

**CB-P88**

**MICROBIAL PROFILE OF INFECTIVE KERATITIS AND DRUG SUSCEPTIBILITY OF
BACTERIAL ISOLATES IN A TERTIARY CARE HOSPITAL OF SUB HIMALAYAN
REGION**

Veethee Anveshna Gupta, Dr. S. C. Jaryal, Dr. Anuradha Sood, Dr. Anuradha Chaudhary, Dr.
Meenakshi Tambrakar, Dr. Aditya Rana
Dr. RPGMC, Tanda, distt. Kangra (H.P.)

**Background:** Infective keratitis is a potential cause of ocular morbidity and blindness.
Identification of the pathogen helps in prompt initiation of treatment which is necessary to
reduce the morbidity. Along with profiling the pathogen, its drug susceptibility pattern is also
important so that the infection can be treated properly using right antimicrobial drugs.

**Aim:** A retrospective analysis of all consecutive corneal swabs received in the department of
Microbiology, DRPGMC Kangra at Tanda for bacterial and fungal culture from July 2017 to
July 2019.

**Methods:** Corneal scraping specimens were processed by direct microscopy, bacterial
and fungal culture according to the standard microbiological techniques. Antimicrobial
susceptibility test for isolated bacterial or was done using Kirby bauer disk diffusion method
according to CLSI guidelines.

**Results:** Total 100 isolates were obtained. Male to female ratio was 1.90:1. The age of the
study subjects ranged from 4 days to 88 years and maximum were in the age group between
19 to 60 years. Out of 100 samples, 40 (40%) were found sterile and 60 (60%) samples
showed growth. Pure bacterial 53 (88%), pure fungal 2 (3%) and mixed growth was seen in
5(8%). out of total bacterial growth, gram-positive bacteria were prevalent 44(83%), gram-negative bacteria were 9(17%). A predominantly isolated gram-positive bacterium was Staphylococcus 43(81%) %. And most common GNB was Acinetobacter spp. 6 (11%). Amongst gram-positive bacteria penicillin (26%) was the least susceptible drug whereas, vancomycin (95%) and linezolid (92%) were most susceptible. For GNBs ceftazidime (41%) showed least susceptibility whereas gentamicin (54%), amikacin (56%), imipenem (57%) showed best susceptibility pattern. Multi drug resistance was observed in 24% of all samples out of which 63% isolates were gram-positive bacteria and 36% isolates were gram-negative bacteria. Acinetobacter spp. showed most resistance. The only fungus found was Aspergillus spp.

Conclusion: Surveillance of the incidence, microbial profile and antibiotic resistance pattern of keratitis in a particular population is an essential part for the selection of the most appropriate antibiotic regimen and to prevent further development of resistance in these pathogens.

Keywords: CLSI(Clinical and Laboratory Standard Institute) MRSA (Methicillin resistant Staphylococcus aureus), GNB(gram-negative bacilli).

MICP 327

RELATIONSHIP OF BIOFILM FORMATION AND DIFFERENT VIRULENCE GENES IN UROPATHOGENIC ESCHERICHIA COLI ISOLATES FROM UTI PATIENTS

Bhawna Rathee, Manisha Yadav*
Dr. B. R. Ambedkar Centre for Biomedical Research (ACBR), University of Delhi, Delhi

Introduction: Escherichia (E.) coli is the most frequent agent, which causes about 80% of urinary tract infection (UTI). The ability of this bacterium to form biofilms on medical devices such as catheters plays an important role in the development of UTI. Bacterial biofilms are responsible for persistent infections leading to recurrences and relapses.

Aim and Objective: The aim of the present study was to investigate the possible relationship between virulence factors and biofilm formation of E. coli isolates responsible for UTI.

Materials and Method: A total of 51 E. coli isolates isolated from patients with UTI were characterized using standard microbiological guidelines and antimicrobial susceptibility was done following CLSI guidelines. In vitro biofilm formation by these isolates was determined using the 96-well microtiter-plate test, and the presence of fimA, papG, yceP, fliC, csgD, ycdS, motA, luxS and ompX virulence genes was examined by PCR assay.

Result and Conclusion: Among 51 E. coli isolates, 9.8% of the isolates did not produce biofilm while 49.01%, 23.52% and 17.61% formed weak, moderate and strong biofilms respectively. Antimicrobial susceptibility pattern showed 94% of E. coli isolates resistance to nalidixic acid followed by 70% to ampicillin and ciprofloxacin consecutively. When strong biofilm formation was observed, most of the isolates had presence of almost all the genes being studied. However, in samples where moderate biofilm formation was observed, number of isolates having genes such as papG, ycdS and fliC decreased significantly. This indicates that genes such as papG, ycdS and fliC might play a role in making strong biofilm formation which can be targeted to control biofilm formation.
BIOFILM OF UROPATHOGENS IN PATIENTS WITH CATHETER ASSOCIATED URINARY TRACT INFECTIONS (CAUTI)

Dr. Kyaw Zeyar Soe, Dr. Sanjay Pratap Singh
Dept of Microbiology, AFMC, Pune

Introduction: Urinary tract infection is one of the leading agents of morbidity and most common health care associated infection world over. Urinary tract infection was estimated as 25-40% of nosocomial infections and nearly 75% of these infections were related to urinary catheters and labeled as catheter associated urinary tract infection (CAUTI). Patient with indwelling medical devices is challenging to treat, as microorganisms are more resistant to antibiotics and also formation of biofilm.

Aim & Objectives:
1. To study the bacterial profile of uropathogens isolated from CAUTI patient
2. To detect the biofilm forming properties of the uropathogens

Methods: Urine samples of in-patients, qualified as CAUTI received for culture, from January 2018 to June 2019 were processed according to standard protocols. Identification was done by standard microbiology methods and antibiotics susceptibility test was done by CLSI 2018 guidelines. Biofilm was detected according to Modified Tissue Culture Plate Method and optical density (OD) read by Spectrophotometer.

Results: Within eighteen months study period, 122 patients with 63% male and 37% female were qualified as CAUTI out of total 3351 urine isolates with 6.01 per thousand catheter days. The mean age was 51 years. Escherichia coli was detected as most frequently isolate 45 (36.9%), followed by Klebsiella pneumoniae 23 (18.9%), Pseudomonas aeruginosa 17 (13.9%), Enterococcus faecalis 10 (8.2%), Proteus mirabilis 9 (7.4%), Acinetobacter baumannii 4 (3.3%), Citrobacter koseri, Klebsiella aerogenes, Enterococcus faecium and Chryseobacterium indologenes (2.5%) each (n=122). 41% of uropathogens were strong biofilm producers (OD>5.32), 16% were moderate biofilm producers (OD =2.66-5.32) and 43% low or no biofilm producers (OD<2.63).

Conclusion: Regarding 57% of isolates were moderate to strong biofilm producers with multidrug resistance isolates, and catheter days also situated at higher side, so, urinary catheter should be used only with strong indication and proper catheter care also crucial to prevent CAUTI.

INFLUENCE OF BIOFILM FORMATION ON PATIENT OUTCOME WITH K. PNEUMONIAE BLOOD STREAM INFECTIONS

1,2Naveen Kumar DevangaRagupathi, 1Kalaiarasi A, 1Dhivya M, 2Esther Karunakaran, 2Peter Monk, 1Balaji Veeraraghavan
1Department of Clinical Microbiology, Christian Medical College, Vellore – 632004, India
2Department of Chemical and Biological Engineering, The University of Sheffield, Sheffield S1 3JD, UK
Introduction: *Klebsiella pneumoniae* is one of the leading causes of nosocomial infections. Carbapenem-resistant *K. pneumoniae* are on the rise in India. The biofilm forming ability and hypervirulence in *K. pneumoniae* further complicates the patient management.

Aims & Objectives-The aim of this study was to evaluate the association of patient outcome and carbapenem susceptibility with the biofilm formation among clinical *K. pneumoniae* from blood stream infections.

Methods: *K. pneumoniae* isolates were obtained from patients with blood stream infections admitted in high dependency or critical care units. Accordingly, 18 isolates of *K. pneumoniae* were tested for antimicrobial susceptibility and CarbaNP test as recommended by CLSI 2019. Isolates were subjected to phenotypic biofilm formation assay using a 96-well titre plate. Ability to from biofilm was graded based on the obtained OD$_{570}$ from control (ODc) and samples. Accordingly, OD$>4\times$ODc were considered strong biofilm producers, $2\times$ODc$<OD\leq4\times$ODc moderate biofilm formation, ODc$<OD\leq2\times$ODc weak biofilm formation and OD $\leq$ODc no biofilm formation. The phenotypic susceptibility and biofilm formation were compared for their association with the outcome of the patients. Statistical significance, correlations and graphical representation were performed using SPSS v23.0 and Prism v8.2.0.

Results: Biofilm assay revealed that three isolates were weak biofilm producers, eight were moderate biofilm producers and seven were strong biofilm producers. Comparison of mortality and length of hospital stay from the onset of infection revealed the average ‘days alive’ of a patient for weak biofilm – 5.66, moderate biofilm – 4.63, strong biofilm forming pathogens – 4.43. This significantly (P$<0.05$) showed that infection by stronger biofilm forming pathogen resulted in fewer days alive for the patient. In addition, 66%, 75% and 100% of isolates among weak, moderate and strong biofilm producers were resistant to carbapenems, imipenem and meropenem. This shows a positive correlation with biofilm formation and carbapenem resistance.

Conclusion: Biofilm forming capacity of clinical *K. pneumoniae* isolates had a significant influence on the outcome (morbidity/mortality) in respective patients. The strong biofilm formation significantly reduced the number of days alive for the patient (5.66 to 4.43). These results highlight the importance of biofilm testing, especially for nosocomial infections which are difficult to clear *in vivo*. These infections require additional treatment which might effectively help in improving the outcome in patients with nosocomial infections due to *K. pneumoniae*.
1. To study the proportion of *E. coli* causing UTIs in our hospital that are biofilm producers.

2. To study the in-vitro antimicrobial susceptibility patterns of biofilm producing UPEC.

**Methods:** This cross-sectional study was carried out on all non-duplicate *E. coli* isolated from urine over a six-month period. Biofilm producing isolates were detected phenotypically by Congo red agar (CRA) method. Antimicrobial susceptibility testing of biofilm producing *E. coli* was performed and interpreted as per Clinical and Laboratory Standards Institute (CLSI) standards.

**Results:** Totally 400 isolates were tested. Female patients comprised 54%. Fifteen isolates (4%) demonstrated biofilm production on CRA. Resistance between biofilm producers and non biofilm producers are compared. Biofilm producing *E. coli* demonstrated higher resistance rates to ampicillin (100% vs 87%), ceftriaxone (100% vs 78%), levofloxacin (93% vs 78%), imipenem (93% vs 60%), meropenem (60% vs 29%), nitrofurantoin (7%) and Cotrimoxazole (7%) demonstrated lower resistance rate.

**Conclusion:** 4% of the isolates demonstrated biofilm production using CRA method. Antimicrobial resistance among biofilm producers was more than non biofilm producers.

**MICP 293**

**SPECTRUM OF BACTERIAL AGENTS AND THEIR ANTIMICROBIAL RESISTANCE PATTERN ISOLATED FROM STERILE BODY FLUIDS**

Dr Sanjana Upadhyay, Dr Anil Kumar Bilolikar
Krishna Institute of Medical Sciences, Hyderabad

**Introduction:** Sterile body fluids are considered normally sterile. Therefore, growth of even one colony of a potentially pathogenic microorganism may be significant. However, positive cultures are presumed to be less because of fewer number of pathogens and former initiation of empirical antibiotics especially in patients referred from other hospitals to our facility. Hence these samples are inoculated in BacT/ALERT 3D for early and rapid identification of microorganisms.

**Aims and Objectives:** To determine the prevalence and antibiotic resistance pattern of organisms isolated from sterile body fluids.

**Methods:** Prospective study conducted on sterile body fluids received over a period of 1 year (July 2018 to June 2019) in the department of Microbiology KIMS Secunderabad were processed in BacT/ALERT 3D by inoculating them in FA Plus bottles for 5 days. Flagged positive bottles were inoculated on respective culture plates and organisms isolated were identified and minimum inhibitory concentrations for various antibiotics were determined with the help of VITEK 2 compact (bioMerieux).

**Results:** Total 1095 various sterile body fluids received were included in the study, out of which maximum samples were CSF (50.68%) followed by pleural fluids (22.73%), ascitic fluids (20.82%), and synovial fluids (5.75%). Among these, 132 (12.05%) showed growth of GNB (56.06%), GPC(40.90%), *Candida* (2.27%) and GPB (0.75%). Predominant organisms isolated were *K.pneumoniae* (19.69%) then *E. coli* (18.93%). The sensitivity pattern of the isolates is as follows: Most of the Gram-negative organisms were 100% sensitive to Colistin, whereas Gram-positive organisms were 100% sensitive to Vancomycin and Tigecycline.

**Conclusion:** Prevalence and susceptibility pattern of individual isolates differ among communities, hospitals and various patient populations. Hence it is crucial to establish a
structured surveillance in hospitals so that clinicians have access to recent data on prevalence and antimicrobial resistance pattern which helps in making clinical judgement in therapy.

BACTERIOLOGICAL PROFILE AND THEIR ANTIBIOMGRAMS IN CASES OF CHRONIC SUPPURATIVE OTITIS MEDIA AT TERTIARY CARE HOSPITAL

Archana, Manojkumar, A.K.Sharma, Amber Prasad
Department of Microbiology, R.I.M.S, Ranchi

Introduction: Chronic suppurative otitis media (CSOM) is inflammation of middle ear cleft characterised by drainage from the same for at least two weeks. The causative organisms may spread to adjacent structures and can result in a broad range of intracranial and extracranial complications.

Aims and Objectives: To isolate the organism associated with chronic suppurative otitis media and determine their antibiogram.

Methods: The study was carried out in department of microbiology, Rajendra Institute Of Medical Sciences, Ranchi for a period of six months (March 2019 to August 2019). Data regarding patients age, sex, duration of illness, ear involved were taken from patients records. Organism identification was done by standard microbiological methods and antibiogram was determined using Kirby-bauer disc diffusion method and interpreted as per CLSI guidelines.

Result: The most commonly affected sex is female with 58% cases in comparison to males with 42% cases. CSOM mostly affected the individuals in the age group of 21-30 years. Most widespread organism isolated was Staphylococcus aureus 53%, followed by Pseudomonas aeruginosa 37%. Gram-positive bacteria showed >92% sensitivity to linezolid followed by vancomycin and gentamicin whereas in gram-negative bacteria, Pseudomonas showed sensitivity to ceftazidime followed by meropenem and amikacin. E. coli showed more sensitivity to meropenem and piperacillin - tazobactum.

Conclusion: The most common micro organism isolated was Staphylococcus aureus followed by Pseudomonas aeruginosa. Knowledge of antimicrobial susceptibility is essential for guiding appropriate antimicrobial therapy.

A STUDY ON BACTERIOLOGICAL PROFILE OF EAR DISCHARGE AND THEIR ANTIBIOTIC SENSITIVITY PATTERN IN CHRONIC SUPPURATIVE OTITIS MEDIA

Dr. Akansha Goyal, Dr. Krunal Mehta, Dr. Hitesh Shingala
Shri M. P. Shah Government Medical College, Jamnagar

Introduction: Chronic suppurative otitis media is a commonly encountered infection of the middle ear in all parts of world. It is a condition of the middle ear that is characterised by persistent or recurrent discharge through a chronic perforation of the tympanic membrane. Complications range from persistent otorrhoea, mastoiditis, labyrinthitis, facial nerve paralysis to more serious intracranial abscesses or thromboses.
Aims & Objectives: The objective of the study was to study the bacteriological profile and the antibiograms of patients with chronic suppurative otitis media (CSOM) in Jamnagar.

Methods: This study was conducted in the department of microbiology, Shri M.P.Shah Govt. medical college, Jamnagar from 1/9/2018 to 31/08/2019. Total 129 pus samples were collected from the patients with ear discharge, who were suspected of chronic suppurative otitis media, attending the ENT department during the specified time period. Samples were inoculated on blood agar, chocolate agar and Mac Conkey agar. All organisms isolated were identified according to standard microbiological methods. Antimicrobial susceptibility tests were performed using modified Kirby-Bauer disc diffusion method and using CLSI for breakpoints for interpretation of result.

Result: From the 129 patients enrolled in the study, there were 67 (52%) isolates. The most common organisms isolated were *Pseudomonas aeruginosa* (58%) & *Staphylococcus aureus* (19%) followed by *Acinetobacter*, *Proteus mirabilis*, CONS & *E coli*. Pseudomonas was found to be highly sensitive for piperacillin tazobactam and imipenem followed by ceftizoxime and amikacin. *Staph aureus* was found to be susceptible to quinolones (ciprofloxacin) and cephalosporins (cefotaxime, ceftizoxime).

Conclusion: Almost all the isolated bacteria showed a considerable level of resistance to more than one antibiotic that are commonly used in primary health care centers; particularly to ampicillin, cephalosporins, amoxicillin, and tetracycline. Treatment of patients should be based on antimicrobial susceptibility test to prevent complications, development of further antibiotic resistance and treatment failure.

MICP 334

BACTERIOLOGICAL PROFILE OF EAR INFECTIONS AND ITS ANTIBIOTIC SUSCEPTIBILITY PATTERN IN A TERTIARY CARE HOSPITAL IN WESTERN ODISHA

Padhan KPC, Jena S, Sahu S, Sahu SK
VSS Institute of Medical Science and Research, Burla, Sambalpur

Introduction: Infection of the ear is a common health problem in both children and adults worldwide. Ear infections affect about 65–330 million people worldwide, and about 60% of them suffer from significant hearing loss. This accounts for major health and economic problems, especially in the developing countries.

Aim: To study the bacteriological profile of ear infection in patients attending tertiary care hospital and its antibiotic sensitivity pattern.

Methods: The present study was conducted at VIMSAR, Burla during May 2019 to October 2019. The aural samples were collected aseptically and organisms were identified by using a standard bacteriological procedure followed by its antibiogram according to CLSI guidelines.

Results: Out of 60 samples, 48(80%) were culture positive. Out of which 38 (79.2%) were gram-negative and 10(20.8%) were gram-positive organisms. Among gram-negative organism *Pseudomonas aeruginosa* 22 (45.8%) was predominantly isolated followed by *Proteus* species 7(14.6%). Among gram-positive organisms, *Staphylococcus aureus* 8(16.7%) was the predominant isolate. Majority of cases belong to the age group 21-30 yrs.i.e 10 (31.67%).

Conclusion: Ear infections are known as a mild disease and are usually treated with empirical therapy, and as our study revealed the most common causative agents of ear infections and their patterns of sensitivity. This will help in the proper selection of empiric therapy and prevention of the emergence of resistant strains.
A RETROSPECTIVE STUDY OF MICRO-ORGANISMS AND AST PATTERN IN EAR SWABS IN RAINY VS SUMMER SEASON IN WESTERN RAJASTHAN

Dr. Jyoti Choudhary (2nd Year Resident), Dr. R.S. Parihar
Dr. S.N. Medical College, Jodhpur

Introduction: Ear infection is quite common these days. Patient may come with complain of ear discharge with other symptoms. If it is not treated, can lead to involvement of middle ear or inner ear which results in hearing loss and further complications. Also, infection can spread from the middle ear to involve the other adjacent tissues and nerves. The prevalence of infection becomes higher in people with low socio-economic condition, crowded places, substandard hygiene and moist climate. The causative agents may be bacteria, fungi or viruses.

Aim and Objectives: The present study is to compare microbial profile of ear swabs and their sensitivity pattern which were received in microbiology lab during rainy and summer seasons at tertiary care hospital in western Rajasthan.

Methods: In this study, all received ear swabs inoculated on Blood agar (BA) and MacConkey agar (MCA), incubated aerobically for 24-48 hours at 37°C. Identification of organism done by colony characteristic and their gram’s reaction and confirmed by appropriate biochemical tests. Kirby Bauer Disc Diffusion method was used to determine antibiotic susceptibility pattern according to CLSI guidelines.

Results: A total of 211 specimens processed. In rainy and summer season, 113 and 98 samples were received respectively from which 107 and 76 ear swab showed positive growth. During rainy season maximum isolates were Pseudomonas species (41.60%) while in summer season staphylococcus species (32.60%) were more prominent. Other gram-negative bacteria and yeast were also isolated.

Conclusion: this study on ear swab concludes that ear infections, caused by Pseudomonas, are higher in rainy season whereas in summer season infection rate was lesser and more prominent causative was staphylococcus.
Aims and Objectives: This work attempts to find out antimicrobial activity of aqueous and alcoholic extract of *M. pruriens* seeds against *Staphylococcus aureus* (ATCC 25923), *Pseudomonas aeruginosa* (ATCC 27853), *Escherichia coli* (ATCC25922), *Klebsiella pneumonia* (ATCC 13883) clinical strains of *Klebsiella pneumoniae*, and *Candida albicans*.

Methods: The agar well diffusion method was done using Muller Hinton agar and Sabouraud’s dextrose agar. The culture medium was inoculated with the microorganism grown in peptone water. A 4 mm diameter wells punched into the agar was filled with 20μl of aqueous and alcoholic extracts of *M. pruriens* seed in various concentrations (200 μg /ml - 20μg/ml). The plates were incubated at 37°C for 18 h. The antimicrobial activity was evaluated by measuring the diameter of zone of inhibition. Positive controls were ampicillin10 μg/disc and ketoconazole 15 μg/disc.

Results: The aqueous extract of *M. pruriens* seed with the concentration of 200 μg /ml showed zone of inhibition against *Staph. aureus* – 25 mm, *E. coli*-12mm, *P. aeruginosa*-11mm, *K. pneumoniae* – 17mm and *Candida albicans*-15mm. Alcoholic extract of *M. pruriens* seed with the concentration of 200 μg /ml showed zone of inhibition of *Staph.aureus* – 19mm, *E. coli*-11mm, *P. aeruginosa*-10mm, *K. pneumoniae*-15mm and *Candida albicans*-18mm. The MDR strain of *K. pneumoniae* was resistant to both aqueous and alcoholic extract of *M. pruriens* seed.

Conclusions: Alcoholic and aqueous extract of *M. pruriens* seed showed antimicrobial activity. Further studies are required to identify active substances from the *M. pruriens* seed for treating infections.

MICP 163

MATRIX DISPERSING ENZYME DNASE I AS A TREATMENT STRATEGY AGAINST KLEBSIELLA PNEUMONIAE BIOFILMS IN VITRO

Anayata Sharma*, Praveen Rishi† and Rachna Singh*

* Department of Microbial Biotechnology, Panjab University, Chandigarh
† Department of Microbiology, Panjab University, Chandigarh

Introduction: *Klebsiella pneumoniae* is an opportunistic pathogen associated with infections of respiratory tract, blood, urinary tract and wounds. The organism can adhere to indwelling medical devices and form biofilms which are intrinsically resistant to antimicrobials. The presence of extracellular DNA (e-DNA) in the extracellular matrix of biofilms plays an important role.

Aim & Objectives: The present study aimed to elucidate the biofilm matrix composition and evaluate the efficacy of DNase as a strategy against *K. pneumoniae* biofilms.

Methods: Biofilms of *K. pneumoniae* ATCC 700603 and one clinical isolate were cultured on polystyrene substrate and quantified by safranin assay, XTT dye reduction test and total viable count. The biofilm structure was confirmed by Scanning Electron Microscopy. The EPS was extracted and characterized. The total carbohydrate, protein and e-DNA were quantified by biochemical assays. The effect of DNase in improving the efficacy of antibiotics (amikacin, cefotaxime and ciprofloxacin) was evaluated in vitro on polystyrene substrate and ex vivo on 1 cm catheter segments by XTT dye reduction assay and viable count.

Results: The total carbohydrate, protein and e-DNA content were 16.05 ± 0.94, 12.94 ± 1.37 and 3.76 ± 0.24 μg/mg respectively in *K. pneumoniae* ATCC 700603 and 24.5, 31.04 and 11.39 μg/mg respectively in clinical isolate. Thee-DNA was found to be nearly 21 kb in size. The antibiofilm activity of ciprofloxacin against *K. pneumoniae* ATCC 700603 was
substantially increased in presence of DNase. Nearly 8-fold improvement was noted in drug efficacy during the combination treatment compared with ciprofloxacin only treatment by XTT assay and viable count. Similar results were observed in the clinical isolate. The activity of amikacin and cefotaxime was not substantially enhanced by this enzyme.

**Conclusion:** The biofilm dispersing enzyme DNase significantly increased the activity of ciprofloxacin against biofilm formed by *K. pneumoniae*.

---

**MICP 196**

**COMPARISSION OF DISC DIFFUSION RESULTS WITH MIC OF CSE -1034 FOR GRAM-NEGATIVE BACTERIA**

**Jyoti Chaudhary, Deepinder Chhina, Rajesh Mahajan**

Dayanand Medical College & Hospital, Ludhiana

**Introduction:** Antibiotic resistance is an alarming problem globally. Gram-negative bacteria are predominantly cause serious multi drug resistant infections (MDR) in the hospitals. cefoperazone sulbactam EDTA (CSE-1034) is a newer combination of antibiotics with adjuvant for treatment of MDR bacterial infections. Disc diffusion (DD) method & E-Test (MIC) are commonly used for testing the susceptibility of various antibiotics.

**Aim:** To compare the results of disc diffusion and E-Test for CSE-1034

**Methods:** It is a prospective in vitro study done between January 2018 to March 2019. Gram-negative bacteria were isolated from respiratory, pus, tissue, urine & blood samples and further identified by Vitek2 system. Antimicrobial susceptibility of these isolates to various antibiotics was tested by Vitek2 system. A total of 500 MDR isolates were tested for Susceptibility of CSE-1034 by Disc diffusion method and E-test.

**Results:** Out of 500 Gram-negative bacteria, 141(28.2%) *E. coli*, 193(38.6%) *Klebsiella*, 103(20.6%) *Acinetobacter spp.* & 63(12.6%) *Pseudomonas spp.* were identified. Among all MDR isolates 94.6% were found sensitive by DD test while E-test showed 60.6% sensitivity to CSE-1034. DD & E test sensitivity results were found as in *E. coli* (98.5%, 64.5%), *Klebsiella* (91.1%, 54.4%), *Acinetobacter spp.*(100%,70.8%),*Pseudomonas spp*(87.3%,53.9%) respectively. However, 59.2% isolates were seen as sensitive and 4% were intermediate sensitive to CSE-1034 by both the tests.

**Conclusion:** Empirical use of CSE-1034 can serve as effective alternative to other drugs for the treatment of MDR Gram-negative bacterial infections. There is a significant difference in sensitivity results of DD & E-Test. E-Test should be used for the sensitivity testing of CSE-1034. The zone sizes of DD test may be revised by the manufacturing company. More studies to be done to see the in vivo effect of the antibiotic combination.

---

**MICP 219**

**THE INFLUENCE OF PH CHANGES ON THE SUCCESS OF ANTIBIOTICS IN TREATING BACTERIAL URINARY TRACT INFECTIONS**

**Subhayan Das Gupta, M. Bandyopadhyay, S. Kumar, M. Chatterjee**

Department of Microbiology, R G Kar Medical College, Kolkata

---

201
**Introduction:** Over the last several years, there has been a rising trend of antibiotic resistance in the gram-negative bacteria causing Urinary Tract Infections (UTIs). Though antibiotic susceptibility is measured in-vitro under standard conditions, the success of therapy in-vivo also depends on the internal environment of the body. Urinary pH is normally acidic (~ 6), however it may vary significantly from 4.5 to 8.6 under the effect of food, medicines and UTIs. The impact of acidic environment on antibiotic susceptibility of uropathogens is not clearly known.

**Aims and Objectives:** To determine the effects of acidic pH on Minimum Inhibitory Concentrations (MICs) of clinically relevant antibiotics against bacterial uropathogens.

**Methods:** A prospective study is being carried out in the Department of Microbiology, RGKMCH for a period of 6 months (from June-November 2019) using the Agar Dilution Method. Mueller-Hinton Agar (MHA) plates containing serial two fold dilutions of antimicrobials at pH of 6.0 and 7.0 are used. The inoculated plates are incubated at 35°C for 16-20 hours. MIC for each antimicrobial is compared between the MHA plates at pH 6.0 and those at pH 7.0.

**Results:**
- 100 isolates of *Escherichia coli* and 100 isolates of *Klebsiella* spp. are compared for MIC determination using the following antibiotics: nitrofurantoin, fosfomycin, amikacin, cefoperazone, piperacillin-tazobactam, levofloxacin and imipenem.
- In-vitro activity of Nitrofurantoin showed maximum improvement by acidification of the growth medium (66% for *Escherichia coli*, 60% for *Klebsiella* spp.) followed by Fosfomycin (55% for *Escherichia coli*, 51% for *Klebsiella* spp.). Least improvement was seen for amikacin. (10% for *Escherichia coli*, 0% for *Klebsiella* spp.).

**Conclusion:** Urinary pH should be considered before prescribing antibiotics. Acidification of urine which was made alkaline by UTI may improve efficacy of antibiotics like nitrofurantoin, fosfomycin and β-lactams that work optimally at a lower pH.

**MICP 364 CB-P102**

**IDENTIFICATION OF POTENTIAL DRUG CANDIDATE TO DESIGN NOVEL COMPETITIVE NDM INHIBITORS: A COMBINED VIRTUAL SCREENING AND MOLECULAR SIMULATION APPROACH**

Karthick Vasudevan¹, ArumugamAmala¹, ShaliniAnandan¹, BalajiVeeraghavan²
Department of Clinical Microbiology, Christian Medical College, Vellore

**Introduction:** Metallo-β-lactamases (MBLs) producing microorganism are highly resistant to all classes of β-lactam antibiotics. In specific, New Delhi Metallo-beta-lactamase-1 (NDM-1) and its variants can able to hydrolyse all the β-lactam antibiotics and ultimately leads to the rapid increase in anti-microbial resistance worldwide. To date, there are no approved inhibitors or effective antibiotics to treat NDM and other MBLs producing organisms. Therefore, it is necessary to develop a novel NDM inhibitor which can block or suppress the activity of NDM by competitive binding that can, therefore, facilitate the antibiotics to treat the infection.

**Aims and Objectives:**
- To screen an effective drug candidate against New Delhi Metallo-beta-lactamase-1 producing microorganisms from PubChem database.
- To validate the screened drug candidate using molecular dynamics simulation.
• Computational determination of toxicity of the drug candidate for ensuring the better safety profiles.

**Methods:** In this study, we utilized the PubChem database to screen carboxylic acid-containing D-captopril analogs with a similarity index of 80% and prioritized the drug candidates based on binding affinity. We further evaluated the binding affinity of the NDM variants and drug candidates with molecular docking analysis and molecular dynamics simulation.

**Results:** We have identified a carboxylic acid-containing compound (CID 53986787) that can potentially bind adjacent to the active site zinc ions (Zn1 and Zn2) with most of the NDM variants. The screened compound possesses higher binding affinity and crucial molecular interactions with both active site residues and non-active site residue (TRP-93), which is attributed to stability and hydrolytic activity of the enzyme.

**Conclusion:** Resistance to antibiotics is the primary threat to human health that causes failure to the therapeutics and ultimately leads to death. This study showed that CID 53986787 could be safer and potential drug candidate for the future development of NDM inhibitors.

---

**MICP 379**

**SUSCEPTIBILITY OF FOSFOMYCIN IN CLINICALLY ISOLATED UROPATHOGENS ISOLATED AT TERTIARY CARE HOSPITAL OF WEST BENGAL**

Dr Indira Roy Mukherjee, Dr M Bandyopadhyay, Dr S. Kumar, Prof (Dr) M Chatterjee, Prof (Dr) P.K.Mukhyopadhyay, Dr R Ray(Ghosh)
Department of Microbiology, R.G.Kar Medical College and Hospital, Kolkata

**Introduction:** Antibiotic treatment of urinary tract infections (UTI) is becoming increasingly difficult due to emergence of multidrug resistance. Fosfomycin is an old broad-spectrum bactericidal antibiotic is reevaluated as treatment of multidrug resistance UTI, inhibits synthesis of bacterial cell wall by inactivating the enzyme UDPN acetylglucosamine-3-enolpyruvyltransferase (MurA) in peptidoglycan synthesis, one of the first steps in bacterial cell wall synthesis.

**Objectives:**
1) To know fosfomycin susceptibility pattern against clinically isolated uropathogens in tertiary care hospital, WB.
2) To study role of different inoculums size and sensitivity using agar dilution method.

**Methods:** A prospective study was conducted to evaluate whether the common uropathogens were susceptible to fosfomycin and MIC of mutant frequencies also determined in *E.coli* and *Klebsiella spp.* The isolates were semi-quantitatively cultured on cystine lactose electrolyte deficient agar (CLED AGAR) biochemical tests were performed by conventional method. Antibiotic susceptibility testing was performed on MuellerHilton Agar by modified Kirby Bauer disk diffusion method. Fosfomycin breakpoints for *E.coli* determined by CLSI. Other than *E.coli* MIC interpretation was done according EUCAST.

**Results:** Out of 200 clinically isolates:

- Predominant organism was *Escherichia Coli*-88(44%) among which 80 isolates were sensitive to fosfomycin, 8 isolates resistant. 36 isolated *Klebsiella spp* 24 isolates were sensitive to fosfomycin, 12 isolates resistant. All isolates from *Proteus mirabilis, Acinetobacter spp, Pseudomonas aeruginosa* was resistant to fosfomycin. Total 18 Enterococcus spp 10 was sensitive to fosfomycin and 16 was resistant to fosfomycin.
**Conclusion:** 1) Fosfomycin showed high invitro activity against Escherichia coli (88.23%) and Klebsiella pneumonia (66.66%). Fosfomycin also demonstrated broad spectrum activity against some gram-negative and gram-positive pathogens clinically isolated from UTIS.
2) In case of mutant frequencies in E. coli and Klebsiella spp if MIC breakpoint 32mg/l and zone diameter 24mm, it was recorded as sensitive as per EUCAST guideline.

**MICP 384**

**EFFECT OF VERAPAMIL AND RESERPINE ON EFFLUX PUMP MEDIATED QUINOLONE RESISTANCE**

Debdatta Das, Simit Kumar, M Bandhopadhay, M Chatterjee, PK Mukherjee
R G Kar Medical College & Hospital, Kolkata

**Introduction:** Until recently, fluoroquinolones, were made from first quinolone called Nalidixic Acid were very potent broad-spectrum antibiotic class for treating gram-negative and gram-positive bacterial infections. They are the only antibiotic class that directly inhibits DNA synthesis by inhibition of DNA gyrase and topoisomerase IV but unfortunately overuse resulted in rising rates of resistance among the microorganisms.

**Aims and Objectives**
- To study the incidence of quinolone resistance due to efflux pump mediated mechanisms on various isolates in a tertiary care hospital.
- To study the effect of subtherapeutic doses of Verapamil and Reserpine on quinolone resistance

**Methods:** From a collection of 100 isolates comprising of Enterobacteriaceae, nonfermenters gram-negative bacteria and Methicilin resistant *Staphylococcus aureus* in a tertiary care hospital, from OPD and IPD patients of both sexes and ages from 18-70 years. The isolates taken were resistant to Ciprofloxacin / Levofloxacin by disc diffusion method as per CLSI guidelines. Using Ciprofloxacin in increasing concentration (0.25µg / ml, 0.5µg / ml, 1µg / ml, 2µg / ml) alone in Mueller Hinton agar dilution and in combination with Verapamil and Reserpine pure powders, 0.256 mg / ml and 0.075mg / ml respectively. Inoculation of isolates, 24 hours incubation and interpretation were done.

**Results:** Of the 35 isolates of *Escherichia coli* MIC of Ciprofloxacin was reduced by Verapamil in 7 isolates and Reserpine in 11 isolates. Of 43 isolates of *Klebsiella pneumoniae* MIC was decreased in 12 isolates by Verapamil and 6 isolates with Reserpine. Similar results were obtained for *Pseudomonas aeruginosa*, *Acinetobacter baumannii* and Methicillin resistant *Staphylococcus aureus*.

**Conclusion:** Verapamil (calcium channel blocker) and Reserpine (antihypertensive) drug when used in subtherapeutic doses are broad spectrum efflux inhibitors that have produced desirable effect on Ciprofloxacin resistance caused by efflux mechanism.

**MICP 200**

**TEMPORAL CHANGES IN BACTERIAL PROFILE OF BURNS WOUND IN A TERTIARY CARE HOSPITAL AND RISK FACTORS FOR INVASION**

Dr. Arati Gandhi, Dr. Priyanka Prasad, Dr. Gita Nataraj, Dr. Vinita Puri
Seth GSMC and KEM Hospital, Mumbai
**Introduction:** Burn wounds act as a susceptible site for opportunistic colonization by endogenous and exogenous organisms which can act as pathogens. As the bacterial flora colonizing the wounds may change over time during hospital stay, periodic review of the changing bacterial flora in burn wounds is suggested.

**Aims and objectives:** This study aims at analyzing the changing colonization of burn wounds over time, study their antibiotic susceptibility patterns and evaluate the common risk factors for invasive burns wound infections.

**Methods:** This is a prospective cohort study of all patients admitted to the burns ward over a period of one year in a tertiary care hospital. Wound swabs were collected on day 1, 4, 8 and thereafter weekly till discharge/death. Antimicrobial susceptibility was performed on all isolates recovered. On suspicion of invasive infection, other relevant specimens were cultured. Risk factors for invasiveness such as cause, extent and depth of burns, duration of stay in hospital, immunity and presence of other co-morbid conditions were assessed by univariate and multiple logistic regression analysis using SPSS for Windows.

**Results:** Out of 131 patients enrolled, 60% were adults who also had higher (96%) mortality. The most common cause of death was culture confirmed sepsis. Most common isolates recovered in the first week were *Enterobacteriaceae* (23%), *Pseudomonas aeruginosa* (22%) & *Acinetobacter* spp (21%). In the second week, *Staphylococcus aureus* was the predominant isolate (26%) with 17% being methicillin resistant. The isolates recovered at admission demonstrated better susceptibility as compared to the later ones. Sepsis rate and mortality was more in patients with <2 weeks of hospital stay (78%), in patients with deep burns covering >50% body surface area and in the presence of other co-morbid conditions such as diabetes, hypertension.

**Conclusion:** Changing bacterial flora over time and invasive burn wound infection necessitates its periodic study in patients to decrease mortality and improve patient outcome.

---

**MICP 178**

**GRANULICATELLA ADIACENS CAUSING INFECTIVE ENDOCARDITIS: A CASE REPORT**

Dr. Rosemary Thomas, Dr Bhuvana Krishna, Dr Savitha Nagaraj

St John's Medical College, Bangalore

**Aims and Objectives:** To describe the clinical profile and identification algorithm of a patient with Infective endocarditis (IE) caused by *Granulicatellaadiacens*.

**Methods:** Five Blood culture samples were collected from 45 years old male, a known case of Ventricular septal defect and history of vegetectomy for Infective endocarditis and was apparently stable for 2 months, who presented with fever, chills and dyspnoea on exertion for about 1 week. Echocardiogram revealed vegetations on aortic valve. Samples were processed in BacT ALERT automated blood culture system. All 5 samples signalled growth of Gram-positive cocci(pairs on direct smear) within 24 hours. Growth was faint on 5% sheep blood agar and chocolate agar. Growth was enriched on thioglycollate broth also. Subculture on Human blood agar gave minute, semi-translucent colonies after 48 hours of incubation; the colony smears gave Gram-positive cocci in pairs and some coccobacillary forms. VITEK 2 automated system identified the isolate as *Granulicatellaadiacens* and was confirmed by MALDI-TOF MS. Antibiotic susceptibility testing was done on Mueller Hinton Blood agar.
and was found to be sensitive to penicillin, gentamicin, erythromycin, vancomycin and ceftriaxone by disc diffusion.

**Results:** 3 out of 5 blood cultures on human blood agar yielded *Granulicatella adiacens*. Identified by VITEK 2 and MALDI-TOF MS. Patient was treated with Vancomycin. Patient was discharged on request before completion of treatment.

**Conclusion:** *Granulicatella adiacens* is a nutritionally variant Streptococci (NVS) and a commensal in human mouth, intestinal and genital tract. Since it requires pyridoxal and L-cysteine as growth factors, it is difficult to obtain growth on sheep blood agar. This unusual bacterium has been known to be the cause of 5-6% of infective endocarditis and pre-existing cardiac pathology, as in this case, is frequently seen. This case report also highlights importance of automated identification techniques like VITEK and MALDI-TOF.

**MICP 381**

**IN VITRO ANTIMICROBIAL RESISTANCE PATTERN OF CUTIBACTERIUM ACNES ISOLATED FROM ACNE VULGARIS PATIENTS: FIRST REPORT FROM CENTRAL INDIA**

Shashwati Nema1*, Dinesh Asati2, Nallapati Vishnu Teja1, Farha Siddiqui1, Debasis Biswas1
1. Department of Microbiology, AIIMS Bhopal
2. Department of Dermatology, STD & Leprosy, AIIMS Bhopal

**Introduction:** *C. acnes* have been long implicated in the pathogenesis of acne vulgaris. Both topical and systemic antibiotics formulations are in use for the management of acne vulgaris. The percentage of acne patients carrying *C. acnes* strains resistant to antibiotics is increasing worldwide and varies from region to region.

**Aims & Objectives:**
1) To estimate frequency of *C. acnes* in acne vulgaris patients.
2) To study the resistance pattern of *C. acnes* isolates for erythromycin, clindamycin, doxycycline and azithromycin.

**Methods:** This is an ongoing cross-sectional study initiated from April 2019. Samples were obtained from pustular acne lesions of 65 acne patients till date. Specimens were inoculated into *Propionibacterium* isolation agar plates and incubated anaerobically in GasPak Jar for 72 hrs. The isolates were identified as *C. acnes* based on colony morphology, Gram stain and and Standard biochemical tests. Antibiotic susceptibility tests of isolated *C. acnes* were performed for erythromycin, clindamycin, doxycycline and azithromycin by E-test.

**Results:** Out of 65 specimens processed, growth of *C. acnes* was obtained in 21 (32.3%) samples. 5/21(23.8%) isolates were found to be resistant to one or more antimicrobials tested. All 5 isolates were resistant to azithromycin followed by erythromycin (4/21) and clindamycin (3/21). Resistant to doxycycline was detected in only 1 isolate. Comparing the antibiotic resistance patterns of *C. acnes* isolated from patients with and without previous antibiotic therapy for acne revealed statistically non-significant differences as regards any of the antibiotics tested. Results till November 2019 will be presented in the conference.

**Conclusion:** The findings from the present study revealed significant resistance among *C. acnes* for commonly used antimicrobial agents used for treatment of acne vulgaris
BACTERIOLOGICAL PROFILE AND ANTI-MICROBIAL SUSCEPTIBILITY OF INFECTED DOG BITE WOUNDS

Jyotirmayee Panda, D Mohapatra, NChayani
Department of Microbiology and Community Medicine, SCB Medical College and Hospital, Cuttack

Introduction: Animal bites represent a significant global health problem and account for approximately 1-2% of all visits to the emergency department. Since human-animal contact is a daily occurrence for most people worldwide in various settings, from farms to domestic animals to feral animals, it is not surprising that as a result of this contact, bite injuries are caused by a variety of domestic and wild animals.

Aims and Objectives: The aim of the study is to delineate and update the complicated bacteriology of infected human bites and to improve the accuracy of empirical therapy.

Methods: The present prospective study was conducted in the department of Microbiology and Community Medicine, SCBMCH Cuttack. This was a multicentric prospective trial of 100 dog bite wounds of which 60% were punctures, 10% were lacerations, and 30% were a combination of both. The most common location being limbs (more commonly Hands) followed by shoulder and neck. Wound swabs were subjected to Gram stain and cultured for aerobic and anaerobic bacteria and all the aerobic cultures were evaluated for antibiotic susceptibility using Kirby Bauer disk diffusion test.

Results: 36% were found to be culture negative, 62% showed aerobic growth, 2% anaerobic, and (32%) were polymicrobial. The most common aerobic organisms isolated was Staphylococcus aureus (44%), Pseudomonas (21%), Staphylococcus epidermidis (16%), Enterococcus (12%), Acinetobacter (9%), E. coli (9%), and Klebsiella (6%). The only anaerobic bacteria isolated was Fusobacterium spp (2%). Although no single antibiotic therapy was considered to be effective against all the bacteria, Gram-positive bacteria were found susceptible to vancomycin (92.5%) and linezolid (85%) mostly and Gram-negative bacteria to piperacillin tazobactam (88%) and ciprofloxacin (82%).

Conclusion: Bacteriology of even common dog bite wound is diverse and despite the use of currently optimal aerobic and anaerobic culture methods, a significant percent of infected wounds still donot yield bacterial growth suggesting more fastidious pathogens and even viruses may be involved. So additional systemic studies of these wounds involving new molecular diagnostic studies are needed.

USEFULNESS OF GRAM STAINING OF TRACHEAL ASPIRATE IN INITIAL THERAPY

Shweta Singh, Nivedita Thass, Sonal Saxena, Ravinder Kaur
Department of Microbiology, Lady Hardinge Medical College, New Delhi

Introduction: The gram stain can be used to direct initial empiric antimicrobial therapy when culture report is not available. This rapid test could prevent the initiation of inappropriate therapy and its adverse outcomes.

Aims and Objectives: To determine the effectiveness of gram stain of tracheal aspirate for predicting causative microorganism and giving appropriate initial antibiotic therapy.
Methods: This prospective study was done for 208 sample of tracheal aspirate that were sent to department of Microbiology LHMC with a request for bacterial culture and antibiotic susceptibility testing over a period of 6 months [January to June 2019]. The samples were processed as per the laboratory protocol. Each sample was inoculated on 5% Sheep blood agar & MacConkey agar followed by gram stain preparation & smears were then screened for predominant bacterial morphological types in oil immersion field (x 1000 microscopic field). The culture plates were then incubated at 37°C for 18-24 hr. After 24 hours culture plates were checked for any bacterial growth and identified by gram stain, motility and biochemical tests and AST was done as per CLSI 2019 guidelines. Cultures with more than three types of colonies were discarded as contaminants.

Results: Out of total 208 samples significant gram stain finding were seen in 90 cases (43.2%). One thirty-two (63.4%) cases out of 208 samples grew significant pathogens on culture. Out of these 90 cases 68(75.5%) of Gram stain finding matched with culture results. The correlation between gram stain and culture was found to be 75.5%.

Conclusion: In summary, Gram stain can be used as an early and rapid diagnostic tool to guide empirical therapy in critical patients.

MICP 205

CB-P110

PROMPT DIAGNOSIS LEADS TO SUCCESSFUL MANAGEMENT OF NEONATAL MENINGITIS CASE CAUSED BY ELIZABETHKINGIA MENINGOSEPTICA: A MICROBIOLOGICAL ENIGMA

Priyadarshini Patro1, P. Das1, P. Padhi2, A. Wankhade1, U. Gaikwad1, A. Bhargava1, S. S. Negi1:
1Department of Microbiology, AIIMS Raipur, 2Department of Neonatology, AIIMS Raipur

Introduction: Elizabethkingiameningoseptica is associated with neonatal meningitis with higher mortality rate as high as 57%. Antimicrobial susceptibility data on this rare pathogen is very limited, with no established breakpoints by clinical and Laboratory Standards Institute (CLSI). It has a unique antibiogram, being resistant to antibiotics for Gram-negative rods though it is a Gram-negative rod, but are susceptible to antibiotics for Gram-positive bacteria. This often leads to a serious challenge to the treating clinicians and results in treatment failure. Here we report a successfully managed case of neonatal meningitis by this rare pathogen.

Case Report: Blood and Cerebrospinal fluid (CSF) from a full term, 13 day old male baby with history of seizures and respiratory distress requiring ventilatory support since birth was sent to our laboratory. CSF gram stain showed few pus cells and plenty short gram-negative bacilli & culture grown 1-2 mm diameter, greyish white colonies on blood agar and chocolate agar. On MacConkey agar small non-lactose fermenting colonies grown. The isolate was identified as Elizabethkingiameningoseptica by Vitek-2 automated system (BioMerieux, France). CLSI criteria for Gram-negative and Gram-positive were used to interpret antibiogram. On Kirby-Bauer disc diffusion test, the bacteria were multidrug resistant, but it was sensitive to piperacillin-tazobactam, cotrimoxazole, vancomycin and linezolid. But Vitek-2 antibiotic sensitivity test results showed resistant to most of the antibiotics but sensitive to minocycline only. Blood culture also grown E. meningoseptica with the similar antibiogram. IV piperacillin-tazobactam, vancomycin & rifampicin were given for 28 days. The baby improved clinically and both the CSF & blood culture became sterile on 14th day. The baby was stable & discharged with the advice to review.
**Conclusion:** As *Elizabethkingiameningoseptica* is increasingly being reported from various clinical samples, awareness among clinicians as well as microbiologists is necessary to initiate appropriate antibiotic therapy to reduce the case fatality.

---

**MICP 279**

**INCIDENCE OF SCRUB TYPHUS IN NON JE AES CASES IN A TERTIARY CARE HOSPITAL IN SOUTH EAST ASSAM**

Ilanchezhiyan N1, Debodatta Dhar Chanda2
1Post Graduate Student, 2Associate Professor
Department of Microbiology, Silchar Medical College and Hospital, Silchar

**Introduction:** Acute encephalitis syndrome (AES) has emerged as a major epidemic in many states of India and is associated with high mortality. Many studies were undertaken to evaluate specific aetiology of AES, some studies suggested emergence of Scrub Typhus as a major cause of AES. Scrub typhus is a mite borne bacterial disease caused by Orientia tsutsugamushi. Clinical features generally include fever, headache, and myalgia, with or without eschar/rash.

**Aims & Objectives:** To establish the incidence of Scrub Typhus as an aetiology in patients of suspected Acute Encephalitis Syndrome (AES) who were found to be sero-negative for JE.

**Methods:** A prospective cross-sectional study was conducted for 6 months from March 2019 to September 2019 in a Tertiary care hospital. A total of 100 cases, which were tested sero-negative for Japanese encephalitis were tested using scrub typhus IgM ELISA to detect the presence of Scrub typhus infection. The cases tested were also checked for the presence or absence of Eschar.

**Results:** Among the 100 patients, 19 (19%) were found to be positive for Scrub typhus. Only 4 (21%) cases out of these positive cases had the presence of Eschar. There were 2 (10.53%) reported deaths in these positive cases.

**Conclusion:** The highlights of this study are that in patients presenting with AES, Scrub typhus is not uncommon and results in illness and death. Early initiation of appropriate treatment on an empirical basis will reduce the morbidity and the mortality.

---

**MICP 386**

**SCRUB TYPHUS AS A CAUSE OF ACUTE FEBRILE ILLNESS IN A TERTIARY CARE HOSPITAL IN SOUTH KERALA**

Dr Archana Sasimohan, Dr Mercy John Idikula, Dr Pooja Raghunath
Department of Microbiology, Pushpagiri Institute of Medical Sciences and Research Centre, Tiruvalla, Kerala

**Introduction:** Scrub typhus, also known as tsutsugamushi disease is caused by *Orientia tsutsugamushi* and is transmitted by the bite of larvae of leptotrombidium mites. India is one of the endemic countries in the tsutsugamushi triangle. It is an emerging infection in Kerala
& several outbreaks have been reported from northern districts. A study from this centre reported 11% scrub typhus in acute febrile illness cases during 2014-2015. The present study was conducted to determine the current scenario and to know whether it should be included in the panel of tests for investigating acute febrile illness.

**Aims & Objectives:** To detect scrub typhus in patients presenting with acute febrile illness and to determine its association with the clinical presentation.

**Methods:** A descriptive cross-sectional study was conducted in the department of Microbiology, PIMS & RC, Kerala, from November 2018 - July 2019. 92 serum samples received from patients presenting with fever>35°C for less than two weeks duration & seronegative for antigens/antibody of dengue, malaria & leptospirosis were included. They were tested for IgM antibodies against *O. tsutsugamushi* using Scrub Typhus Detect™IgM ELISA, InBiosInternational, Inc. (WA, USA). A pre-designed proforma was used for patient data collection and analysis.

**Results:** Of the 92 samples tested, eight (8.6%) were positive for scrub typhus IgM antibodies. Of these only three were detected as per clinical request. Five patients belonged to the study district. Eschars were not present & there were no other significant clinical findings. Their courses in the hospital were uneventful.

**Conclusions:** Scrub typhus continues to be a cause of acute febrile illness however, with no pathognomonic features to arouse clinical suspicion. Early antibiotic therapy resulted in recovery. Since delayed diagnosis and treatment is associated with complications and high mortality, it is advisable to include scrub typhus in the panel of tests for investigating acute febrile illness.

---

**MICP 58**  
**CB-P113**

**BACTERIAL AGENTS CAUSING BREAST ABSCESS AND THEIR ANTIMICROBIAL RESISTANCE PATTERN IN A TERTIARY CARE HOSPITAL IN CHENNAI**

Dr.R.Abinaya, Dr.V.Dillirani, Dr.Sheeba V  
Stanley Medical College, Chennai

**Introduction:** Mastitis is an inflammatory condition of the breast tissue. It predominantly affects lactating women. 11% of mastitis progresses to breast abscess, because of delayed or inadequate treatment. Breast abscess is a localized collection of infectious exudate within the breast, common in the age group of 18-50 years. Lactational breast abscess presents in the reproductive age group, whereas non-lactational abscesses are more common in pre-menopausal women. Abscess drainage followed by antibiotic therapy forms the mainstay of treatment. As there is a paucity of information regarding the etiological agents and antimicrobial susceptibility pattern, this study was pursued.

**Aim of the study:** To identify the bacteria causing breast abscess and their antimicrobial susceptibility pattern

**Objectives:**
1. To isolate and identify the bacteria from breast abscess aspirates
2. To study the antimicrobial susceptibility pattern

**Methods:** Pus from breast abscesses drained by I&D or by USG guided aspiration received in the laboratory for a period of 6 months from July 2018 to December 2018 were included in the study. Samples were inoculated onto blood agar and MacConkey agar and incubated
overnight at 37°C. The plates were examined the next day and the colonies were identified according to standard guidelines.

**Results:** A total of 34 samples were processed. Growth was seen in 18 samples, predominant age group being 20-35 years (12 samples). Staphylococcus *aureus* was the most common pathogen (13 isolates), 7 were methicillin resistant and 6 were methicillin sensitive. MRSA strains were highly sensitive to Linezolid and Teicoplanin followed by Clindamycin. MSSA strains were mostly susceptible to first line drugs except Penicillin. Few isolates were resistant to tetracycline and levofloxacin.

**Conclusion:** The most common organism causing breast abscess is Staphylococcus aureus. Hence early management of mastitis with appropriate antibiotics can avoid progression to breast abscess which requires invasive treatment like incision and drainage and averting serious complications, morbidity and cosmetic disfigurement.

**MICP 325**

**MICROBIOLOGICAL PROFILE OF SECONDARY PERITONITIS DUE TO VISCUS PERFORATION**

Dr. Ummul Khair Noorulain, Dr. V. V. Shailaja, Dr. K. Nagamani
Gandhi Medical College, Hyderabad

**Introduction:** Peritonitis is inflammation of the serosal membrane that lines the abdominal cavity. Secondary peritonitis arises subsequent to loss of integrity of a hollow viscus. Intra-abdominal sepsis may be life-threatening due to contamination by organisms of the gastrointestinal tract. Knowing the Culture & Sensitivity report and immediate treatment with appropriate antibiotics has a significant role in better management and early recovery of patients.

**Aims & Objectives:** To study the bacteriological profile and susceptibility pattern of perforation peritonitis cases.

**Methods:** Samples from 50 patients with viscus perforation were processed as per the standard protocol, conventionally. Antibiotic susceptibility was determined by Kirby-Bauer disk diffusion method.

**Results:** This study included 50 patients of whom there were 40 males & 10 females (M:F = 4:1). Most common age group involved was ≥60 years. Most common site of perforation was duodenum. *Escherichia coli* was the most common organism isolated (42%) followed by *Klebsiella* (34%); *Acinetobacter* (4%). 2% showed polymicrobial growth and 18% were sterile. 86% of *E. coli* isolates showed susceptibility to 3rd generation cephalosporins; 80% to amikacin and 66% to piperacillin+tazobactum. 80% of *Klebsiella* isolates were susceptible to 3rd generation cephalosporins; 70% to amikacin and 53% to piperacillin+tazobactum.

**Conclusion:** Microbiological profile in this study highlighted members of Enterobacteriaceae *E. coli* and *Klebsiella* as the most common isolates in secondary peritonitis cases.

**MICP 374**

**A STUDY ON BACTERIAL ISOLATES FROM BRONCHOALVEOLAR LAVAGE (BAL) FLUID OBTAINED FROM PATIENTS WITH PULMONARY INFECTIONS**
**Debata P, Jena S, Pattnaik D, Thakur Sb, SahuS, SahuSk, Behera Sk**  
VIMSAR, Burla

**Aims and Objectives:** To study the spectrum of the bacterial isolates and to determine the antimicrobial sensitivity pattern obtained from the bronchoalveolar lavage (BAL) fluid of patients with pulmonary infections.

**Methods:** BAL fluid samples of patients with chronic respiratory diseases undergoing bronchoscopy were collected under aseptic precautions. BAL fluid was subjected to gram stain, acid fast stain and quantitative culture. The Gram-positive and negative bacterial isolates were further identified and speciated by using set of relevant biochemical reactions as per standard reference.

**Results:** A total of 450 BAL fluid samples were studied which met the quality control criteria. Among these 330 were from male patients and 120 from female patients. Of the 450 samples processed 238(52.8%) were positive for bacterial growth.

**Conclusion:** Regular antimicrobial susceptibility monitoring is essential for local, regional and national level isolates. This would help and guide the physicians in prescribing the right combinations of anti-microbial to limit and prevent the emergence of multi drug resistant strains of bacteria.

**MICP 346**

**MICROBIOLOGICAL SURVEILLANCE OF OPERATION THEATRES: RETROSPECTIVE ANALYSIS FORM TERTIARY CARE HOSPITAL-GG HOSPITAL, JAMNAGAR**

Dr Himadri Trivedi, Dr Hiral Gadhvi, Dr Hitesh Shingala  
MP Shah Government Medical College, Petlad

**Introduction:** Microbiological contamination of the air and environment of the operation theatres are a major risk factors for the surgical site infections and hospital associated infections. Post-operative infections depend on a lot of factors like methods of sterilization, disinfection procedures, OT discipline and appropriate use of prophylactic antibiotics.

**Aims and Objectives:** The aim of this study is to identify and colonize the bacterial growth on the surfaces and equipments and to gauge the air quality of the operation theatres.

**Methods:** The main aim of this study was to determine the microbiological colonisation of the surfaces and operation theatres air in the tertiary care center. This is a retrospective study for the period of 6 months from May 2019 to October 2019. The sampling was done with wet swabs from different sites and equipment, using masks gloves caps. The swabs were taken from different sites like wall, floor, trolleys, sink-tap, scrub room, instrument dressing trolley etc, the swabs were then properly labelled and transported to the microbiology laboratory where the inoculation was done on Mac-Conkey and nutrient agar plates, were kept in incubation at 37°C overnight and then organisms were identified and separated with conventional methods. The air quality surveillance was done by the air settle plate method.

**Results:** Total of 4263 Samples were taken out of which only 84 showed growth and were isolated.

The organisms were *Klebsiella species*: 38.099% (32/84), *Staphylococcus aureus*: 28.57% (24/84), *E. coli*: 4.76% (4/84), *Acinetobacter*: 13% (11/84)& *Pseudomonas*: 15.476% (13/84).
Conclusion: The study shows that the microbiological quality of the air and surfaces in the Operation theatres at GG Hospital, Jamnagar, is satisfactory with a low bacteriological count on the surfaces and the CFUs is well within permissible limits. Most of the organisms isolated were from the roof and floor, however, when sterilized with hypochlorite and upon fumigation, the colony growth could be controlled in follow up of these operation theatres.

BACTERIOLOGICAL PROFILE OF DIABETIC FOOT ULCER AND THEIR ANTIBIOGRAM IN A TERTIARY CARE HOSPITAL

Om Prakash Bharati, Manoj Kumar, Ashok Kumar Sharma, Amber Prasad, Kumari Seema
Department Of Microbiology, RIMS, Ranchi

Introduction: Diabetic foot ulcer is one of the major complications of diabetes. Proper healing of this ulcer is a challenge to both microbiologists as well as endocrinologist. If not treated on time, it leads to gangrene and amputation.

Aim and Objectives: This study was carried out with an aim to know different types of bacteria which infect a diabetic foot ulcer. Antibiotic sensitivity pattern was also determined to know the exact suitable antibiotic to treat these types of patients.

Methods: This study was conducted from July 2018 to June 2019 in the department of microbiology, RIMS, Ranchi. Seventy-six patients with diabetic foot ulcer were included in this study. Pus and swab from ulcer base were processed. The samples were inoculated on Mac Conkey’s agar and blood agar plates. After 48 hours of aerobic incubation they were identified with the help of different biochemical reactions. Antibiotic susceptibility testing was done by disk diffusion method under CLSI guidelines.

Results: Among seventy-six samples, sixty-eight samples showed microbial growth. Staphylococcus aureus was the most prominent organism followed by Pseudomonas, Klebsiella and E. coli. Among Staphylococcus aureus 76.2% were methicillin resistant. linezolid and vancomycin were the most sensitive antibiotic for Staphylococcus aureus. Gram-negative organisms were mostly sensitive to colistin, imipenem and piperacillin tazobactum.

Conclusions: Knowledge on the antibiotic sensitivity pattern of the isolates will be helpful in determining the drugs for the treatment of diabetic ulcers. Thus, indiscriminate use of antibiotics and chances of subsequent development of antibiotic resistance can also be reduced. This will help clinician to treat diabetic foot ulcer patients with rational use of antibiotics.

MICROBIOLOGICAL PROFILE OF DIABETIC FOOT ULCERS AND ITS ANTIMICROBIAL SUSCEPTIBILITY PATTERN AT TERTIARY CARE HOSPITAL VALSAD, INDIA

Dr. Hiral Patel, Dr. Parimal Patel
GMERS Medical College, Valsad
Introduction: Diabetic foot ulcer and infections are one of the major complications in diabetic patients leading to frequent hospitalization and increased mortality.

Aim & Objectives: To evaluate microbiological profile of diabetic foot ulcers and their antibiotic susceptibility pattern.

Method: A total number of 173 patients with Diabetic foot infections were included in this study for the period of two years. The samples were processed by using standard microbiological methods. The modified Kirby-Bauer’s disc diffusion method was used for antimicrobial susceptibility testing. The isolates of Enterobacteriaceae family were initially screened for ESBL production and were further confirmed by double disk synergy test as per Clinical and Laboratory Standards Institute (CLSI) guidelines. Reference strains of E. coli (ATCC 25922), P. aeruginosa (ATCC-27853), S. aureus (ATCC 25923) and Klebsiella 700603 were used as control.

Results: A total of 307 organisms were isolated from 241 specimen, an average 1.27 organisms per lesion. Gram-negative bacteria (95.77%) were the most frequently isolated pathogen, including Pseudomonas aeruginosa (35.83%) followed by Klebsiella pneumoniae (23.12%), Proteus mirabilis (14%), E. coli (12.05%), Acinetobacter spp. (5.53%).Gram-positive organisms accounted for (4.23%) includes Staphylococcus aureus (1.30%), Enterococcus spp. (0.97%), Streptococcus spp. (0.32%) and Staphylococcus epidermidis (0.32%). Polymyxin B, Meropenem, Imipenem, Piperacillin -Tazobactam and levofloxacain were found to be more susceptible for Gram-negative organisms. Linezolid, Vancomycin, Teicoplanine, Levofoxacin, Chloramphenicol, Amikacin, Gentamycin seems to be more susceptible for Gram-positive organisms. Only 3 strains of Methicillin resistant Staphylococcus aureus were isolated.41.97% ESBL production was seen among Enterobacteriaceae family.

Conclusion: The study showed a preponderance of gram-negative organisms from the diabetic foot ulcers. It is recommended that antimicrobial sensitivity testing is necessary for initiating appropriate antibiotic regimen which will help to reduce the drug resistance and minimize the healthcare costs.

IMPACT OF PRE-ANALYTICAL PROCESSES ON URINE CULTURE RESULTS

Pritam Pardeshi1, Krunal Mehta2, Seema Rohra1, Aruna Poojary1
1-Dept. of Pathology & Microbiology, Breach Candy Hospital Trust, Mumbai
2-Master of Hospital Administration, Tata Institute of Social Sciences, Mumbai

Introduction: Contamination of urine culture results from improper collection technique and or prolonged time from collection to processing, which ultimately causes delays in the treatment. Though contamination is not completely avoidable, but it can be reduced to major extent by simple measures. We undertook this study to address this quality gap and its consequences.

Aims & Objectives: To reduce urine sample contamination to <5% from the existing level.

Methods: Urine culture reports of the past 3 months were reviewed to find the current urine contamination rate. Target Rate was set to < 5%. All urine culture samples were included.

Two Pre-analytical parameters studied:

a) Awareness about urine culture collection methods (Process Variable) by Observing, Interviewing and Questionnaire of 50 staff.

b) For the analysis of the time variable, a total of 50 samples were randomly selected and followed through the four check points (registration counter, sample received at receiving
area, sample received in microbiology lab, sample culture) and the time was recorded at each checkpoint in order to analyze at which checkpoint major delay occurred

c) Intervention done: Formation of bilingual pictorial instruction sheet, training of health care workers (Reception staff, technicians and nurses).

d) A re-audit was conducted after 3 months to review whether the intervention strategies implemented have been able to achieve the set target

Results: Baseline contamination rate (Apr - June) - 142/1287 (11%). Sample contamination rate was more in OPD patients which was 59.2% (84/142) as compared to that of IPD Patients which was 40.8% (58/142). The average sample processing time - 1 hour 12 mins (Normal limit - within 2 hours). Knowledge analysis showed 78% of scoring among health care worker. Post-intervention contamination rate: September-8.06%, October-6.86%, December-4.88%  

Conclusion: We conclude that by simple measures we can easily bring down urine culture contamination rate.

MICP 434 CB-P120

ANTIMICROBIAL RESISTANCE POTENTIALITY STUDY OF GRAM-NEGATIVE BACTERIAL PATHOGENS FROM COMPANION ANIMALS

Ashaka S. Vansia, Dr. Pravin R. Dudhagara
Department of Biosciences, Veer Narmad South Gujarat University, Surat

Introduction: In the developing country like India where largest sector for livelihood is agriculture, companionship of animals is common practice as a side income and being second largest cattle population, field workers are more prone to transfer zoonotic diseases from companion animals. Yet there is scarcity in the drug resistance studies in companion animals in India.

Aims & Objectives: The aim of the study is to isolate pathogens from the clinical samples from diseased animals and characterize them with resistance profiles along with linkage analysis to develop better antimicrobial usage policy.

Methods: Samples from diseased animals were collected and isolates were identified by biochemical and VITEK2 followed by antimicrobial resistance analysis (CLSI and EUCST guidelines) by disk diffusion method. Antibiogram analysis were carried out by WHONET software while linkage analysis was carried out by SPSS. On the basis of which dendrogram were generated.

Results: From the samples collected from sick or wounded companion animals, a total of 80 pathogens were isolated out of which nearly 46% isolates were gram-negative bacteria majority Escherichia coli preceded by Pseudomonas aeruginosa, Klebsiella aerogenes, Enterobacter sp. and Acinetobactersp. Antimicrobial susceptibility analysis showed the maximum resistance in penicillin and cephalosporin antibiotics ranging from 30 – 60 % from the 45 different antibiotic tested belonging to the 14 different classes and majority of them being ESBL producers. 80% isolates were MDR (Multidrug Resistant) with correlation between possible ESBL producer at 95% confidence by Pearson Correlation test. Dendrogram with different resistance pattern were generated using average linkage mapping explaining different cluster of antibiotics and their classes based on resistance pattern found.

Conclusion: Increasing global consumption of antimicrobial agents as growth promoters besides maintaining health of livestock contributes to the spread of drug resistance pathogens from animals to human well-known. Understanding resistance pattern found in pathogens will aid in upgradation of antibiotic policy to consequent this global concern.
AEROBIC BACTERIOLOGICAL PROFILE OF WOUND INFECTIONS WITH ITS ANTIBIOTIC SENSITIVITY TEST IN TERTIARY CARE HOSPITAL, WESTERN ODISHA

Das S, Jena S, Sahu S, Sahu S.K
VIMSAR, Burla

Introduction: Wound infection is an important cause of morbidity and mortality among hospitalised patients in developing countries. The current spread of multi-drug resistant bacteria has further heightened the need for regular bacteriological review of infected wounds and regular antibiotics surveillance to avoid the unguided empirical treatment of wound infections.

Aim: To study the aerobic bacteriological profile and its antibiotic sensitivity testing of wound infections in tertiary care hospital.

Methods: A total of 815 pus samples were collected from the various clinical departments of VIMSAR, Burla from a period of May 2019 to October 2019. Identification of bacteria was performed by standard bacteriological procedures followed by its antibiotic susceptibility test according to CLSI guidelines.

Results: Out of 815 samples, 621 (73%) were culture positive and out of which 521 (84%) were of mono-microbial growth and 330 (16%) of poly-microbial growth. Gram-negative bacilli were isolated in predominance 454 (73%) and gram-positive cocci were 167 (27%). Klebsiella spp (23%) was the predominant organism isolated followed by Staphylococcus aureus (22.3%).

Conclusion: Increasing resistance to antimicrobials increases the risk of morbidity and mortality. Hence, there is urgent need of implementation of measures to restrict the healthcare associated infection. There is need to institute antibiotic stewardship and effective infection control measures in the hospitals.

STATISTICAL ANALYSIS OF CUMULATIVE ANTIBIOGRAM IN ERA OF MULTIDRUG RESISTANCE

Lt Col (Dr) Jaswinder Singh Gill, Associate Prof
Department of Microbiology, Armed Forces Medical College, Pune

Introduction: Hospital infection control and surveillance program monitors and compares the hospital antibiogram to detect any changes in the antibiotic susceptibility pattern. Hospital cumulative antibiogram data are usually stratified based on wards, specimen, age, diagnosis etc. This complex data has varying numerator and dominators. In the absence of any well-defined analytical models, doctors interpret these antibiogram based on their intuition. Such subjective and biased interpretation of hospital antibiogram in era of multidrug resistance may lead to increased morbidity and mortality among patients. CLSI M39 A-4 document has clearly laid down the standards for preparation and analysis of antibiogram. However, it does
not provide a robust statistical framework for analysis of antibiogram across hospitals and within hospital over the timeline.

**Aim**: To determine statistical significance and trend analysis of hospital cumulative antibiogram.

**Methods**: Antibiogram of a tertiary care hospital was prepared as per CLSI M39-A-4 document, for the last four years (2015-2018). Trend analysis of *Pseudomonas aeruginosa* antibiotic susceptibility pattern of five antipseudomonal antibiotics was carried out. Recent antibiogram was compared with previous four years antibiogram and any variation significance was analyzed statistically by chi square test.

**Results**: Study revealed that changes in susceptibility pattern of antipseudomonal antibiotic among *Pseudomonas aeruginosa* hospital isolates was statistically not significant (p> 0.05), however intuitively it appeared otherwise.

**Conclusion**: Hospital antibiogram must be prepared as per CLSI M39-A4 document. Trend analysis of for change in antibiotic susceptibility pattern of all bacterial species should be performed and evaluated statistically.

---

**THE SEASONS OF SCRUB TYPHUS: IGM POSITIVITY TRENDS ACROSS INDIA**

Nerurkar Vidya, Fernandes Nividha, Patil Ekta, Patel Meenal, Jaiswar Dharmendra
SRL, Dadar, Mumbai

**Introduction**: Scrub typhus, an acute febrile multisystem illness caused by *Orientia tsutsugamushi* and transmitted by bites of infected chiggers of trombiculid mites, is now recognized as important neglected zoonoses of public health importance. True picture of its prevalence is not available, as nationwide community-based studies, using reliable diagnostic methods, have been limited till date.

**Aims & Objectives**: The present study was conducted to determine the prevalence and seasonality of Scrub typhus across 20 Indian states, using IgM positivity as serological evidence of acute infection.

**Methods**: Study involved retrospective data analysis of 4539 patient sera, received at a private laboratory, between October 2013 and December 2018 for Scrub typhus IgM ELISA testing. Kit was InBios Scrub Typhus Detect™ IgM (InbiosInc.USA), using 0.5 OD cut off (as per the DHR-ICMR guidelines). Positivity trend was analyzed statewise. For 10 states with the highest IgM seropositivity, data was studied monthwise to understand seasonal trends.

**Results**: The average IgM seropositivity was found to be 27.1 %, with significant statewise difference. Highest seropositivity was in Himachal Pradesh (64.8 %), followed by Assam (52.1 %), Delhi (36.8 %), Haryana (36.7 %) & Punjab (33.8 %). Children, adult and geriatric population appeared to be similarly affected, though higher positivity was noted in females. Positivity appeared to decline from 2013 to 2018 in most Indian states, except Himachal Pradesh and Assam. Monthwise analysis (10 states) revealed an expected pattern of increased cases during monsoon and post-monsoon, but with exceptions. Infection was found to prevail all 12 months in Himachal Pradesh, while Tripura and Meghalaya had high positivity even in summer months.

**Conclusion**: Scrub typhus is a widely prevalent infection across most Indian states, though with significant statewise/geographical variations. It should be considered while screening cases of FUO. Also, larger nationwide epidemiological surveys are the need of the hour.
SEROPREVALENCE OF SCRUB TYPHUS AMONG FEBRILE PATIENTS CLINICALLY SUSPECTED AS DENGUE FEVER ATTENDING GAUHATI MEDICAL COLLEGE AND HOSPITAL

Dr. Paripurna Baruah, Dr. Dina Raja, Dr. Ajanta Sharma
Gauhati Medical College and Hospital, Guwahati, Assam

Introduction: Scrub typhus is also known a tsutsugamushi disease, caused by a Gram-negative, obligate intracellular organism Orientia tsutsugamushi. Scrub typhus presents with non-specific symptoms of fever, headache, malaise, joint pain, retro-orbital pain, lymphadenopathy and gastrointestinal symptoms like abdominal pain, diarrhoea and vomiting, which may lead to severe complications including death. It is a curable disease which often remains undiagnosed due to lack of surveillance and a high index of suspicion.

Aim:
• To know the seroprevalence of scrub typhus among patients with undifferentiated febrile illness
• To determine the role of scrub typhus in the etiology of undifferentiated febrile illness.

Methods: A hospital based prospective study was carried out in the Department of Microbiology, Gauhati Medical College and Hospital (GMCH), Guwahati, for a period of one year from June 2018 to May 2019. A total of 80 samples were evaluated by the Scrub Typhus Detect™ IgM ELISA System (InBios International Inc. Seattle, USA).

Results: Out of the 80 patients with fever and headache, 23 (28.75%) were positive for IgM antibodies against O. tsutsugamushi. Gastrointestinal symptoms like abdominal pain and diarrhoea were seen in a total of 6 out of 23 (26.1%) patients. Joint pain was seen in 6/23 (26.1%) patients.

Conclusion: This study shed light on the role of scrub typhus as an important contributor of undifferentiated fever in this region.
Aims and Objectives: To identify, isolate and analyse the microbial profile and antibiotic susceptibility pattern in pus samples from burn wounds in a tertiary care hospital.

Methods: Cross-sectional study for a period of 6 months from March 2019 to August 2019 was undertaken in Department of Microbiology. All the pus specimens were processed as per standard microbiological procedures and antimicrobial susceptibility testing was done using disk diffusion method as per CLSI.

Results: A total of 666 samples were obtained from 277 patients from burn wounds. 137 (15.5%) showed no growth or contamination after 24 hours of incubation. Out of 666 samples, 187 (28%) had polymicrobial pattern of growth. 743 (84.4%) pathogens were isolated of which the most common isolate was Pseudomonas spp (27.6%), followed by Klebsiella spp (24.2%). In this study, Pseudomonas isolates were highly sensitive to carbapenems 67 (32.68%) followed by amikacin 50 (24.39%) and ciprofloxacin 43 (20.97%). Among the Klebsiella isolates, highest sensitivity was to ciprofloxacin 97 (53.88%) followed by carbapenems 80 (44.44%) and amikacin 34 (18.88%).

Conclusion: Antibiotic sensitivity pattern is everchanging. The most common bacterial isolates found in burn wounds were Pseudomonasspp and Klebsiella spp. Ciprofloxacin is highly effective and can be used as empirical therapy.

MICP 147

SEROLEGICAL EVIDENCE OF SCRUB TYPHUS AMONG PYREXIA OF UNKNOWN ORIGIN CASES AT A TERTIARY HOSPITAL IN BIHAR

Dr Namrata Kumari, Dr Pallavi Priya, Dr Subodh Kumar, Dr Kumar Saurabh, Dr Sudhir Kumar, Dr Shailesh Kumar
Indira Gandhi Institute of Medical Sciences, Patna

Introduction: Due to non specificity of clinical symptoms, relative absence of pathognomonic eschar and routine unavailability of tests like immunofluorescence assay, differentiating scrub typhus from other acute febrile illnesses is a challenge in countries like India. However, results of simple serological tests like Immunochromatography (ICT) and Enzyme Linked Immunosorbent Assay (ELISA), when correlated with patient’s clinical profile can aid in its timely diagnosis.

Aims and Objectives: To find out extent to which scrub typhus contributes to pyrexia of unknown origin, using ICT and ELISA and to assess clinical profile of these patients.

Methods: Cross-sectional study was carried out in Department of Microbiology and Department of General Medicine, IGIMS, Patna, over period of eighteen months (March 2017 to August 2018). Adult patients with fever of ≥5-day duration were included. Along with clinical history and physical examination, routine investigations were also done. After screening to rule out malaria, dengue, enteric fever, and leptospirosis, screening for scrub typhus was done by rapid ICT (SD Bioline Tsutsugamushi) and IgM ELISA (Inbios International; Inc., Netherlands).

Results: Of 147 serum samples tested, 10 (6.8%) were positive for scrub typhus. Most common symptom among these patients (n=10) was fever 10 (100%) followed by pain abdomen 8 (80%), pedal edema 6 (60%), headache 4 (40%), vomiting 4 (40%), constipation 3 (30%) and cough 3 (30%). Percentage of samples positive among males (n=95) and females (n=52) were 7 (7.37%) and 3 (5.77%), respectively. Gender difference was not significant statistically. While none among age group of 0-15 yr was positive, scrub typhus was highest (13.04%) in group 16-25 yr (n=46) followed by (09.52%) in 26-35 yr (n=21) group.
**Conclusion:** Scrub typhus is prevalent in Bihar. Results of ICT supplemented with IgM ELISA aids in its diagnosis. However, these test results should be correlated with clinical condition of patient. Active surveillance is necessary to assess exact magnitude and distribution of disease.

**MICP 179**

**COMPARATIVE EVALUATION OF DENSE FINE SPECKLED ANTINUCLEAR ANTIBODY PATTERN IN SYSTEMIC AUTOIMMUNE RHEUMATIC DISEASE AND BLOOD BANK DONORS**

Dr Faisal Ansari, Dr Vijay Dharma Teja, Dr Ram Mohan, Dr Liza Rajashekhar
Nizam’s Institute of Medical Sciences, Hyderabad

**Introduction:** Dense fine speckled (DFS) antinuclear antibody (ANA) pattern has gained much attention in the recent past due to its role as a potential negative biomarker to exclude rheumatic disease. Isolated anti DFS antibodies are relatively rare in systemic autoimmune rheumatic disease (SARD) patients but more commonly seen in healthy individuals.

**Aims and Objectives:** To determine the prevalence of DFS ANA pattern in SARD patients and healthy blood bank donors followed by confirmation with a specific anti DFS ELISA

**Methods:** 1000 serum samples from Rheumatology Department submitted to the Microbiology department for ANA testing by Immunofluorescence from June 2018 to June 2019 were included in the study. Samples from confirmed SARD patients and 400 blood bank donors were tested by anti DFS ELISA.

**Results:** Of the total 1000 samples tested, ANA IIF pattern was positive in 60.7% and negative in 38.4% patients. DFS pattern was observed in 0.4% of ANA positive samples and it was confirmed with ELISA. None of the 49 diagnosed SARD cases displayed typical DFS pattern. Most common SARD was SLE (63.2%) followed by polyarthritis (28.5%) and systemic sclerosis (6.1%). Anti DFS ELISA was positive in 16.3% (8/49) of SARD patients and most commonly seen among SLE cases (22.5%). 7/8 (87.5%) DFS ELISA positive SARD patients were females and all were below 50 years of age. DFS ELISA positivity was significantly higher in blood bank donors (35%) compared to SARD group (p=0.0094).

**Conclusion:** Anti DFS antibodies are significantly more common in healthy blood bank donors compared to SARD patients. Immunofluorescence is not helpful to identify DFS pattern when present in combination with other disease associated patterns and alternative approaches like use of cell lines with DFS knockout substrates might help in their simultaneous detection. Among the SARD patients, anti DFS antibodies are most common in SLE patients.

**MICP 247**

**A STUDY OF SEROPREVALENCE AND ASSOCIATED RISK FACTORS OF HEPATITIS B AND HEPATITIS C AT A TERTIARY CARE HOSPITAL**

Ingle R, Kumar C, Baveja S, Chavan S
LTMMC & GH, Sion, Mumbai

**Introduction:** Hepatitis B & Hepatitis C are preventable diseases. Globally an estimated 257 million people are living with hepatitis B virus infection and 71 million people with
chronic hepatitis C. There is lack of large-scale data in India on prevalence of hepatitis B & C except in targeted population like blood banks.

**Aims & objectives:** To estimate seroprevalence of Hepatitis B & C in a tertiary care hospital, to identify possible risk factors for the transmission of hepatitis B & C and to compare the efficacy of rapid test to ELISA in detection of HBsAg & anti HCV antibodies

**Method:** A prospective, cross sectional study was conducted for a period of one year at a tertiary care hospital and included 600 subjects. Permission from Institutional Ethics committee was taken. A detailed history of patient was recorded. 5 ml of blood was collected for testing Hepatitis B & C by both rapid & ELISA tests. Results were analyzed statistically.

**Result:** Out of 600 patients, Hepatitis B was found in 17(2.8%) & hepatitis C in 11(1.8%) patients. Highest positivity was found in the age group of 31-40yr (5.9%) for hepatitis B and 0-10yr (7%) in hepatitis C. Significant risk factors for hepatitis B were past surgery (11.1%), tattooing (10%), IV drug use (100%) & for hepatitis C, it was multiple blood transfusions (38.5%). HBsAg Rapid test gave a sensitivity of 94% & specificity of 100% & anti HCV antibody gave sensitivity of 82% & a specificity of 100%, considering ELISA as the gold standard.

**Conclusion:** Rapid tests used in the present study can be used as point of care tests for rapid diagnosis of Hepatitis B & C, especially in peripheral health care centers. A rapid diagnosis especially in high risk groups will prevent transmission & increase in the incidence of the disease.

**MICP 254**

**SEROPREVALENCE OF MEASLES, MUMPS AND RUBELLA IN ASYMPTOMATIC HIV INFECTED INDIVIDUALS**

Prashant Patil, Santosh Karade, Mahima Lall, Sourav Sen
Armed Forces Medical College, Pune

**Introduction:** Measles, mumps and rubella are the diseases of the childhood. Global implementation of national immunisation program for these vaccine preventable diseases has resulted in higher protective antibodies in general population. However, HIV infected individuals form a vulnerable group, who are known to develop serious complications. Little is known about their protective antibody titre following decline in CD4 cell counts.

**Aim and Objective:** The aim of this study was to determine seroprevalence of IgG antibodies against measles, mumps and rubella in asymptomatic HIV positive patients attending ART clinic of a teaching hospital of Pune, Maharashtra.

**Methods:** In this cross-sectional study, 5 ml of blood sample was collected from consecutive HIV seropositive individuals after obtaining an informed consent. An indirect ELISA by commercially available kit was performed for qualitative detection of IgG antibodies against measles, mumps and rubella. Protective antibodies results were inferred as per manufacturer’s instructions.

**Results:** A total of 100 samples were collected in this pilot study of which 8 were rejected due to hemolysis. The mean age and CD4 counts of our study population was 36.28 years (SD=10.22) and 704.19 /µl (SD= 37.07) respectively. All our subjects were on antiretroviral therapy. The IgGseropositivityin 92 samples for measles, mumps and rubella in our study samples were 79.34%, 93.47% and 73.91% respectively.
Conclusion: Our study indicated higher seroprevalence of IgG to mumps as compared to measles and rubella. WHO and CDC recommend MMR vaccination in HIV infected adults with CD4 counts of above 200. In Indian setting, larger study would be required to recommend booster dose of MMR vaccination in seronegative HIV infected adults.

MICP 263

ASSOCIATION BETWEEN NEONATAL SEPSIS AND C-REACTIVE PROTEIN: CROSS-SECTIONAL STUDY AT TERTIARY CARE HOSPITAL IN WESTERN ODISHA

Pradhan L, Jena S, Sahu S, Sahu S.K
VIMSAR, Burla, Sambalpur

Introduction: Neonatal Sepsis (NS) is a clinical syndrome characterized by systemic signs or symptoms and bacteremia during the 1st month of life and is a recognized cause of morbidity and mortality in the newborns. NS is the 2nd most common cause of neonatal deaths after prematurity in India. NS is classified into early onset (age of presentation <72 hours) and late onset sepsis (age >72 hours).

Aims and Objective: To evaluate the diagnostic value of CRP in the diagnosis of neonatal sepsis and to compare its validity between EONS and LONS.

Methods: A cross-sectional hospital-based study was carried out at NICU, in VIMSAR, Burla from May 2019 to October 2019. Based on the result of blood culture we divided our study population into confirmed neonatal sepsis cases, neonates with clinical manifestation of sepsis with negative blood culture and non sepsis neonates. CRP test was done for all the study population.

Results: A total of 348 neonates were included, 122 were found normal neonates without any signs of sepsis, 98 neonates had sepsis with a positive blood culture and 128 neonates with clinical signs of sepsis but their blood culture was negative. The CRP positivity was significantly high (i.e. 81.6%) in neonates in the sepsis group compared with those in the clinical sepsis group. Higher positivity of CRP found in (i.e 84.6%) LONS group. Male predominance seen in case of neonatal sepsis by a ratio 1.6:1.

Conclusion: CRP as screening test has more validity in LONS. Though we cannot rely upon CRP alone as only indicator for sepsis, CRP along with clinical and other parameters can be used for management of neonatal sepsis which aids in proper use of antibiotics.

MICP 282

BURDEN OF DENGUE AND CHIKUNGUNYA CO-INFECTION IN PATIENTS ATTENDING TERTIARY CARE HOSPITAL, PUNE

Suvrana Joshi, Neha Bagade, Rajesh Karyakarte
Department of Microbiology, B J Govt. Medical College, Pune

Introduction: Arthropod-borne viral infections area major public health problem in the tropical and subtropical regions across the world including India. Amongst them Dengue and
Chikungunya pose a significant threat and share a common insect vector. In last few decades, India has experienced several outbreaks of dengue and chikungunya. Early clinical manifestations of these arboviral infections are similar and difficult to differentiate. Further, there are recent reports of co-infection with dengue and chikungunya viruses. It is therefore essential to know whether there is a co-infection with both viruses. A detailed review of literature revealed only a few studies reporting dual infection. The present study was undertaken to find out the burden of co-infection with dengue and chikungunya viruses in and around Pune.

**Objectives:** To find out the prevalence of dengue and chikungunya virus co-infection in cases of febrile illness.

**Materials and Method:** A total of 4145 samples from clinically suspected cases of viral febrile illness were studied over a period of one year. Each sample was tested for both Dengue and Chikungunya IgM antibodies. Further, all samples were tested for Dengue NS-1 antigen. For detection of IgM antibodies, IgM capture ELISA (MAC-ELISA) test was done using kits manufactured by National Institute of Virology, Pune. NS-1 antigen detection was achieved with ELISA test by kits manufactured by J Mitra Pvt. Ltd.

**Results:** Out of 4145 samples tested for both Dengue and Chikungunya infection, 1359 (32.78%) showed evidence of infection. A total of 718 samples (52.83%) were positive for Dengue infection alone, while 588 samples (43.26%) were positive for only chikungunya. There was a total of 53 samples (3.89%) that showed presence of IgM antibodies against both Dengue and Chikungunya viruses, indicating co-infection.

**Conclusions:** The present study highlights the importance of laboratory support for diagnosis of co-infection of Dengue and Chikungunya. Clinically suspected cases of viral febrile illness should be tested for both of these viral infections in endemic areas like India as this will also help in knowing the true burden of dengue and chikungunya co-infection. Further, timely and appropriate management can assist in the prediction and control of outbreaks with both viruses.

**MICP344 CIm-P7**

**EVALUATION OF THE EFFECT OF ART ON CD4 COUNTS AND OTHER LABORATORY PARAMETERS IN THE PEOPLE LIVING WITH HIV (PLHIV) WITH DIFFERENT CD4 COUNTS AT THE TIME OF ART INITIATION’**

Garima J, Ramchandran A, Baveja S
Lokmanya Tilak Muncipal Medical College, Mumbai

**Introduction:** HIV was considered the most dreaded pathogen of the 21st century. However, Highly Active Anti Retroviral Therapy (HAART) shows tremendous benefits on mortality and morbidity in HIV-positive persons. Evidence shows that the early initiation of ART before substantial decrease in CD4 counts significantly improves survival, as compared with deferred therapy.

**Aim & Objectives:** To perform a comparative evaluation of the early versus late initiation of ART in PLHIV, in terms of the effects on CD4 counts and other laboratory parameters, Spectrum of infections among the patients and HIV transmission to the seronegative spouse in case of HIV serodiscordant couples.

**Methods:** A prospective observational study, done in department of Microbiology, at a tertiary care hospital, Mumbai Adult patients recently diagnosed with HIV or living with HIV, but ART naive were included. A total of 82 patients were selected, of which 42 patients
were in early initiation group (E.I), and 40 patients were in late initiation group (L.I) with ART initiation at CD4 count ~500 cells/cu.mm and ~350 cells/cu.mm respectively. The results were analysed at the end of 1 year of ART.

**Results:** There was 100% raised CD4 counts in the E.I group patients as compared to 85% of L.I group. Deranged LFT was seen in only 19% in the E.I group as compared to 37.5% of L.I group. In the E.I group 9.5% patients were anaemic as compared to 32.5% in the L.I group. Tuberculosis and opportunistic infections were acquired in 7.1% and 0% in the E.I group as compared to 27.5% and 15% of L.I group respectively. HIV seroconversion of spouses was seen in 6.2% in E.I group and 13.3% of L.I group.

**Conclusion:** Early initiation of ART results in overall significant improvement in prognosis and wellbeing of PLHIV.

**MICP 351**

**ANTI-RIBOSOMAL P PROTEIN (IGG TYPE) ANTIBODIES AND THEIR ASSOCIATION IN INDIAN PATIENTS WITH SLE**

Binesh Lal Y, John Antony Jude Prakash and John Mathew Christian Medical College, Vellore

**Introduction:** Systemic lupus erythematous (SLE) is a chronic autoimmune disease characterized by multi-organ involvement due to vasculitis. Anti-ribosomal P protein (anti-RPP) antibodies have been associated with SLE, neuropsychiatric SLE (npSLE) and other manifestations of SLE including lupus nephritis and hepatitis.

**Aim:** To determine the frequency of anti-Ribosomal P protein antibodies and their association with various manifestations of SLE in a patient cohort.

**Methods:** The Ribosomal P autoantibodies (IgG type) were evaluated in the serum of 222 patients by a sensitive ELISA assay based on clinical suspicion. ANA was performed by IIFA (Indirect Immunofluorescent Assay) for all these samples. Data regarding the presence of other autoantibodies like anti-dsDNA and anti-cardiolipin were also detected.

**Results:** In 46 (21%) patients anti-Ribosomal P protein (anti-RPP) antibodies were raised above normal. Of these 12 were known cases of SLE and 34 were newly detected cases. In 31 patients the typical ANA pattern suggestive of Ribosomal P pattern was observed while another 10 patients had positive ANA and five had only cytoplasmic fluorescence. Clinically 10 had lupus nephritis, 9 had neuropsychiatric SLE, 3 were diagnosed to have both neuropsychiatric and nephritic manifestations and the remaining 24 had other systemic complications. The SLE specific dsDNA antibodies were raised in all 46 anti-RPP positive patients but only five were positive for anti-cardiolipin antibodies. There was significant difference in the anti-Rib-P values between those with and without neuropsychiatric symptoms.

**Conclusion:** Anti-Rib-P values are increased in various subgroups of Indian SLE patients including those with npSLE. Only two thirds had the ANA pattern suggestive of anti-RPP antibodies. Further analysis of this data, including the prognosis in these patients is underway and will be presented at the conference.

**MICP 396**
SERUM MARKERS OF HEPATITIS B AMONG HIV INFECTED PATIENTS AND CORRELATION WITH CD4 COUNTS: STUDY FROM A TERTIARY CARE HOSPITAL

Sandhya Jangir, Sandhya Sawant, Jayanthi Shastri
TNMC & BYL Ch. Hospital, Mumbai

Introduction: Co-infection with Human immunodeficiency virus and hepatitis B virus is common worldwide. Although spontaneous clearance of HBV acquired in adulthood occurs in >90% of immunocompetent individuals, HIV-infected individuals are half as likely as uninfected individuals to spontaneously clear HBV. Chronic HBV infection occurs in 5-10% of HIV HBV co-infected individuals. With the advent of effective antiretroviral therapy, chronic liver disease has emerged as a leading cause of morbidity and mortality among HIV infected individuals.

Objectives: To study 1) Prevalence of HBV among HIV infected patients 2) Serum markers of HBV infection (HBsAg, HBeAg, anti HBc IgM and IgG anti HBc) among HIV-HBV coinfected patients and 3) To compare CD4 count among HIV monoinfected and HIV-HBV coinfected patients.

Methods: Prospective study conducted in one and half years after Institutional Ethics approval. 700 HIV newly diagnosed; ART naïve patients were included in the study. All sera samples were screened by HBsAg Elisa, positive samples were further tested by HBeAg, anti HBc IgM and anti HBc IgG ELISA. CD4 cell count estimation was performed by flow cytometry.

Results: The confection with HIV of HBsAg was 5.9%. Of the 41 HBsAg positive patients, 19.5% were HBeAg positive, 9.8% anti HBc IgM positive and 97.5% were anti HBc IgG positive. Mean CD4 count was 638 cells/mm³ among HIV monoinfected and 429 cell/mm³ among HIV HBV co-infected patients.

Discussion & Conclusion: Chronic HBV infection was observed in 97.5% individuals, of which 20% had high infectivity. HBeAg positive persons are super transmitters of HBV infection. Presence of HBc antibodies are highly indicative of progression to chronic liver disease. Coinfected persons had lower CD4 count. Since HIV and HBV share the common route of transmission, this study highlights the mandatory screening of all parameters of HBV infection prior to initiation of ART to prevent morbidity & mortality caused by chronic liver disease.

COMMON MOLDS AND PIGEON DROPPINGS AS ETIOLOGY OF HYPERSENSITIVITY PNEUMONITIS

Nerurkar Vidya, Patel Meenal, Patil Ekta, Jaiswar Dharmendra
SRL, Mumbai

Introduction: Hypersensitivity pneumonitis (HP), also known as extrinsic allergic alveolitis, is an immune-mediated syndrome. It is a result of prolonged specific antigen inhalation, resulting in sensitization. >200 antigens have been identified as causal agents, which include fungi, bacteria, mycobacteria, protozoa, animal proteins and chemicals. Often underdiagnosed, literature suggests that causative agent remains unidentified in about 40% of histologically provencases. There are limited studies on HP etiology from India, though worldwide literature
suggests that fungi and animal proteins (especially pigeon proteins) are the most common antigens implicated.

**Aims & Objectives:** The present study analyzed the Seroprevalence of IgG antibodies to *Aspergillus fumigatus, Mucor, Cladosporium herbarum, Penicillium notatum, Alternaria alternate* and pigeon droppings in clinically/radiologically diagnosed HP cases.

**Methods:** Study involved retrospective data analysis of 218 patient sera, received at a private laboratory, from January to May 2019, for IgG testing under a predefined panel for clinically/radiologically diagnosed HP cases. Testing was performed using ImmunoCAP™ specific IgG on the Phadia 250 system (MsThermofischer ltd). Geographic variation was studied by regionwise analysis.

**Results:** 82/218 (37.6 %) sera were positive for 1 or more IgG. Multi antigen sensitization was common. Most common antigens incriminated were *Aspergillus fumigatus* and Pigeon droppings, which were positive in 24.7 and 18.8 % sera respectively. Seroprevalence was highest in the East and North Indian states, with>=1 antigen being positive in 46.7 and 46.1 % sera respectively. It was lowest (22.2%) in Central states. Reason for geographic variation could be the limited antigens tested, hence the resulting inability to pick up anykey regional antigens.

**Conclusion:** Present study confirms the role of common molds (especially Aspergillus fumigatus) and pigeon droppings as causative agents of HP in Indian context. Need for larger prospective region-wise studies, with a broader diagnostic work-up, is felt.

**MICP 418**

**HIGH FUNGAL SENSITIZATION OF BRONCHIAL ASTHMA SUBJECTS FROM UTTARAKHAND**

Dr Sangeeta Deka, Dr Girish Sindhwani, Dr Pratima Gupta, Professor of Microbiology, AIIMS Rishikesh, Dr Deepjyoti Kalita

**AIIMS, Rishikesh**

**Introduction/Background:** Fungal sensitization in bronchial asthma subjects are associated with deterioration of presentation (Deranged PFT, C/F of severe asthma etc.), inadequate response to bronchodilators (necessitating corticosteroids, antifungals) etc. Sensitization is seemingly a seasonal phenomenon as multiple studies concludes, with impact in management and prevention of exacerbation in chronic asthmatics.

**Aims and Objective:** This study was undertaken considering bronchial asthma being a common condition in Uttarakhand, as well as very frequent isolation of fungal agents in various conditions, including respiratory isolation.

**Methods:** 47 clinically confirmed (continuously enrolled) bronchial asthma subjects attending AIIMS Rishikesh were included in the study over a period of 1 year from October 2018 to September 2019. After due informed consent and counseling relevant clinical data was collected, followed by spirometry (lung function test) at the Institute. Subsequently Skin prick test with multiple fungal antigens (n=10) was performed as per manufacturer’s instruction (Merck, allergopharma div. Germany). Data was correlated with positive fungal sensitization results using standard methods. Fungal culture was done from specimen (sputum, induced sputum, BAL) collected from all cases & identification done by Maldi-Tof. Blood was collected from every subject for estimation of total serum IgE and complete blood count (CBC). Absolute eosinophil count was evaluated from CBC.
**Result:** About 57.2% cases were positive for fungal sensitization out of which 10% yielded sensitivity to mono-fungal antigen and rest multi-fungal. Overall predominantly Aspergillus sp (both in mono and multi-agent sensitivity groups) sensitivity was present followed by sensitivity to other agents like Penicillium notatum, Alternaria alternate, Cladosporium, Helminthosporium oryzae etc. Fungal sensitivity was positively correlated with deterioration in clinical presentation (severity). Seasonal preponderance was observed – though a longer duration of study will be more conclusive.

**Conclusion:** Fungal sensitization in bronchial asthma cases could be high in Uttarakhand. Environmental factors like vegetation, humidity, weather changes probably favour fungal colonization/infection/sensitization in susceptible subject. This might have big impact in management protocol of Bronchial asthma cases – i.e. less use of broncholilators compared to other available drugs. Prevention of severe-asthma could also be instituted effectively.

**MICP286**

**BIOGENIC NANOPARTICLES AS ANTIMICROBIALS- BEGINNING OF A NEW ERA!**

Sujitha Elan Seralathan, Regina Sharmila Dass
Department of Microbiology, Pondicherry Institute of Medical Sciences, Pondicherry

**Introduction:** Emergence of antimicrobial resistance is of concern to the medical fraternity. Antibacterial effect of Zinc oxide Nanoparticles (ZnONPs) against various pathogenic bacteria has been studied. However, these nanoparticles which have been extracted by chemical methods are not only toxic but also involve the use of chemicals in high temperature which can pose serious health hazards to the people who are involved in the extraction. Interestingly, ZnONPs are reported by several studies as non-toxic to human cells. Hence, there is a growing need for antimicrobial susceptibility testing of clinical isolates using biogenically synthesized nanoparticles in general and ZnONPs in particular.

**Aims and Objectives:** The aim of the study was to investigate the antimicrobial effect of biogenically synthesised ZnONPs on clinical bacterial isolates namely *Staphylococcus aureus*, *Escherichia coli* and *Pseudomonas aeruginosa*.

**Methods:** Clinically significant isolates of *S. aureus*, *E. coli* and *P. aeruginosa* were included in the study. Antibiotic susceptibility testing of the test isolates against the routinely used antimicrobials was done by Kirby Bauer’s disc diffusion method as per CLSI guidelines. Serial molar dilutions of the biogenic ZnONPs solutions were made and their antimicrobial susceptibility was done by Microbroth dilution method. Mean absorbance for each nanoparticle concentration was calculated using a spectrophotometer at 450nm.

**Results & Conclusion:** Among the 30 isolates that were included in the study, ZnONPs showed considerable antibacterial activity against isolates of *E. coli* with marked reduction in absorbance whereas it did not exhibit antibacterial activity against isolates of *S. aureus* and *P. aeruginosa*. Biogenic ZnONPs can be tried as antimicrobial agents in the future. As this study was designed as a preliminary investigation to study antimicrobial effects using ZnONPs obtained from a biogenic source, further investigation needs to be carried out with a larger sample size with respect to safety and efficacy. Such studies could lead to provide information for effective drug design and discovery.
BACTERIOLOGY OF POST OPERATIVE WOUND INFECTIONS IN WOMEN WHO HAVE UNDERGONE CAESAREAN SECTION

Dr. Riddhi Natekar
Goa Medical College, Bambolim

Introduction: Caesarean delivery is an operative procedure, whereby the foetus is delivered through an incision on the abdominal and uterine walls after the end of 28th week. This operation is associated with post-partum infections causing increased maternal morbidity and longer hospitalisation.

Aims and Objectives: To determine the occurrence of postoperative wound infections, risk factors associated and to analyse Antibiogram pattern of the bacterial pathogens isolated.

Methods: The present study was a prospective study undertaken in the Dept. of Microbiology that extended from July 2015 to June 2016. Women developing postoperative wound infections following Caesarean section while admitted and 2 weeks following discharge formed the study subjects. Materials included swabs, pus from infected wounds. Patient’s demographic details, pre and post-operative variables were obtained.

Results: Total of 1780 women underwent Caesarean section, 120 (6.7%) developed wound infections.

Elective Surgery was conducted on 200 women, 9 cases were detected while among Emergency Surgery done in 1580 women, 111 cases were found. Majority were Monomicrobial. Anaemia was significantly associated with wound infections. Gram-positive organisms were isolated in 79 cases. Staphylococcus aureus being predominant isolate. MRSA detected was 21.1%. Gram-negative Bacilli were isolated in 43 cases. Acinetobacter species accounted for majority followed by Enterobacter species, Escherichia coli and Pseudomonas aeruginosa. Staphylococcus aureus showed 89.4% sensitivity to Teicoplanin, Linezolid while CONS and Group D Streptococcus were 100% sensitive.

Escherichia coli, Klebsiella species, Pseudomonas aeruginosa were found sensitive to Amikacin, Gentamicin and Imipenem as also Citrobacter diversus and Proteus mirabilis while sensitivity towards Aztreonam was 83.3%.

Conclusion: Post-operative wound infections increase maternal morbidity and prolong hospital stay; hence various risk factors need to be addressed. Comorbid conditions viz anaemia, diabetes and hypertension should be closely monitored and controlled. Obstetricians should exercise increased vigilance over sterile techniques. Proper wound care aids to reduce the chances of wound infection.

MICP 451

DEVICE ASSOCIATED NOSOCOMIAL INFECTION RATES AND SPECTRUM OF ANTIMICROBIAL RESISTANCE IN INTENSIVE CARE UNITS

Dr. Amrita Gupta, Dr Sandeep Kokate
Department of Microbiology, Government Medical College, Nagpur

Introduction: Device-Associated Healthcare-Associated Infections (DA-HAI), including Ventilator-Associated Pneumonia (VAP), Central-Line-Associated Blood Stream Infection (CLABSI), and Catheter-Associated Urinary Tract Infection (CAUTI), are considered as principal contributors to healthcare hazard and threat to patient safety as they
can cause prolonged hospital stay, sepsis and mortality in the ICU. The study intends to characterize DA-HAI in a tertiary care multidisciplinary Intensive Care Units (ICU) of a teaching hospital in central India

**Methods:** The present prospective study was conducted among patients admitted to multidisciplinary 25-bedded medical and surgical ICUs of a 1200-bedded tertiary care teaching hospital over a period of 24 months from November 2016 to October 2018, after approval from Hospital Ethics Committee. Clinical, Laboratory and Environmental surveillance, and Screening of HCPs were conducted using the US Centers for Disease Control and Prevention (CDC)’s national Healthcare Safety network (NHSN) definitions and methods

**Results:** With 8824 patient/bed/ICU days and 13,586 device days, total episodes of DA-HAI were 163, and mean monthly rates of DA-HAI, VAP, CLABSI, and CAUTI were 4.75, 2, 1.4 and 1.25/1000 device days respectively. Gram-negative organisms were the predominant pathogens isolated. Amongst them *Klebsiella pneumoniae* (24.6%) followed by *Escherichia coli* (21.9%) and *Pseudomonas aeruginosa* (20.2%) were leading gram-negative isolates. Out of 116 gram-negative isolates Extended Spectrum Beta Lactamases (ESBL) was 12.07%, AmpC producers were 6.03% and Metallo-Beta Lactamases (MBL) producers were 20.69% of the total isolates. Among 15 isolates of *Staphylococcus aureus* 55.55% were Methicillin resistant and 12.5% were Inducible Clindamycin resistant (ICR) strains.

**Conclusion:** Incidence of DA-HAIs in the intensive care unit was high compared with that of developed countries. Resolute conviction and sustained momentum in infection Control initiatives are an essential step toward patient safety. Formulation and implementation of standard infection control protocols, active surveillance of DA-HAIs, and antimicrobial stewardship are urgently needed in our country.

**MICP 28**

**HCAI-P3**

**ROLE OF HAND HYGIENE IN REDUCING BACTERIAL FLORA ON HANDS OF HEALTHCARE WORKERS**

Prashant Singh, Pratibha Mane, Jyoti Sangwan
Medical College SHKM, Nuh

**Introduction:** Hand hygiene is the simplest, most effective and least expensive tool to prevent health care worker associated infection. The compliance among HCW is low due to various reasons leading to increased morbidity and mortality in Healthcare associated infection (HAI). Proper hand hygiene significantly reduces bacterial flora and HAI.

**Aims and Objectives:** Importance of hand hygiene in reducing bacterial flora on the hands of HCW. Objectives were to isolate bacterial flora on the hands of HCW & to study antibiogram of isolates.

**Methods:** Prospective study done in SHKM, Nalhar (Haryana). Total 50 volunteers were taken from Intensive Care Units and Medicine ward in which there were 11 doctors, 32 nurses and 7 ward boys. Finger imprints of both the hands were taken on Blood and MacConkey agar before and after hand hygiene. The plates were incubated 24-48 hours at 37°C.Colony count was done manually.

**Results:** All the samples showed growth on Blood agar and thirty-seven samples showed colony count >100. Four samples on MacConkey agar showed growth with colony count<100. After hand hygiene, on Blood agar no growth was seen in nine, <10CFU in twenty, <20 CFU in sixteen, <30 CFU in two, <40 CFU in three and <100 CFU in onesample
while on MacConkey agar <10 CFU in two and <20 CFU in two samples. Mixed growth was seen in ten samples on blood agar. Micrococcus was most common organism isolated in twenty-four samples, followed by diphtheroids in sixteen samples, Coagulase negative staphylococcus in fourteen samples and Staphylococcus aureus in six samples. Three CONS and four Staphylococcus aureus were Methicillin resistant. Gram-negative bacilli isolated were Klebsiella, Pseudomonas and Escherichia Coli each in two samples respectively.

**Conclusion:** HCW hands are colonized with bacteria. Proper hand hygiene technique awareness and its compliance significantly reduce bacterial load and decrease HAI.

**MICP 34 HCAI-P4**

**COMPARISON OF MICROBICIDAL ACTIVITY OF VARIOUS FRESHLY PREPARED VERSUS STORED DISINFECTANTS IN WORKING DILUTION: LEARNINGS OF A RURAL MEDICAL COLLEGE**

Kirti Lohan, Jyoti Sangwan
SHKM GMC Hospital, Gurgaon

**Introduction:** Disinfectants are widely used in health care settings such as laboratory, hospital and health care industries as important component of infection control practice. Disinfectants which are generally used need to be regularly tested to determine their potency and effectiveness.

**Aim and Objectives:** This study aims to evaluate microbicidal activity of freshly prepared versus stored disinfectants and to assess the effectiveness of various disinfectants.

**Methods:** An observational study was conducted in department of microbiology SHKM GMC from May 2019 to August 2019. A total of seven disinfectants commonly used in our hospital namely Dettol, Savlon, Cidex, Phenyl, Unilon alcoholic hand rub, Sterilium and Sodium Hypochlorite were purchased and working dilutions were made as per manufacturer’s guidelines. These fresh disinfectants were tested immediately and after 7 days (stored disinfectants). A 10µL of 0.5 McFarland bacterial culture (Staphylococcus aureus, Escherichia coli, Pseudomonas aeruginosa and Candida albicans) was suspended into 5ml of disinfectant solution at working dilution. After exposure of one hour, they were subcultured onto nutrient agar and SDA. Microbicidal effect was calculated for freshly prepared disinfectant and stored disinfectant.

**Results and Conclusion:** Microbicidal effect of freshly prepared Savlon and Sterilium was more than the stored solutions. Microbicidal effect of Cidex and Chlorine was same in both fresh as well as stored disinfectant. On the other hand, Dettol and Hand rub showed poor microbicidal effect in either concentration. To conclude, it is advocated that freshly prepared disinfectant solution are more effective when compared to stored ones.

**MICP 37 HCAI-P5**

**COMPARATIVE ANALYSIS OF VIRULENCE DETERMINANTS OF UROPATHOGENIC E. COLI IN COMMUNITY ACQUIRED VS. HOSPITAL ACQUIRED URINARY TRACT INFECTIONS**

Jyotsna Agarwal, Shruti Radera, Sugandha Srivastava
Dept. of Microbiology, Dr. RML Institute of Medical Sciences, Lucknow
Introduction: Uropathogenic *E. coli* (UPEC) are responsible for ~90% of community acquired (CA) and ~65% of hospital acquired (HA) urinary tract infections (UTIs).

**Aim & Objectives:** To compare *E. coli* associated with CA & HA UTIs in order to identify specific virulence determinants, if any, associated with either form of UTI.

**Methods:** PCR was performed for phylogrouping (A, B1, B2, and D) & 15 virulence associated genes [Adhesins papA (P fimbrial structural subunit), papG alleles I, II, and III (P fimbrial adhesin variants), fimH (type 1 fimbriae),afa/dra BC (Dr-binding adhesin), and sfa/foc DE (S and FIC fimbriae); toxins hlyA (haemolysin) and cytotoxic necrotising factor 1 (cnf1); siderophores iutA (aerobactin) and fyuA (yersiniabactin); capsule synthesis specific for group II (K1, K5, K12, etc.) kpsMII; serum resistance-associated traT; invasion of brain endothelium ibeA; and malX, a coding region near the terminus of a pathogenicity-associated island (PAI)] for each *E. coli* isolate from CA (n=100) & HA (n=50) UTI. Virulence score was calculated for each isolate as number of virulence genes detected.

**Results:** Majority (54%) *E. coli* isolates associated with HA UTI belong to commensal phylogroup A & B1; whereas, the majority (66%) in CA were from pathotypic phylogroups i.e. B2 & D. kpsMII and traT genes were found predominantly in CA isolates (59 & 58%, respectively); while traT was present in 68% HA UTI isolates. Average virulence score was higher for CA cystitis isolates (4.95) than HA strains (4.09). All the VGs studied were more frequently present in CA isolates and papG allele I was absent in HA UTI isolates.

**Conclusion:** It is apparent that a strain with lesser virulence is able to cause hospital associated urinary tract infection, as compared to community acquired UTI. Immune status of the patients is an important determinant in acquiring infection rather than virulence potential of pathogen alone.

---

**MICP 49**

**HCAI-P6**

**VENTILATOR ASSOCIATED PNEUMONIA IN A TERTIARY CARE HOSPITAL: INCIDENCE, RISK FACTORS AND PREVENTION – A PROSPECTIVE STUDY**

Dr. Sonia Mehta (Professor), Dr. Rosy Bala (Asst. Professor)  
MMIMSR, MM(DU) Mullana, Ambala

**Introduction:** Ventilator associated pneumonia is defined as pneumonia that develops more than 48 hours after initiation of mechanical ventilation. It is usually caused by the aspiration or translocation of bacteria that colonize the upper respiratory tract, into the lungs. The best approach to combat infections in low- and middle-income countries has come up to be bundle care approach.

**Aims and Objectives:** To monitor the trend of VAP, to identify the common organisms with their resistance patterns, to assess the risk factors associated with VAP and the role of bundle care approach in the prevention of VAP.

**Methods:** A prospective observational study was conducted in the Department of Microbiology for the period of April 2018 to March 2019 after approval from IEC. Endotracheal aspirate (ETA) were collected from all patients admitted in the ICU requiring mechanical ventilation for more than 48h and processed by quantitative culture method using calibrated loop.
**Results and Conclusion:** A total of 720 patients were on mechanical ventilation and intubated with endotracheal tube during the study period. 42 patients out of 720 were diagnosed and confirmed with ventilator associated pneumonia and total ventilator days were 3746 with VAP RATE 11.21 EVENTS PER 1000 VENTILLATOR DAY. Acinetobacter species was the most predominant pathogen followed by Citrobacter species, Klebsiella species which accounted for 29.62%, 24.07% and 20.37% respectively. Nine isolates were found to be ESBL producers and 9 were MBL PRODUCERS. Trauma was the most common condition associated with VAP followed by prolonged hospitalisation. Bundle care approach seems to be promising in reducing VAP rate.

**MICP 237**

**ISOLATION AND CHARACTERIZATION OF CLOSTRIDIUM DIFFICILE AND TOXIN DETECTION IN PATIENTS WITH ANTIBIOTIC ASSOCIATED DIARRHEA IN A TERTIARY CARE CENTRE**

Dr. Sneha May Kurian, Dr. B. Appalaraju  
Department of Microbiology, PSG Institute of Medical Sciences and Research, Coimbatore

**Introduction:** *Clostridium difficile* is a major cause of nosocomial antibiotic associated diarrhea as *C. difficile* reservoirs exist on hospital environmental surfaces, wards and surgical staff. Detection of glutamate dehydrogenase (GDH) antigen in freshly passed stool specimens along with toxin A and B by an enzyme immunoassay is the usual method by which *Clostridium difficile* infection is tested, but this test appears to be relatively insensitive, compared with the cell cytotoxicity assay and stool culture for toxigenic *C. difficile* on selective medium.

**Aims and Objectives:** To study the incidence of *Clostridium difficile* infection in patients with antibiotic associated diarrhea and compare rapid assay for diagnosis with culture and molecular methods.

**Methods:** Faecal specimens of patients suspected of having *Clostridium difficile* infection were cultured on anaerobic blood agar and cycloserine cefoxitin fructose agar to identify growth along with Glutamate dehydrogenase (GDH) antigen detection by rapid enzyme immunoassay (EIA). Toxin production was determined by rapid enzyme immunoassay and PCR was performed on all cultured isolates and samples which were positive by EIA for the housekeeping gene tpi and toxin genes tcdA, tcdB, cdtA and cdtB.

**Results:** *C. difficile* was isolated in 10.37% of the samples by culture. Rapid assay for GDH Ag showed a sensitivity and specificity of 92.9% and 99.2% respectively (p < 0.05) when compared to culture. Two of these samples were toxin positive by rapid assay and four were toxin positive by PCR.

**Conclusion:** Although culture is the gold standard for diagnosis, it is time consuming and not feasible in resource limited settings. Therefore, rapid assays can serve as effective screening tests for diagnosis of the disease with our results showing a sensitivity and specificity of 92.9% and 99.2% respectively. This can be followed by testing for toxin production. A reduction in the incidence can be brought about by measures like handwashing, contact precautions and formulating antibiotic policies.

**MICP 280**

**HEALTH CARE ASSOCIATED INFECTIONS IN A TERTIARY CARE HOSPITAL IN NORTHERN INDIA**
Introduction: Healthcare associated infections (HAIs) are those infections that develop in a patient after being admitted for 48 hours or more than the incubation period for the causative microorganism. HAIs are quite common in India but generally they remain obscure since they are not measured routinely. In order to reduce the healthcare associated infections, it is important that they are first measured, analyzed and then controlled.

Aims & Objectives: To monitor the different healthcare associated infections in the tertiary care hospital.

Methods: The different health care associated infections were monitored by the Hospital Infection Control Team, comprising of an Infection Control Officer and 3 Infection Control Nurses, over a period of 4 months in a tertiary care hospital having 130 beds. Appropriate clinical, radiological and microbiological correlation of the different HAIs was made using the standard specific case definition. The HAIs were then analyzed whether they were within the normal limits. Appropriate corrective and preventive actions were taken according to each HAI.

Results: The different healthcare associated infections measured were as following: Ventilator Associated Pneumonia: 10.9 to 32.3, Catheter Associated Urinary Tract Infections: 4 to 18.9, Central Line Associated Blood Stream Infections: 0 to 20.1, Surgical Site Infections: 0 to 2.9, Bed Sore: 0.2 to 0.7 and Needle Stick Injury: 0 to 0.4.

Conclusion: Proper monitoring and control of the HAIs would reduce the cost of treatment, conserve the resources and prevent the patient from unnecessary morbidity and mortality. In a resource limited country like India it would also mean that the health care resources are utilized optimally.

MICP 369

CHROMOSOMALLY ENCODED RESISTANCE MECHANISMS AND ITS GENETIC RELATEDNESS AMONG NON-CARBAPENEMASE MEDIATED CARBAPENEM RESISTANT PSEUDOMONAS AERUGINOSA

Department of Clinical Microbiology, Christian Medical College, Vellore

Introduction: Pseudomonas aeruginosa is one of the most important nosocomial pathogens. Presence of chromosomal resistance mechanisms makes it difficult and challenging to treat. Carbapenem resistance (CR) in the absence of acquired carbapenemases are mediated by the complex mechanisms such as outer membrane impermeability, production of a chromosomal-AmpC/Pseudomonas derived cephalosporinase (PDC) and overexpression of efflux pumps.

Aim & Objectives: We aim to study the chromosomally encoded resistance mechanisms among CR-P. aeruginosa. The objectives were (i) to quantify the expression levels of efflux pumps, (ii) to screen for mutations in oprD, AmpC and its regulator-ampD(iii) to study genetic relatedness

Methods: A total of 40 carbapenemase negative CR-P. aeruginosaisolated from blood and respiratory specimens were tested. These were characterized for mutations in oprD, AmpC/PDC, AmpD by targeted sequencing and relative quantification of efflux pumps such
as mexAB, mexCD, mexEF and mexXY by real time PCR. Determination of genotypes was performed by pubMLST scheme.

Results: Among the study isolates, nine different PDC variants such as PDC-1, 3, 11, 12, 16, 19a, 38, 98 and 317 were identified with PDC-3 and PDC-11 being predominant in blood and respiratory isolates respectively. Among OprD, none were of wild type and all had various mutations inactivating OprD including frameshift, nonsense and missense mutations. Among the efflux pumps, 73% (29/40) were positive and 27% (11/40) were negative for overexpression. Overall, 73% of the isolates showed over-expression of efflux pumps. mexAB was the most commonly over-expressed efflux in for 33% of isolates, followed by 8% and 3% of mexCD and mexEF respectively. Genotyping by MLST revealed these isolates belong to high-risk international clones such as ST664, ST357, ST244 and ST823.

Conclusion: This study demonstrates the presence of multiple chromosomal resistant mechanisms in CR-<i>P. aeruginosa</i>. This highlights the interplay of complex pathways by which <i>P. aeruginosa</i> confers resistance to carbapenems in the absence of acquired carbapenemases.

MICP 391

TO STUDY INDUCIBLE CLINDAMYCIN RESISTANCE AND LINEZOLID RESISTANCE IN STAPHYLOCOCCUS AUREUS COLONIZED IN ANTERIOR NARES OF HEALTHCARE WORKERS

Dr. JeniaBidani, Dr. Loveena Oberoi, Dr. Sita Malhotra, Dr. Veena Chatrath, Dr. Rupinderjit Kaur, Tavishi Oberoi
Department of Microbiology, Government Medical College, Amritsar

Introduction: Nasal colonization of Staphylococcus aureus by healthcare workers is a major risk factor for the spread of infection in hospital settings. Although the organism was naturally susceptible to all the antimicrobial agents, it has acquired multidrug resistance via various mechanisms including horizontal gene transfer, mutational drug resistance and antimicrobial selection pressure.

Methods: A prospective study was carried out in the Department of Microbiology, Government Medical College, Amritsar. A total of 100 samples from nostrils of physicians, residents and nurses working in various wards of the hospital were processed using a sterile swab soaked in sterile saline. Samples were processed and Staphylococcus aureus isolates were identified using standard microbiological procedures. Antimicrobial resistance pattern of all the Staphylococcus isolates were determined and interpreted as per the latest CLSI guidelines. Linezolid resistant strain was confirmed by agar dilution method.

Result: Out of 100 samples, 18 (18%) Staphylococcal aureus isolates were identified. Amongst them, 6 (33.3%) isolates were found to be Methicillin resistant Staphylococcus aureus. Inducible clindamycin resistance was observed in 6 (33.3%) isolates by D-test while 1 (5.55%) isolate was linezolid resistant.

Conclusion: Clindamycin and linezolid is kept as a reserve drug and is usually advocated in severe MRSA infection but emergence of their resistance in Healthcare workers is a cause of great concern. Regular infection control practice i.e. screening of nasal carriage of healthcare workers in the hospitals are necessary to curtail these infections.

MICP 436

HCAI-P10

MICP 436

HCAI-P11
LEVEL OF CONTAMINATION WITH NOSOCOMIAL PATHOGENS IN A MEDICAL ICU OF A TERTIARY CARE HOSPITAL WITH SPECIAL REFERENCE TO ACINETOBACTER BAUMANNII

Richa Thakker, Sunil Kuyare, Milind Nadkar, Gita Nataraj
Seth GSMC and KEMH, Mumbai

Introduction: Nosocomial pathogens are able to survive on inanimate surfaces for long periods causing hospital environmental contamination. This leads to cluster/outbreaks, commonly being caused by *Acinetobacter baumannii*.

Aims and Objectives: To determine the level of contamination of inanimate high touch surfaces of a medical ICU and medical wards and to compare the isolates with the clinical isolates from patients’ specimens from same areas.

Methodology: After ethics permission, environmental samples from high touch surfaces were collected from MICU and two medical wards. These samples were processed as per standard protocol along with use of chromogenic agar for ease of identification of *A. baumannii*. Data of isolates from patient specimens were documented from these areas during the same period.

Results: A total of 876 samples were collected from the environment. Of these, 758(89.6%) showed growth and 415(47.4%) were found to be potential pathogens, gram-negative predominating. ICU (53.9%) had more potential pathogens than wards (24.7%) (p<0.05). Most contaminated surfaces in ICU were patient files (72%) followed by bed railings (60.8%) and in wards, air samples (32.1%) followed by patient files (28.1%). *Acinetobacter baumannii* was the commonest microorganism isolated from both settings. *A. baumannii* isolates from ICU were found to be more resistant than those from wards. Culture positivity of patient’s specimens from the ICU (44.4%) was higher than that of the ward (29.9%). *A. baumannii* (31.7%) followed by *Klebsiella pneumoniae* (19.1%) were isolated from ICU clinical specimens. All the *A. baumannii* isolates were sensitive to colistin. *E. coli* (25.3%) and *Klebsiella pneumoniae* (17.2%) were the common organisms from the medical wards. *A. baumannii* isolates were grouped on the basis of antimicrobial susceptibility patterns. A biotype susceptible only to colistin was commonest both from clinical specimens and environmental samples, being isolated more from ICU environment than wards.

Conclusion: Isolation of environmental multidrug resistant nosocomial pathogens, especially *A. baumannii* from environmental samples is a cause of concern. Frequent and targeted cleaning is essential to reduce the burden of environmental contamination.

MICP 449

IMPROVING OPERATION THEATRE PRACTICES FOR REDUCING THE RISK OF SURGICAL SITE INFECTIONS

Sunil Kuyare¹, Priti Natekar², Gita Nataraj¹
¹Department of Microbiology, ²Infection Control Nurse, Seth GS Medical College and KEM Hospital, Parel, Mumbai

Introduction: A hygienic environment along with standard practices for sterilization and disinfection are two of the important components for reducing the risk of SSI during surgery.
The implementation of these practices however varies. Audit of these practices can draw attention to deficiencies.

**Aims and Objectives:** To audit the operation theatre (OT) practices and determine the lacunae with specific reference to documentation of engineering parameters, BMW, practices related to hand hygiene, PPE, instrument cleaning and sterilization and surveillance of above and compare the level of knowledge pre and post training.

**Methods:** Ours is a tertiary care multi-speciality teaching hospital with 10 different surgical disciplines and 16 different OT complexes. A standard operating procedure documented by the Infection Control Committee was circulated to all the HODs and a training session was conducted for the sister in charges of the OTs. A checklist was prepared and validated for conducting an audit. After the audit feedback was provided to the respective discipline. A dedicated training session on sterilization and disinfection for reprocessing of instruments was conducted and attended by 121 HCWs.

**Results:** Documentation was poor with respect to record of engineering parameters, autoclave maintenance/calibration, training records, vaccination records and AC filter cleaning records. Documentation was found to be appropriate for autoclave cycle, environmental cleaning (66.7%) and surveillance (75%) and biomedical waste log book (100%).

18.7% of OTs practiced brooming before mopping, wearing OT clothes outside OT complex and having no separate basin available for hand wash and instrument cleaning. Post the training improvement in knowledge was observed both in sisters as well as dressers. The audit feedback was received well by the departments.

**Conclusion:** Preparation of standard operating procedures, training of HCWs, regular audits and administrative support are the four important pillars of reducing risk of SSI in OTs.

**MICP 170**

**HCAI-P13**

**CLINICAL AND MICROBIAL PROFILE OF VENTILATOR ASSOCIATED PNEUMONIA WITH SPECIAL REFERENCE TO NON-FERMENTATIVE GRAM-NEGATIVE BACILLI**

Dr Anitha G, Dr Sujatha Sistla, Dr Apurba Sankar Sastry, Dr Venkateswaran Ramanathan

JIPMER, Pondicherry

**Introduction:** Ventilator-Associated Pneumonia (VAP) is the most frequent cause of intensive-care-unit (ICU)-acquired infection. The aetiology varies with different patient populations and types of ICUs. Knowledge of the incidence of VAP and its associated risk factors and the resultant attributable morbidity and mortality is imperative for more effective preventive measures.

**Aim & Objectives:** To study incidence, aetiology, risk factors, spectrum of non-fermentative Gram-negative bacilli (NFBNB) and outcome of VAP cases in medical intensive care units (MICU) in a one-year period & to determine the performance characteristics of microbiological criteria in the diagnosis of VAP taking clinical pulmonary infection score (CPIS) of >6 as gold standard.

**Methods:** A prospective cohort study was performed over a period of 12 months (Oct 2018-Sep 2019) in MICU inpatients on mechanical ventilation (MV)>48 hrs. Gram stain and semiquantitative cultures of endotracheal aspirates were performed and isolates were identified using MALDI TOF –MS.
**Results:** The incidence of VAP was 39.6 per 1000 ventilator days. In our study 56.9% of the cases were early-onset VAP, while 43% were late-onset VAP. Univariate analysis indicated that tracheostomy and supine head position were significantly associated with VAP. In the diagnosis of VAP, taking CPIS as gold standard, microbiological criteria had a sensitivity of 98.9%, specificity of 85.5%, positive predictive value of 77.9% and negative predictive value of 99.3%. NFBNB accounted for 76.3% of VAP cases. *Acinetobacter baumannii, Pseudomonas aeruginosa* and *Stenotrophomonas maltophilia* were the most common NFGNB isolated in our study.

**Conclusion:** The incidence of VAP (39.6 per 1000 ventilator days) in our study was high, almost similar to other Indian studies. Microbiological criteria had a very good sensitivity and a moderate specificity aiding in the accurate diagnosis of VAP. Most of NFGNB are intrinsically resistant to commonly used antibiotics, therefore correct identification is necessary to institute appropriate treatment.

**MICP 67**

**BACTERIOLOGICAL STUDY OF INDWELLING CENTRAL VENOUS CATHETER**

Deepak Gupta
Krishna Institute of Medical Sciences, Karad

**Introduction:** Catheter related blood stream infections (CRBSI) are an important contributor for the increasing morbidity and mortality in patients on Central venous catheter (CVC). The incidence of CRBSI increases with duration of catheterization. Hence it requires a rapid diagnosis of CRBSI and initiation of an appropriate antibiotic therapy, if not it will lead to emergence of drug resistance and poor prognosis in these patients.

**Aims & Objectives:** Aim was to study the bacteriological profile of indwelling central venous catheter among patients in ICU & objectives of the study were to isolate and identify the bacterial pathogens, to assess the antimicrobial susceptibility pattern of the organisms isolated and to study the different mechanisms of drug resistant among these isolates.

**Methods:** The study was conducted on admitted patients with indwelling central venous catheter in MICU, SICU and CCU of Krishna hospital, Karad. Catheter samples were collected from cases of CVC inserted patients admitted in the ward of SICU, MICU and ICU at Krishna Hospital, Karad. Samples were collected after removal of the catheter (on 3rd day). Paired blood samples were collected from the patient from two different sites on same day along with catheter tip and skin swab. The catheter tips were processed by roll plate technique (semiquantitative method) on agar plates for routine clinical microbiological analysis. Growth of > 15 CFU/plate of catheter tip was considered positive. Blood sample was directly inoculated into automated blood culture bottle “Adult” (green, 20 mL, BacT/Alert FA).

**Results:** In this study, among 200 patients with central venous catheter insertion, catheter related blood stream infection were detected in 63 (31.5%) patients.

**Conclusion:** CVCs are increasingly used in the inpatient and outpatient setting to provide long term venous access. Duration of catheterization and catheter colonization has an important role in development of CRBSI which may lead to septicaemia.
BACTERIOLOGICAL PROFILE OF POST OPERATIVE WOUND INFECTION IN LSCS PATIENTS IN MKCG MEDICAL COLLEGE BERHAMPUR

Dash S, Paty B, Padhi S, Sahu S, Narasimham M V, Mohanty I, Parida B
Department of Microbiology, M.K.C.G Medical College, Berhampur

Introduction: Post LSCS infection are a common complication and mainly responsible for longer hospital stay, higher treatment cost and Maternal mortality. 

Aim: To isolate and identify the different bacterial spp. and determine their antimicrobial susceptibility.

Methods: Pus samples were collected from 30 numbers of patients with infected LSCS wound using 2 sterile swabs from each patient during a period of May 2019 to July 2019. One used for Gram stain and other inoculated into Blood agar and Mac Conkey agar. Bacterial isolates were identified using standard protocol. Antimicrobial susceptibility was done by Kirby Bauer disk diffusion method. Double disk diffusion and E- test using CTX / CTX+ and CAZ / CAZ+ was done for ESBL producer. All isolates were put on Congo red agar to see the biofilm production.

Results: Out of 30 samples 76% (22) were culture positive. Predominant age group were 20 – 30 yrs. Gestational diabetes and hypertension were the common risk factors. Pond bathing was a major predisposing factor. Of 23 isolates 65.2% (15) were Gram-positive and 34.8% (8) were Gram-negative bacteria. Among Gram-positive isolates Staphylococcus aureus was the predominant isolate (80%) other being Enterococcus and M. tuberculosis. Among Gram-negative isolates Acinetobacter was predominant (50%) followed by Pseudomonas, Escherichia coli, Klebsiella. All Gram-positive isolates were sensitive to Linezolid and Vancomycin and in Gram-negative 75% were sensitive to Imipenem -cilastatin and Cefepime-tazobactam. Of all isolates 2 were ESBL producers and 5 were biofilm producers which were also MRSA.

Conclusion: Majority of LSCS wound infection was due to Gram-positive bacteria. Educating the patients about personal hygiene and antimicrobial prophylaxis is thought to decrease the incidence of LSCS wound infection.

MICP 218

HCAI-P16

INCIDENCE OF CENTRAL LINE ASSOCIATED BLOOD STREAM INFECTION IN TERTIARY CARE HOSPITAL OF PATNA

Ashok Kumar Raut, Vidyut Prakash, Rakesh Kumar, Swetamuni, S. K Shahi
Indira Gandhi Institute of Medical Sciences, Patna

Introduction: A central line-associated bloodstream infection (CLABSI) is defined as a laboratory-confirmed bloodstream infection not related to an infection at another site that develops within 48 hours of a central line placement. Microbes have capacity to adhere and to multiply on the surface of catheters. Presence of biofilm is critical, such infections can be cured only by removing catheters. New techniques, like impregnated catheters and dressing with antiseptics and antibiotics, new hub models, and antibiotic lock solutions reduces the risk of CLABSI.

Aims & Objectives: To determine the incidence of CLABSI.
**Methods:** Samples were collected and processed as per the laboratory guidelines. Identification and AST pattern were evaluated. Blood samples were collected and were cultured, organisms were identified and AST pattern was evaluated. Comparison between pattern of CVP tip sample and blood culture were done and result was evaluated.

**Results:** Out of 123 samples studied, 9 i.e. 10.58% in 85 males and 4 i.e. 10.52% of the 38 females were affected by CLABSI. The incidence of CLABSI was highest in the age groups 51-60 years (38.3%). Overall, the age group 51-60 years had highest incidence (5/13) of CVC associated and related blood stream infections which was found to be 38.3%.

**Conclusion:** Preventing CLABSIs in ICU usually requires multiple strategies. Insertion strategies including education and training of those who insert catheters, use of chlorhexidine for skin antisepsis, and use of maximal sterile barrier precautions have a long record of preventing CLABSI. Use of novel technologies such as antibiotic or antiseptic impregnated catheters, sutureless securement devices, and disinfection caps should be added to the armamentarium of tools to further reduce CLABSI rates.

---

**MICP 60**

**HCAI-P17**

**“INCIDENCE AND RISK FACTORS OF SURGICAL SITE INFECTION FOLLOWING LOWER SEGMENT CAESAREAN SECTION”**

Dr. Savali Pande, Dr. Vineeta Pathak, Dr. Sujata Baveja
Lokmanya Tilak Municipal Medical College and General Hospital, Sion, Mumbai

**Introduction:** Surgical Site Infection is infection that occurs after surgery in the part of body where surgery took place. These are the infections occurring upto 30 days after surgery. The rate of surgical site infection after Lower Segment Caesarean Section ranges from 3% to 15%. Moreover, SSI is associated with a maternal mortality rate up to 3%.

**Aims and Objectives:** To determine the incidence of SSI in women undergoing LSCS; associated risk factors; common bacterial pathogens isolated and their antibiotic susceptibility pattern.

**Methods:** 300 patients undergoing LSCS were included in the study. From those developing infection, two samples were collected using sterile cotton swabs. One sample for Gram stain was prepared and second was plated on 5% sheep Blood agar and MacConkey agar. Organisms were identified using standard procedures and subjected to antimicrobial susceptibility testing.

**Results:** Out of 300 patients, 20 developed postoperative infection, with overall SSI rate of 6.66%. Important risk factors included Gestational Diabetes mellitus (25%), Hypertension (13.6%), High BMI, long pre-operative stay & Haemoglobin <11g/dl. Duration of surgery >45 minutes and Premature rupture of membranes were associated with increased risk of SSI. Culture positive SSI was seen in 17 of 20 with total 19 isolates. Of these, 5 were Gram-positive and 14 were Gram-negative - most common being Acinetobacter species (31.59%). All Gram-negative bacteria showed varying sensitivity to first line drugs except 2 strains of Acinetobacter species which were sensitive to Colistin only.

**Discussion & Conclusion:** SSI is an important postoperative complication following LSCS and is associated with significant morbidity. A proper assessment of risk factors like diabetes, hypertension, BMI and Hb and their preventive measures can help in reduction of SSI in LSCS.
INCIDENCE AND CLINICODEMOGRAPHIC PROFILE OF LEPROSY CASES ADMITTED IN SILCHAR MEDICAL COLLEGE IN SILCHAR, ASSAM

Namrata Sonowal, Purnima Rajkhowa, Dipa Barkataki
Silchar Medical College & Hospital, Silchar

Introduction & Objectives: Leprosy is a chronic granulomatous infectious disease caused by *Mycobacterium leprae* that affects the skin and peripheral nerves. Slit-skin smear examination is simple and widely available test for screening of leprosy and its classification as well monitoring response to treatment. The present study was conducted to ascertain the incidence and clinicodemographic profile of leprosy cases in Silchar Medical College, Assam.

Methods: A retrospective study was carried out from the month of January 2019 to September 2019 in patients presenting with decreased sensations, thickened nerves and deformity to determine the smear positivity among the slit skin smear samples examined in the Department of Microbiology. The smears were stained by a modified Ziehl Neelsen method and examined for the presence of acid fast bacilli (AFB) under oil immersion objective lens. The smear positive cases were further studied for Morphological as well as Bacteriological index to look for the prognosis and treatment response of the patients to the anti leprotic drugs.

Results: This study included 63 leprosy patients at various stages according to Ridley Jopling classification amongst which 17 cases were found to be positive for acid-fast bacilli, Majority of the cases belonged to Borderline Tuberculoid leprosy (25%).

Conclusions: This study concluded that although the prevalence rate has decreased over a period of time, incidence cases still do occur indicating an active transmission of the disease. The clinical features along with Bacterial index is useful in making accurate diagnosis so that appropriate treatment could be started and hence deformity and disability could be prevented.

SLOPPY MOLECULAR BEACON: A RAPID TOOL TO DETECT STREPTOMYCIN RESISTANCE IN MYCOBACTERIUM TUBERCULOSIS

Chanchal Kumar1, Kamal Shrivastava1, Shraddha Gupta1, Sandy Roh2, Astha Giri1, Naresh Kumar Sharma1, Soumitesh Chakravorty2, David Alld2, Mandira Varma-Basil1
1Department of Microbiology, Vallabhbhai Patel Chest Institute, University of Delhi
2 Department of Medicine, New Jersey Medical School, Rutgers University, Newark, New Jersey, United States of America

Introduction: Limitations of conventional methods of diagnosis entail the use of molecular tools for diagnosis of drug resistant tuberculosis (TB). A recent approach is to use a set of fluorescently labelled, sequence-specific oligonucleotide hybridization probes, complementary to different specific sequences with the hybridization of only perfectly matched probes and targets.

Aims and Objectives: The aim was to use sloppy molecular beacons targeting the rpsL gene to detect streptomycin (SM) resistance in M. tuberculosis.
**Methods:** Well characterized 154 clinical isolates of Mycobacterium tuberculosis were obtained from the Department of Microbiology, Vallabhbhai Patel Chest Institute, New Delhi. The clinical isolates were subjected to Phenotypic Drug Susceptibility testing (PDST) by 1% Proportion method followed by sloppy molecular beacon assay targeting the rpsL gene. Melting temperature (Tm) shifts in comparison with H37Rv, suggested mutations and were confirmed by Sanger Sequencing.

**Results:** Of the 154 isolates tested, 20 (12.9%) were resistant to SM by PDST. Tm shift was observed in 15/154 (9.7%) isolates, suggestive of a mutation in the rpsL gene. Sequencing confirmed a mutation Lys43Arg in the rpsL gene in 14/15 (93.3%) isolates and the mutation Lys43Thr in 1/15 (6.7%) isolate. One isolate with a Lys43Arg mutation was susceptible by PDST. The assay was thus highly sensitive (100%) and specific (100%) in detecting SM resistance in M. tuberculosis when compared with sequencing. On comparison with PDST, the sensitivity of the assay in detecting SM resistance was 70% and specificity was 99.2%.

**Conclusion:** Though the sensitivity of the Sloppy molecular beacon assay was low when compared with PDST, it can prove to be a rapid and specific assay for detection of resistance to SM.

**MICP 145**

**ISOLATION, IDENTIFICATION AND SPECIATION OF NTM ISOLATES FROM VARIOUS CLINICAL SAMPLES (EXCEPT RESPIRATORY SAMPLES)**

Padma Patel, Geeti Maheshwari, Harsukh T Toprani, Priyanka Patel
Toprani Advanced Lab Systems, Vadodara

**Introduction:** Non tuberculous mycobacteria (NTM) are increasingly being recognized as the causative agents of opportunistic infection in humans. Atypical mycobacteria infections have atypical presentations and do not respond to conventional antibiotics. Timely identification of such infections can lead to prompt therapy of patients.

**Aims & Objective:** To isolate, identify and speciate Non-Tuberculous Mycobacteria from various clinical samples.

**Methods:** All NTM which were isolated during period of May 2017 to May 2019 were studied. These NTM were isolated from various clinical samples (except respiratory samples). These NTM were isolated by using AFB culture (BACTEC 320 MGIT system) & by pyogenic culture (Rapid growers (RGM) on 5 % sheep blood agar). AFB culture positive isolates were differentiated by rapid MPT64 assay (SD Bioline). Speciation of NTM was done by using HAIN’S CM assay (LPA). Samples were also subjected to ZN stain and GeneXpert M. Tb RIF assay. (Whenever requested)

**Result:** Total 23 NTM isolates were identified during this period from various clinical samples except respiratory samples. Out of 23 isolates 9 were isolated from different post-operative wound sites, 7 from hernia mesh + tissue, 5 isolates from post LSCS wounds, 2 from abscesses. 22 isolates were identified up to species level. AFB smear (ZN stain) done for 17 specimens. Out of these 9 were AFB smear positive and 8 were negative. AFB culture was requested for 16 specimens and all were positive. 8 specimens were requested for pyogenic culture only and these showed No Growth at 48hours and grew NTM (Rapid Growers) on extended incubation. The species were M. abscessus (12), M. fortuitum (8), M. intracellulare (1), M. malmoense (1) and Mycobacterium spp (1).

**Conclusion:** The number of NTM isolated from post-operative wounds is increasing. Sterile pyogenic culture after 48 hours of aerobic incubation especially from non-healing post-
operative wound infection should raise the suspicion of NTM infections. Speciation of NTM isolates are very important for their therapy.

MICP 298
MB-P4

PREVALENCE OF NONTUBERCULOUS MYCOBACTERIA IN SUSPECTED PULMONARY AND EXTRAPULMONARY TUBERCULOSIS CASES: A PILOT STUDY FROM EASTERN INDIA

Sivasankar Das1, Sutapa Rath1, Monalisa Mohanty1, Prasanta Raghab Mohapatra2, C Preetam3, Baijayantimala Mishra1, Departments of Microbiology1 and Pulmonary Medicine and Critical Care2 and ENT3, All India Institute of Medical Sciences, Bhubaneswar

Background: Nontuberculous Mycobacterial (NTM) infections are on the rise worldwide. Their clinical features and radiological findings are often similar to that of Tuberculosis (TB) which are often misdiagnosed in TB endemic settings where Ziehl Neelsen (ZN) staining is used as a single modality of diagnosis. Accurate identification is required for initiation of the correct treatment so as to prevent relapse and development of drug resistance.

Methods: Samples were taken from 570 TB suspects from December 2018 to August 2019 and processed for ZN staining, GeneXpert MTB/Rif assay by Cartridge-based Nucleic acid amplification technique (CBNAAT) and solid media culture. Samples with acid fast bacilli (AFB) on ZN staining and CB NAAT positive for MTB DNA were considered to be of Mycobacterium tuberculosis complex (MTBC). Samples that were AFB positive but CBNAAT negative were presumptively considered to be NTM. All MTBC and presumptive NTM were confirmed by growth on LJ media and MPT 64 detection. All NTM isolates were further confirmed by multiplex real time PCR (Genefinder TB & NTM).

Results: The overall prevalence of NTM among suspected TB cases is 2.4% (11/455). Its prevalence among suspected pulmonary TB (PTB) cases is 3.15% (5/159) and among suspected extra-pulmonary TB (EPTB) cases is 2.0% (6/296). 11 (5 PTB, 6 EPTB) samples were negative by CBNAAT, showed growth on LJ media; presumptively being identified as NTM. 3/11 samples (1-PTB, 2-EPTB) showed AFB on ZN staining. Of these, 5 were Scotochromogens, 5 rapid growers and 1 nonchromogen.

Conclusion: Early diagnosis and differentiation among Mycobacterium tuberculosis and NTM is important to initiate correct therapy. Hence, smear examination along with CB NAAT testing and culture needs to be done for initiation of the correct treatment regimens.

MICP 403
MB-P5

GENOTYPING OF NON-TUBERCULOUS MYCOBACTERIAL ISOLATES FROM SUSPECTED CASES OF TUBERCULOSIS ATTENDING A TERTIARY HOSPITAL IN WESTERN RAJASTHAN


Introduction: Non-tuberculous mycobacteria (NTM) are environmental organisms, found in natural bodies of water, biofilms, soil, damaged walls, and even drinking water supplies. These bacteria cause infections in immunocompromised individuals (like HIV-AIDS), however they are also reported from immunocompetent individuals.

Aims & Objective: To identify NTM from clinical sample using conventional methods, characterize them genotypically using Line probe assay and to correlate their clinical, laboratory and demographic data.

Methods: The present study is a prospective study done for a period of one year (August 2018 to August 2019), which included patients from all age group suspected of pulmonary or extra-pulmonary tuberculosis attending hospital. The specimens were processed, cultured in BacT/ALERT automated culture system. Differentiation between NTM and MTBC was done by MPT-64 antigen detection and genotyping was done using Line probe assay on positive liquid culture material.

Results: A total of 740 cases were received during the period of which NTM was isolated in 81 cases and 61.7% (n=50) were extra-pulmonary and 38.3% (n=31) were pulmonary isolates. Genotyping was performed for 45 samples. Most commonly identified genotype was M. abscessus(n=9). Other identified genotypes were M. fortuitum, M. chelonae, M. gordonae and M. peregrinum. Twenty (20) samples were identified as high GC content Gram-positive bacteria. Remaining 11 were reported as mycobacterium species which need a different LPA kit for further identification.

Conclusions: This study shows that a large number of cases are being caused by NTM. Since antibiotic treatment varies according to species isolated from the patient, correct identification and antibiotic susceptibility testing of the NTM isolates is important for the appropriate management of the patients.

MICP 433

INCIDENCE OF MULTIDRUG RESISTANCE TUBERCULOSIS BY MUTATION PATTERN AMONG PULMONARY TUBERCULOSIS PATIENTS BY LINE PROBE ASSAY IN TERTIARY CARE HOSPITAL JAMNAGAR, GUJARAT (INDIA)

Dr. RinaChandrvadaiya, Dr. BinitaAring, Dr.HiteshShingala
Shri M. P. Shah Government Medical College, Jamnagar

Introduction: India having 24% of the global burden of TB and estimated 2-2.3 million new cases each year Drug-resistance tuberculosis is serious public health issue in many developing countries. Multi drug resistance tuberculosis is defined as the two of most effective first –line TB drugs: Rifampicin and Isoniazid. Rapid molecular diagnostic tools used in the diagnosis of MDR –TB in India such as the Line Probe Assay and GeneXpert are very useful. LPA a is a rapid technique based on polymerase chain reaction that is used to detect Mycobacterium tuberculosis complex as well as drug sensitivity to Rifampicin and Isoniazid through RNTCP.

Aim and Objective: The study was conducted to determine incidence of multidrug resistance tuberculosis among pulmonary tuberculosis patients from samples received in TB culture and
DST Laboratory, Microbiology in GGG Hospital, Jamnagar from April to September-2019 by Line probe assay.

**Methods:** Sputum samples from MDR-TB suspected patients are received at Tb DST laboratory, MP Shah Govt Medical College, Jamnagar from various area near Jamnagar. Only sputum samples that are smear positive for acid fast bacilli are tested by LPA. A Total 3083 sputum positive samples suspected for MDR were tested for first line probe assay received from April to September 2019.

**Results:** Out of 3083 total tested sputum samples, total 115 were resistant to both Rifampicin and Isoniazid. Only Rifampicin resistance were 48 and only isoniazid resistance were 219. Here study shows rpoB gene mutation is responsible for resistance to Rifampicin (18.91%), while catG mutation is responsible for INH resistance (33.38%). Male predominance is seen for MDR which is 64.77%.

**Conclusions:** Study confirms the LPA test provides an early diagnosis of mono resistance to Rifampicin and Isoniazid and highly sensitive and specific for an early diagnosis of MDR-TB, and to identify the mutation of gene which can lead to MDR-TB. LPA test can be used in diagnosis of resistant tuberculosis.

**MICP 50**

**USE OF GENEXPERT MTB/RIF ASSAY IN DIAGNOSING EXTRA PULMONARY TUBERCULOSIS AND RIFAMPICIN RESISTANCE**

Shiva Shankaril, Ambhore.N, Mantri RS
Department of Microbiology, Government Medical College, Akola

**Introduction:** India has the world’s largest burden of tuberculosis (TB). TB remains a key challenge to Global public health and our ability to tackle this disease has been severely hampered by inadequate diagnostic assays. Diagnosis of Extra Pulmonary TB remains especially challenging since the load of Tubercle bacilli present in tissues at sites of disease is often low and clinical specimens from deep seated organs may be difficult to obtain. Present study involved the use of GeneXpert in diagnosing Extra pulmonary tuberculosis and Rifampicin resistance.

**Aim and Objectives:** To study the occurrence of Extra pulmonary tuberculosis using GeneXpert and to study the occurrence of MDR TB in Extra Pulmonary samples.

**Methods:** Sample testing was done using GeneXpert system as per manufacturer’s guidelines from June 2018-June 2019. Pleural fluid was most common sample obtained followed by gastric lavage.

**Results:** Total 190 suspected Extra Pulmonary TB samples were processed. 25.26% were positive for TB. The proportion of samples obtained from different anatomical sites were: Broncho alveolar lavage (25), lymph node (15), pus (5), pleural fluid (99), CSF (10), gastric lavage (35), synovial fluid (1).

**Conclusion:** GeneXpert proves to be efficient and reliable technique for rapid diagnosis of tuberculosis. Results are obtained in 3–4 hours which is much early as compared to conventional LJ culture. Rapid turnaround testing time facilitates prompt and appropriate treatment initiation.
DIAGNOSTIC ACCURACY OF XPERT MTB/RIF ASSAY FOR DETECTION OF EXTRAPULMONARY TUBERCULOSIS

Dr. Geetanjali Sakhare, Dr. Reena Set, Dr. Daksha Shah, Dr Jyantiti Shastri
TNMC & BYL Nair Charitable Hospital, Mumbai

Introduction: WHO endorsed Xpert MTB/RIF assay, has been evaluated for pulmonary TB in a number of studies but very few have investigated it for extrapulmonary specimens. The present study evaluates the performance of Xpert MTB/RIF assay in diagnosis of extrapulmonary TB (EPTB).

Aims and objectives: To determine overall and samplewise sensitivity and specificity of Xpert MTB/RIF assay for diagnosis of EPTB in comparison to culture on Lowenstein Jensen (LJ) medium.

Methods: The present study was laboratory based at a tertiary care centre in Mumbai between March 2017 to June 2018. Total 738 specimens including pus, body fluids, lymph node aspirates, tissues and biopsies from clinically suspected cases of EPTB were subjected to Ziehl Neelsen staining, Xpert MTB/RIF assay and culture on LJ medium. Of these 9 were contaminated on culture and 7 showed error on Xpert MTB/RIF. Therefore 722 specimens were analysed. Statistical analysis was done using Medcalc statistical software.

Results: The sensitivity, specificity of Xpert MTB /RIF assay for diagnosis of EPTB were 78.57% (95% CI 59.05 to 91.7 %) and 94.79 % (95% CI 92.89 to 96.3 %). Amongst culture positive cases, sensitivity of Xpert MTB/RIF assay was 87.5% in smear positive and 75% in smear negative cases. Xpert MTB/RIF showed maximum sensitivity of Mycobacterium tuberculosis detection from lymph node specimens 100% (95% CI 39.7 to 100.00%) and body fluids other than pleural fluids 100% (95% CI 15.81% to 100.00%) and pus aspirates 90% (95% CI 55.5 to 99.75%)

Conclusion: Our results establishes that rapidity and simplicity of Xpert MTB /RIF assay with a good sensitivity and specificity for lymph node specimens, body fluids other than pleural fluids and pus aspirates makes it a promising tool in diagnosis of EPTB. However, pleural biopsy was found to be a preferable to a pleural fluid specimen.

MICP 259

PREVALENCE OF POSITIVITY OF GENE EXPERT (CBNAAT) AND RIFAMPICIN RESISTANCE IN EXTRA PULMONARY TUBERCULOSIS

Dr. Kinjal Chauhan, Dr. Binita Aring, Dr. Hiral Gadhavi, Dr. Hitesh Shingala
Shri M. P. Shah Government Medical College, Jamnagar

Introduction: EPTB results from hematogenous dissemination of tubercle bacilli to various organs. Diagnosis of extra pulmonary TB (EPTB) remains especially challenging since the number of Mycobacterium tuberculosis (MTB) bacilli present in tissues at the sites of disease is often low and clinical specimens from deep-seated organs may be difficult to obtain. Though EPTB constitutes about 15 – 20 % of all cases of TB, in HIV – positive patients, the frequency is much higher accounting for 20 – 50% of all cases of tuberculosis.

Aims & Objectives: To know the prevalence of positivity of (CBNAAT) GeneXpert & rifampicin resistance in extra-pulmonary tuberculosis.
**Methods:** Samples received from 30 districts at culture district laboratory, Jamnagar during the time period of October 2018 to September 2019 were included in the study. Total 410 suspected cases of extra pulmonary tuberculosis were enrolled. CBNAAT was done.

**Results:** Out of these 410 suspected cases of EPTB, 124 were found positive for mycobacterium tuberculosis. Out of these 124 positives, 46 (37.09%) samples of pus, 27 (21.77%) samples of lymph node aspirate, 14 (11.29%) samples of pleural fluid, 13 (10.48%) samples of tissue & 24 (19.37%) of other samples were found positive for Mtb. Rifampicin resistance was found in 10 (8.06%) cases of diagnosed EPTB by gene expert (CBNAAT).

**Conclusion:** Gene expert assay (CBNAAT) detects extra pulmonary TB with greater efficacy in less than 2 hours. It also detects rifampicin resistance with high specificity and can be used for screening for MDR-TB, so that early therapy can be started, thus decreasing the incidence of MDR-TB.

**MICP 261**

**MB-P10**

**UTILITY OF CARTRIDGE-BASED NUCLEIC ACID AMPLIFICATION TEST IN DIAGNOSIS OF PULMONARY AND EXTRAPULMONARY TUBERCULOSIS IN EASTERN INDIA**

Sutapa Rath¹, Baijayantimala Mishra¹, Geetaranvi Purohit¹, Shehnaz Firdaus¹, Prasanta Raghur Mohapatra², C Preetam³

Departments of Microbiology¹, Pulmonary Medicine and Critical Care², and ENT³, All India Institute of Medical Sciences, Bhubaneswar

**Introduction:** Tuberculosis (TB) still remains a major cause of morbidity and mortality with 10 million new TB cases and 1.6 million deaths occurring each year. In India, in 2017, 1.9 million cases were notified of which around 65,000 cases were MDR-TB.

**Aims:** The present study aims to analyse trends of TB and role of Xpert MTB/RIF assay (CBNAAT) in the diagnosis of tuberculosis.

**Methods:** A retrospective study of suspected tuberculosis patients was conducted in a tertiary care centre from August 2018 to July 2019. Pulmonary TB (PTB) samples included sputum, induced sputum, bronchoalveolar lavage, gastric aspirate. Extrapulmonary TB (EPTB) samples included lymph node aspirate, pus, pleural fluid, tissue, CSF, endobronchial ultrasound-transbronchial needle aspiration specimens, pericardial fluid, peritoneal fluid, synovial fluid. The samples were subjected to Ziehl-Neelson Staining and CBNAAT. Samples with acid fast bacilli (AFB) on ZN staining and that detected *Mycobacterium tuberculosis* by CB NAAT were considered to be of Mycobacterium tuberculosis complex.

**Results:** A total of 2655 samples were processed (PTB: 1445; EPTB: 1210) of which 186 and 130 samples were positive by CBNAAT and 71 and 15 were positive for AFB respectively for PTB and EPTB. 71 of 186 CBNAAT positive PTB samples and 15 of the 130 CBNAAT positive EPTB samples showed AFB. Rifampicin resistance was detected in 10 cases (PTB: 5, EPTB: 5; Primary: 5, Secondary: 5); with Probe E being the most common mutation. Of the Rifampicin resistant cases; majority had low bacillary load (7/10) followed by high (2/10), and medium (1/10).

**Conclusion:** Rate of positivity in PTB and EPTB was 12.9% and 10.74% by CB-NAAT and 4.9% and 1.2% by ZN staining respectively. CBNAAT helps in increased case detection along with detection of rifampicin resistance especially in EPTB patients; thus, preventing dissemination of TB and reducing emergence of MDR TB.
ROLE OF CARTRIDGE BASED NUCLEIC ACID AMPLIFICATION TEST (CBNAAT) IN DIAGNOSIS OF EXTRAPULMONARY TUBERCULOSIS

Shobha Parsekar, Borges C, Rodrigues S
Department of Microbiology, Goa Medical College, Bambolim, Goa

Introduction: Tuberculosis continues to be a public health issue, especially in developing countries. Although pulmonary involvement predominates, extrapulmonary sites are not uncommon and pose significant clinical challenges. Early diagnosis and treatment is important to prevent spread to other organs.

Aims and Objectives: To determine the usefulness of CBNAAT in detection of extrapulmonary tuberculosis and to evaluate sample wise positivity rate.

Methods: Study was undertaken from January 2018 to August 2019. All extrapulmonary samples, collected under aseptic precautions were subjected to CBNAAT assay. The protocol for each sample was strictly followed as per Manufacturer’s instructions.

Results: A total of 2496 extrapulmonary samples were processed. The overall positivity rate was 11.4% (n=286). The various samples processed included CSF (28.3%), Pleural fluid (21.4%), Pus (14.9%) and lymph node aspirate/biopsy (13.6%), among others. Samplewise positivity was 33.6% in lymph node aspirate/biopsy, 30% with endometrial curettage and 23.1% with pus samples. Most CBNAAT positive cases belonged to the age group 31-40 years (39.2%) and ≥61 years (31.1%). The male: female ratio was 1.7:1 (181/105). Rifampicin resistance was seen in 6.9% CBNAAT positive cases.

Conclusion: In recent times, molecular based diagnostic assays are taking over due to their rapid turnaround time, sensitivity and specificity. An added advantage is the simultaneous detection of rifampicin resistance.

ROLE OF GENEXPERT MTB/RIF ASSAY AS A DIAGNOSTIC TOOL IN DETECTION OF MDR TUBERCULOSIS

Snehal Patil, Prasanna Nakate, Suvarna Patil, Yogendra Shelke
B.K.L. Walawalkar Rural Medical College, Sawarde, Ratnagiri

Introduction: India has the world’s largest burden of Tuberculosis (TB), accounting for one-fifth of the global TB incidence. Although, WHO and governments across the world are taking great efforts for prevention and control of TB, the emergence and spread of Multi-drug resistant strains of TB bacillus has become a big hurdle in TB control programs. This growing MDR emergence can be attributed to poor patient compliance along with longer duration in establishing the MDR status. So, early detection of drug resistance is as important as diagnosis of TB. Xpert MTB/RIF assay simultaneously detects Mycobacterium tuberculosis complex and resistance to rifampicin (RIF) in less than 2 hrs.

Aims & Objectives: The aim of this study was to determine utility of Xpert MTB/RIF assay for diagnosis of Tuberculosis and MDR/TB strains.
Methods: A prospective study was carried out from Jan.2019 to Sept.2019 in Department of microbiology, B.K.L. Walawalkar Rural Medical College, Sawarde. All Pulmonary and extrapulmonary samples were processed by Gene Xpert MTB/RIF assay.

Results: Out of 1258 samples, (1202) Pulmonary and (56) Extra-pulmonary samples were tested using Xpert MTB/RIF assay. 249/1258(19.79%) were positive by GeneXpert and 45/249 (18.07%) were detected as MDR TB strains.

Conclusion: GeneXpert MTB/RIF assay is efficient and reliable technique for rapid diagnosis of Pulmonary and Extrapulmonary TB.

MICP 79

PREVALENCE OF RIFAMPICIN RESISTANT PEDIATRIC TUBERCULOSIS AT A TERTIARY CARE CENTRE USING CATRIDGE BASED NUCLEIC ACID AMPLIFICATION TEST: A CROSS SECTIONAL STUDY

Fathima Shereen, Yogita Rai, Ravinder Kaur
Lady Hardinge Medical College, New Delhi

Introduction: Tuberculosis (TB) continues to be a major public health problem in India. The emergence of drug resistant tuberculosis (DR-TB) has adversely affected our ongoing TB control efforts. Laboratory confirmation of Tuberculosis and a clear understanding of drug resistance are critical in the early diagnosis and management of DR-TB. The advent of Cartridge based nucleic acid amplification test(CB-NAAT) has improved the detection rates of tuberculosis.

Aims and Objectives: To estimate the prevalence of Rifampicin resistance in pulmonary and extrapulmonary samples of presumptive pediatric TB cases received at the Microbiology department of Lady Hardinge Medical College, New Delhi using CB-NAAT.

Methods: All pediatric samples, pulmonary and extrapulmonary that came to the Microbiology department with a request for CB-NAAT over a period of 7 months (January to July 2019) were included in the study. The samples were processed as per the standard operating procedures of GeneXpert MTB/RIF guidelines. Data captured in the GeneXpert software was exported to the Microsoft excel sheets for further analysis. The number of Rifampicin resistant cases were counted and expressed in percentage.

Results: Out of a total of 1728 samples received, Mycobacterium tuberculosis was detected in 238 samples (13.7%). Rifampicin resistance was detected in 23 samples which accounted for 1.33% of total samples and 9.6 % of positive samples.

Conclusion: This study concluded that there is an alarmingly high number of Rifampicin resistant tuberculosis infection among Indian children. There is a need to expand our lab facilities for early detection and further drug susceptibility testing to control this problem.

MICP 139

APPLICATION OF CBNAAT (CARTRIDGE BASED NUCLEIC ACID AMPLIFICATION TEST) AND BAL (BRONCHOALVEOLAR LAVAGE) ZIEHL-NEELSEN STAINING IN THE DIAGNOSIS OF SPUTUM SMEAR-NEGATIVE PATIENTS WITH SUSPECTED TUBERCULOSIS

MICP 139

APPLICATION OF CBNAAT (CARTRIDGE BASED NUCLEIC ACID AMPLIFICATION TEST) AND BAL (BRONCHOALVEOLAR LAVAGE) ZIEHL-NEELSEN STAINING IN THE DIAGNOSIS OF SPUTUM SMEAR-NEGATIVE PATIENTS WITH SUSPECTED TUBERCULOSIS

MICP 79

PREVALENCE OF RIFAMPICIN RESISTANT PEDIATRIC TUBERCULOSIS AT A TERTIARY CARE CENTRE USING CATRIDGE BASED NUCLEIC ACID AMPLIFICATION TEST: A CROSS SECTIONAL STUDY

Fathima Shereen, Yogita Rai, Ravinder Kaur
Lady Hardinge Medical College, New Delhi

Introduction: Tuberculosis (TB) continues to be a major public health problem in India. The emergence of drug resistant tuberculosis (DR-TB) has adversely affected our ongoing TB control efforts. Laboratory confirmation of Tuberculosis and a clear understanding of drug resistance are critical in the early diagnosis and management of DR-TB. The advent of Cartridge based nucleic acid amplification test(CB-NAAT) has improved the detection rates of tuberculosis.

Aims and Objectives: To estimate the prevalence of Rifampicin resistance in pulmonary and extrapulmonary samples of presumptive pediatric TB cases received at the Microbiology department of Lady Hardinge Medical College, New Delhi using CB-NAAT.

Methods: All pediatric samples, pulmonary and extrapulmonary that came to the Microbiology department with a request for CB-NAAT over a period of 7 months (January to July 2019) were included in the study. The samples were processed as per the standard operating procedures of GeneXpert MTB/RIF guidelines. Data captured in the GeneXpert software was exported to the Microsoft excel sheets for further analysis. The number of Rifampicin resistant cases were counted and expressed in percentage.

Results: Out of a total of 1728 samples received, Mycobacterium tuberculosis was detected in 238 samples (13.7%). Rifampicin resistance was detected in 23 samples which accounted for 1.33% of total samples and 9.6 % of positive samples.

Conclusion: This study concluded that there is an alarmingly high number of Rifampicin resistant tuberculosis infection among Indian children. There is a need to expand our lab facilities for early detection and further drug susceptibility testing to control this problem.

MICP 139

APPLICATION OF CBNAAT (CARTRIDGE BASED NUCLEIC ACID AMPLIFICATION TEST) AND BAL (BRONCHOALVEOLAR LAVAGE) ZIEHL-NEELSEN STAINING IN THE DIAGNOSIS OF SPUTUM SMEAR-NEGATIVE PATIENTS WITH SUSPECTED TUBERCULOSIS

MICP 139

APPLICATION OF CBNAAT (CARTRIDGE BASED NUCLEIC ACID AMPLIFICATION TEST) AND BAL (BRONCHOALVEOLAR LAVAGE) ZIEHL-NEELSEN STAINING IN THE DIAGNOSIS OF SPUTUM SMEAR-NEGATIVE PATIENTS WITH SUSPECTED TUBERCULOSIS
Ahmed Abdul Muqtadir, Ravi Shankar Reddy A, Guru Prasad Manderwad, Rutaraj MK, Mallika, Sandeep Kumar Tipparthi, Laxmi Vemu, RajKumar HRV*
Department of Microbiology, Kamineni Academy of Medical Sciences and Research Centre, Hyderabad

Introduction: Sputum smear negative pulmonary tuberculosis remains a significant burden with a definite role in disease transmission. It is a grave diagnostic challenge to the treating physician. The broncho alveolar lavage ZN staining provides important role for detection of tubercle bacilli. The CBNAAT, a newly endorsed WHO technique, which not only detects the tubercle bacilli but also provides information regarding resistance to rifampicin, plays an important role in sputum smear negative patients. In the present pilot study, we have evaluated the application of BAL ZN staining and compared with the CBNAAT positive cases.

Methods: Clinico-radiologically suspected patients of pulmonary tuberculosis who were either sputum negative or not bringing out adequate sputum sample were included in the study. Included patients who do not have contraindications to bronchoscopy were subjected to the procedure and lavage fluid was obtained. Smear and CBNAAT examination of the fluid were done. The data recorded was then analysed statistically.

Results: In our pilot study, a total number of 24 cases sputum ZN negative cases were included. The study included 16 males and 8 females with the average age of 51.3 years (Min-17 yrs- Max80 yrs). Out of 24 BAL specimens, 2 were positive for BAL microscopy, and the same specimens were CBNAAT positive.

Conclusion: We conclude the BAL is the better sample for AFB compared to the sputum. Through application of proper concentration techniques, staining and the microscopic examination of Mycobacterium tuberculosis can be picked up. The BAL staining is superior as the results were obtained were comparable to CBNAAT. The application of BAL microscopy aid in clinicians in treating the sputum smear negative tuberculosis cases-and it will help us to achieve India’s dream of eradication of TB by 2025.

A PROSPECTIVE STUDY ON COMPARISON OF XPERT MTB/RIF AND HISTOPATHOLOGY FOR DIAGNOSIS OF GASTROINTESTINAL TUBERCULOSIS IN A TERTIARY CARE HOSPITAL

Monalisa Mohanty¹, Baijayantimala Mishra¹, Susama Patra², Manas Kumar Panigrahi³, Subash Chandra Samal³
Departments of Microbiology, Pathology and Gastroenterology, All India Institute of Medical Science, Bhubaneswar

Introduction: Gastrointestinal (GI) tuberculosis is a rare form of extra-pulmonary tuberculosis, ileocaecal region being the most common site. Clinically it resembles inflammatory bowel disease or malignancy. Hence, accurate and timely diagnosis is required to cure and prevents development of potential complications.

Aims & Objectives: To compare Xpert MTB/RIF, and histopathology for the diagnosis of GI tuberculosis.

Methods: Mucosal biopsy samples collected from all presumptive GI tuberculosis cases during August 2018 to July 2019, were subjected for Xpert MTB/RIF for detection of MTB DNA and rifampicin resistance and histopathology (HP) according to standard protocols. HP
result was interpreted as consistent with tuberculosis based on chronic granulomatous inflammation with acid fast bacilli (AFB) and suggestive of tuberculosis based on chronic granulomatous inflammation without AFB.

**Results:** Of the 61 samples, 7 (11.5%) were diagnosed as TB cases by HP study based on chronic granulomatous inflammation & AFB positivity and 7 cases as suggestive of TB based on only chronic granulomatous inflammation without AFB. Of this 14, 6 could be confirmed by gene Xpert as Mycobacterium tuberculosis (MTB) and sensitive to rifampicin. Of remaining 8 HP samples (chronic granulomatous inflammation / suggestive of), 3 were consistent with TB with AFB and 5 were suggestive of TB.

**Conclusion:** Histopathological study showed more positivity (n=14) as compared to six by gene Xpert. However, considering the specificity of gene Xpert, 8 extra HP positive samples, those were negative by CBNAAT does not rule out the possibility of nontubercular mycobacteria (NTM) attributing to AFB positivity or non specific nature of chronic granulomatous reaction. Hence, more optimisation of sample processing and testing validation of gene Xpert and HP with culture is required.

**MICP 140**

**A STUDY ON COMPARATIVE EVALUATION OF DIFFERENT STAINING TECHNIQUES – ZIEHL NEELSEN, KINYOUN AND FLUORESCENT STAINING IN DIAGNOSIS OF PULMONARY TUBERCULOSIS**

Dr. Muskan Khullar, Dr. Loveena Oberoi, Dr. Naveen Pandhi, Dr. Sapna Soneja
GMC, Amritsar

**Introduction:** Tuberculosis (TB) is one of the world’s deadliest communicable disease. India alone shares the incidence of 2.8 million cases/year which necessitates early diagnostics and management. Among various detection methods, sputum smear microscopy is simplest, rapid and cheapest method. **Aims & Objectives:** The study was aimed to detect Mycobacterium tuberculosis (MTB) in clinically suspected cases of pulmonary tuberculosis by using staining methods including: Ziehl-Neelsen (ZN), Kinyoun and Fluorescent staining method prior NALC-NaOH and bleach processing and post NALC-NaOH and bleach processing.

**Methods:** A prospective study was carried out in the department of microbiology in Government Medical College, Amritsar. In this study a total of 50 sputum samples from patients clinically suspected of Pulmonary tuberculosis were collected in sterile leak proof containers as per RNTCP guidelines. The collected samples were divided in three parts: One part was processed prior to decontamination, second part processed post NALC-NaOH method and third post bleach method and then subjected to ZN, Kinyoun and Fluorescent staining.

**Results:** Out of the three staining methods, detection rate of acid-fast bacilli (AFB) by prior decontamination was more with Fluorescent (28%), followed by Ziehl-Neelsen (ZN) (24%) and then by Kinyoun staining (18%). Furthermore, post decontamination, detection rate of AFB by post NALC-NaOH method increased as fluorescent method (38%), ZN (34%) and Kinyoun method (24%). Whereas detection rate of AFB by post bleach method was less effective i.e. Fluorescent staining (32%), ZN (26%), Kinyoun (18%).

**Conclusion:** There was increase in rate of detection of acid-fast bacilli more with Fluorescent staining as compared to other two methods and hence saves time and large number of samples can be analysed. This study also highlighted the increase in detection rate of AFB.
after decontamination with NALC-NaOH method as compared to bleach method thus it helped in increasing detection of bacilli.

Comparing Ziehl-Neelsen Staining, Auramine Staining and CBNAAT for the Diagnosis of Pulmonary Tuberculosis

Monika Sharma, Shobha Broor, Mukesh Sharma, Megha Maheshwari, Anita Chakravarti, DPS Sudan
Department of Microbiology and Department of Pulmonary Medicine, Faculty of Medicine and Health Sciences, SGT University, Gurugram

Introduction: An estimated 10 million (9.1-11.1) new cases of TB occurred globally in 2017 of which India contributed 27% of cases. The incidence of new TB cases from India is estimated to be 204/100,000 population. (Global TB Report 2018) Smear microscopy is the most common method for microbiological diagnosis. For rapid and sensitive detection of Mycobacterium tuberculosis nucleic acid amplification methods are increasingly used worldwide and recommended by WHO as well.

Objectives: To compare detection of Mycobacterium tuberculosis in sputum smears by Ziehl Neelsen (ZN) staining and Auramine O (AO) staining & detection of Mycobacterium tuberculosis by smear microscopy with CBNAAT (Cartridge Based Nucleic Acid Amplification Test) using Gene Xpert to detect resistance to Rifampicin by CBNAAT.

Methods: Patients with suspected pulmonary tuberculosis visiting, Designated Microscopic Centre (DMC) of SGT Medical College, Hospital, from November 2018 to August 2019, were enrolled. Sputum samples of (n=919) patients were collected and screened for the presence of Acid-Fast Bacilli (AFB) by ZN staining and AO staining. CBNAAT was carried out by Gene Xpert.

Results and Discussion: Of 919 sputum samples, AFB were detected in 60 by ZN and 78 by AO staining. CBNAAT was carried out on smear positive and/or radiologically diagnosed patients (127). Mycobacterium tuberculosis was detected in 112 samples by CBNAAT, of which 10 were Rifampicin resistant. Seven samples were negative by CBNAAT but AFB were detected in smears by ZN staining and AO staining. Taking CBNAAT as Gold Standard, the sensitivity and specificity of ZN staining was 47.32% and 68.18%; and of Auramine staining was 63.39% and 68.18% respectively. In 7 smear positive samples, CBNAAT was negative which may be due to presence of NTM.

Conclusion: CBNAAT was found to be highly specific and sensitive for detecting Mycobacterium tuberculosis in pulmonary tuberculosis, in addition Rifampicin resistance is also detected.
Introduction: Tuberculosis caused by *Mycobacterium tuberculosis* remains a major public health problem with approximately one-third of the world’s population affected. A faster, simpler, more accurate, and less expensive means of diagnostic test of tuberculosis is necessary for the control of people infected with the disease. Sputum smear microscopy is the most preferred and rapid test that is widely used for the detection and diagnosis of pulmonary tuberculosis.

Aim: To evaluate the efficacy of fluorescence microscopy in the diagnosis of pulmonary tuberculosis in comparison with Ziehl-Neelsen staining.

Methods: 220 sputum samples were collected from 110 patients during the period of July 2018 to December 2018 suspected of pulmonary tuberculosis were processed by the petroff’s method, and subjected to Ziehl-Neelsen staining, fluorescent Auramine-O staining for detection of *Mycobacterium tuberculosis*.

Result: Out of 110 clinically diagnosed pulmonary tuberculosis patients 48 were found to be positive for AFB by ZN staining and and 62 cases were found to be positive for AO staining respectively. In this study the percentage of positivity by ZN staining is 43.6% while by AO staining is 56.3% respectively.

Conclusion: Fluorescence microscopy provides a reliable alternative to conventional method and has many favorable attributes that facilitate improved, decentralized, diagnostic services.

**MICP 357**

**COMPARISON OF XPERT MTB/RIF®, GENOTYPE® MTBDRPLUS LINE PROBE ASSAY AND CULTURE IN DIAGNOSING PULMONARY TUBERCULOSIS ON BRONCHOSCOPIC COLLECTIONS**

Dr. Zakiuddin Mohammed, Dr. Swapna Kanade, Dr. Gita Nataraj
Department of Microbiology, Seth G.S. Medical College & KEM Hospital, Mumbai

Introduction: Early diagnosis of pulmonary TB and detecting drug resistance helps to initiate prompt, appropriate treatment and prevent transmission. Bronchoscopy specimens may show positivity earlier than sputum. This study estimated the sensitivity, rapidity and utility of molecular tests in diagnosing TB and detecting drug resistance in bronchoscopy specimens.

Aims and Objectives: To estimate the case detection rate using GenoType® MTBDRplus Line Probe Assay, Xpert MTB/RIF assay and bronchoscopic collections in diagnosing pulmonary Tuberculosis.

Methods: A prospective cross-sectional study using bronchoscopy specimens from suspected pulmonary TB cases received in 2018-2019 was carried out. Specimens were subjected to molecular tests (Xpert MTB/RIF assay and GenoType® MTBDRplus Line Probe Assay) and compared to liquid culture as a gold standard.

Results: Of the total 173 specimens, MTB was detected in 35 (20.2%) specimens by both culture and Xpert assay, 3 specimens only by culture and 10 only by Xpert. Total cases detected using either culture or Xpert were 48 (27.7%). LPA was done on 20 smear positive specimens of which MTB was detected in 16 (80%).

Of the 45 Xpert positive specimens, 18 (40%) were rifampicin resistant and 27 (60%) were rifampicin sensitive. No discordance was observed between LPA and Xpert results. Isoniazid mono-resistance was detected by LPA in 3 (18.75%) specimens.
**Conclusion:** Xpert assay has good sensitivity and specificity in detection of MTB from bronchoscopy specimens. High (40%) rifampicin resistance was observed. Despite its low sensitivity, LPA helped to detect isoniazid monoresistance.

**MICP 56**

**STUDY OF CLINICO-PATHOLOGICAL PROFILE OF TUBERCULOSIS PATIENTS ATTENDING MEDICAL COLLEGE AND HOSPITAL, KOLKATA WITH REAL-TIME PCR**

Dr. Indranil Aich, Prof (Dr.) Sougata Ghosh, Prof (Dr.) Manideepa Sen Gupta, Dr. Soma Saha Ghatak

Medical College and Hospital, Kolkata

**Introduction:** Real-time PCR marks a paradigm shift in the diagnosis of tuberculosis minimizing false negative results. In view of this a study was undertaken using Real-time PCR (GeneXpert MTB/RIF) for understanding the clinico-pathological profile of tuberculosis cases attending this hospital.

**Aims and Objectives:** To study the age distribution of Real-time PCR positive cases and to study the clinical features of statistical significance by Real-time PCR.

**Methods:** Specimens obtained from the patients were used for Real-time PCR (GeneXpert MTB/RIF) as per instructions given in the manual. Relevant clinical history was obtained from patients or their relatives. Analysis had been done using Microsoft Excel and statistical software SPSS version 20.

**Results:** Highest number of positive cases were found between 11-20 years of age (35%) followed by 31-40 years (29.16%) of age. 92.59% of CBNAAT positive patients had positive history of fever with 61.24 mean fever days having significant p value. 29.63% of CBNAAT positive patients had positive history of haemoptysis with 32.63 mean haemoptysis days having significant p value.

**Conclusion:** In a study by Bodalet al., 26 of tuberculosis cases came from 20-39 years age group which was maximum among all age groups (34.67%). It signifies that incidence rate of tuberculosis increases suddenly during adolescent period. In the present study, among 27 CBNAAT positive samples, maximum, minimum and mean age were 3 months, 60 years and 27.19 years respectively. In this study the commonest age group affected were 11-20 years (35%) and 31-40 years (29.16%).

**MICP 220**

**RIFAMPICIN: A GOOD SURROGATE FOR DIAGNOSING MULTIDRUG RESISTANT TUBERCULOSIS?**

Rohon Das Roy, M.Chatterjee, S.Kumar, M.Bandyopadhyay

RGKMCH, Kolkata

**Introduction:** With the introduction of novel molecular techniques, such as Cartridge Based Nucleic Acid Amplification Test (CBNAAT), which rely only on rifampicin susceptibility for detection of MultiDrug resistant tuberculosis, resistance to isoniazid or other first line drugs remains undetected. When such CBNAAT confirmed rifampicin, sensitive patients are
prescribed first line anti tuberculosis drugs, the undetected isoniazid resistance may lead to therapeutic failure and emergence of multidrug resistance. On the other hand, rifampicin resistant isolates that were isoniazid susceptible had significantly lower rate of resistance to other first and second line drugs.

**Aims and Objectives:** Detecting isoniazid susceptibility pattern by Proportion Method among CBNAAT confirmed *Mycobacterium tuberculosis* isolates.

**Methods:** A prospective study is being carried out in the Department of Microbiology, RGKMC for a period of 6 months (from June-November 2019). Middlebrook 7H10 Agar medium supplemented with OADC of pH 6.6 is used for all the resistance tests. Isoniazid, at a critical concentration of 0.2 µg/ml, is dissolved in distilled water and incorporated in the medium. The drug free control media is prepared at the same time. *Mycobacterium tuberculosis* isolates grown in Lowenstein Jensen media are inoculated on both the drug containing as well as the control media.

**Results:** In this study, out of the 52 isolates of *Mycobacterium tuberculosis*, 33 are found to be Rifampicin resistant by CBNAAT. Drug sensitivity by Proportion Method shows 2 (6%) of those isolates to be Isoniazid sensitive. Out of the 19 isolates found to be Rifampicin sensitive by CBNAAT, 8 (42.2%) isolates are Isoniazid resistant.

**Conclusion:** Drug susceptibility method on solid culture can detect strains with resistance conferring rpoB mutations, which can be missed out on molecular methods. Thus, rifampicin resistance detection by CBNAAT is not always a good proxy for a presumptive diagnosis of multidrug resistant tuberculosis.

**MICP 234**

**MB-P22**

**MPT 64 ANTIGEN DETECTION FOR RAPID CONFIRMATION OF M. TUBERCULOSIS ISOLATES**

Dr Kuntal Vashistha¹, Dr. R.K Maheshwari, Dr Bharti Malhotra ¹

¹: Department of Microbiology, SMS Medical College, Jaipur

**Introduction:** Tuberculosis is a global pandemic and India is the major endemic country. Emergence of multidrug resistance in *M. tuberculosis* is posing serious therapeutic problems and hampering the goal of WHO in containing this dreadful disease in India. Rapid diagnosis is necessary to start treatment as early as possible to prevent further spread and emergence of multidrug resistance. A new test kit (SD MPT64TB Ag Kit) for rapid detection of MPT 64 Antigen in *M. tuberculosis* isolates using mouse monoclonal MPT 64 Antibody was evaluated for rapid identification of *M. tuberculosis* isolates. This technique is rapid and cheaper for confirmation of MTB from Culture Isolates in resource constrained countries.

**Aims & Objectives:** To assess clinical usefulness, sensitivity, specificity, positive predictive value and negative predictive values.

**Methods:** MTB Suspected patient’s samples coming for diagnosis in Microbiology lab SMS Medical College were evaluated. 422 culture isolates of *M. tuberculosis* in broth (Automated MGIT 960) were tested for detection of MPT64 antigen using the SD Bioline immunochromatography (ICT) test kit. Most of them are pulmonary samples.

**Results:** The presence of MPT64 antigen band was found in 376 samples and 46 samples showed absence of band.

**Conclusion:** MTB culture isolate’s rapid identification is very important for drug susceptibility testing. MPT 64 TB Ag detection method is cheaper, rapid and reliable.
POSTMENOPAUSAL PYOMETRA CAUSED BY ENDOMETRIAL TUBERCULOSIS – A CASE REPORT

Sweta Muni, Rakesh Kumar, Keshav Kumar Bimal, Shailesh Kumar, S.K. Shahi
Indira Gandhi Institute of Medical Sciences, Patna

Introduction: Mycobacterium infection manifesting pyometra in postmenopausal women is an extremely rare disease that hardly responds to the usual treatment of pus drainage and antibiotics therapy. The incidence reports from 0.01%-0.5% in gynecologic patients. Apart from its association with malignant disease, spontaneous rupture of pyometra can result in significant morbidity and mortality.

Aims & Objectives: To demonstrate the association between postmenopausal Pyometra with Endometrial tuberculosis.

Methods: A 70 year old female presented with abdominal distension and lower abdominal pain from 2 months, was admitted to our hospital, Indira Gandhi Institute of Medical Sciences, Patna (Bihar). She had menopause at about 50 years of age and had never taken hormone replacement therapy. In her and her family’s medical history, there were no medical problems such as hypertension, diabetes mellitus, or tuberculosis. Tissue was obtained as sample for processing. The sample was processed. 2 ml of the processed sample was transferred to the Xpert MTB/RIF cartridge, then the cartridges were inserted into the GeneXpert instrument. Results confirming the presence of MTB were automatically reported by the instrument within 90 min.

Results and Conclusion: Result of GeneXpert for mycobacterium tuberculosis was positive in endometrial tissue sampling. Anti-tuberculous treatment is started and the patient is improving after the confirmative diagnosis and no longer displaying any symptoms of pyometra. In postmenopausal women, endometrial TB mainly occurs with postmenopausal bleeding. Mycobacterium infection of the genital tract, manifesting pyometra in postmenopausal women, is extremely rare. The reason of low incidence of endometrial TB in the postmenopausal women is not well known, but may be attributed to atrophic endometrium which has poor vascular support for Mycobacterium to grow.

PRIMARY TUBERCULOSIS OF ANTERIOR CHEST WALL– A CASE REPORT FROM TERTIARY CARE HOSPITAL OF PATNA

Dr.Rakesh Kumar, Dr.Sweta Muni, Dr.Vidyut Prakash, Dr. S.K. Shahi
Indira Gandhi Institute of Medical Sciences, Patna

Introduction: Chest wall tuberculosis is rare form of extra-pulmonary TB and accounts for 1– 5% of all musculoskeletal TB. It is a rare entity especially in an immunocompetent patient. Sternum remains the most common site to be involved, though rib shafts, costochoondral junctions, and vertebral bodies can also be involved. Diagnosis of chest wall tuberculosis is often difficult since clinical presentation may resemble pyogenic abscess. Here we present case of abscess oversternalregion which was localized to skin.
Case: A 25-year-old male presented to the surgical OPD with a painful swelling in the sternal region since two months along with fever and loss of appetite. Size of swelling gradually increased. There was no family history of tuberculosis. General routine examinations were within normal limit. Local examination revealed solitary lesion over sternum of size about 1 × 1.6 × 3 cm³, soft, fluctuating, tender, well defined margin, mobile and not attached to the underlying bony structures. Further CECT scan was advised and incision and drainage were undertaken for therapeutic and diagnostic purpose. CECT showed loculated hypodense collection of 1.8 × 1.7 cm² in parasternal location with peripheral enhancement with no evidence of erosion of ribs or sternum. The drained pus was subjected to pyogenic culture, Ziehl–Neelsen staining and GENE XPERT. Ziehl–Neelsen stain showed positive (1+) for AFB and GENEXPERT showed positive for Mycobacterium tuberculosis with no rifampicin resistance. After that antitubercular drugs were started and after two month of treatment ZN stain and GENEXPERT showed negative result. Patient was advised to further continue treatment for four months.

Conclusion: India has massive pool of tuberculosis cases and there is a possibility that extrapulmonary tuberculosis may be missed or misdiagnosed. So any swelling with long duration and not responding to common antibiotics should be investigated for tuberculous lesion.

MICP 458

EVALUATION OF GENEXPERT MTB/RIF ASSAY IN THE DIAGNOSIS OF OSTEO-ARTICULAR TUBERCULOSIS

Dharmshale S, Kagal Anju, Bharadwaj R, Chavan A, Karyakarte R

B. J. Govt. Medical College & Sassoon General Hospital, Pune

Introduction: The incidence of Extra pulmonary tuberculosis (EPTB) is high, both in developing and developed countries. The major challenge in the diagnosis of Osteoarticular tuberculosis (OATB) is the frequent atypical clinical presentation simulating other inflammatory conditions, which frequently results in a delay or deprivation of treatment.

Aims and Objectives: This study was conducted to evaluate microbiological diagnostic tests for diagnosis of OATB, and to determine Rifampicin resistance in these cases.

Methods: From Jan 2013 to Dec 2018, 235 samples from clinic-radiologically diagnosed cases of OATB were received. These included 108, pus samples, 64 biopsies, 62 joint aspirates and 1 bone marrow. All samples were subjected to microscopy (ZN stain) and culture on Lowenstein Jensen medium. Only 87 of these were tested by GeneXpert.

Results: GeneXpert MTB/RIF assay showed results which were statistically better than microscopy as well as culture (p<0.0007 each). Identification from pus samples (p<0.007) and joint aspirates (p<0.001) were significantly higher by GeneXpert MTB/RIF assay as compared to both microscopy and culture however there was no significant difference in results for biopsy samples. The sensitivity and specificity of GeneXpert MTB/RIF assay was 88.9% and 70.6% respectively. PPV and NPV were 44.4% and 96% respectively considering LJ culture as the gold standard. Rifampicin resistance was detected by Xpert MTB/RIF assay in 4(12.1%) cases, all were suffering from Potts Spine.

Conclusion: Amongst microscopy culture and GeneXpert, the latter was highly sensitive (88.89%) in Osteo-articular TB patients. The incidence of MDR was 12.1%. Thus GeneXpert MTB/RIF assay provides a rapid and sensitive diagnosis and allows early recognition of drug...
resistance cases, so that appropriate therapy can be initiated before any complications develop.

**MICP 154**

**MOLECULAR DETECTION OF EXTENDED SPECTRUM BETA LACTAMASES IN MULTI DRUG RESISTANT GRAM-NEGATIVE BACTERIA**

Muqtadir Malik, G S Bhalla, Mahadevan Kumar
Army Hospital R & R, New Delhi

**Introduction** - Outbreaks caused by extended spectrum beta lactam (ESBL) producing organisms is very common worldwide. Molecular detection of antibiotic resistance pattern can be used to find out the strains involved in outbreaks of infections caused by ESBLs.

**Aims & Objectives** - Molecular detection of ESBLs in multi drug resistant gram-negative bacteria by real time multiplex PCR.

**Methods** - The study was conducted in a tertiary care hospital. Duration of the study was from Oct 2017 to March 2019. A total of 711 non-repeat multidrug resistant gram-negative isolates were identified by standard biochemical tests. Antimicrobial susceptibility testing was performed by the disk diffusion method. ESBL producing strains were detected by Combination Disk Method and ESBL E-test. AmpC beta lactamases production was also detected by Cefoxitin-Cloxacillin Double Disk Synergy Test (CC-DDS) and AmpC E-test. Presence of blaTEM, blaCTX-M and blaSHV genes was detected by Real-time polymerase chain reaction in 102 representative isolates.

**Results** - Most common MDR isolate was *Klebsiella pneumoniae* (35%) followed by *Escherichia coli* (30%). Among the 102 selected isolates all harboured blaTEM gene, 71 (69.6%) harboured blaCTX-M gene and 48 (47%) blaSHV gene. Among these isolates, single blagene could be detected in 27 (26.4%), two genes in 31 (30.3%) and three genes in 44 (43.1%) isolates. Among all the isolates *Klebsiella pneumoniae* harbours three genes in around 85% of the isolates. Among the selected isolates 60% showed presence of AmpC genes. Distribution of gene combinations showingblaTEM gene in 48 (49.4%); two, three and four genes were present in less than 5% isolates.

**Conclusion** - Knowledge of the antibiotic resistance patterns and resistance genes of bacterial pathogens in a geographical area is of utmost importance for surveillance and control of antibiotic resistance as well as for providing appropriate antimicrobial therapy and better hospital infection control practices.

**MICP 362**

**MOLECULAR TYPING AS A REPLACEMENT FOR TRADITIONAL SEROTYPING OF MDR NON TYPHOIDAL SALMONELLA FOR ACCURATE IDENTIFICATION AND EPIDEMIOLOGICAL STUDIES**

Jobin John Jacob, Manigandan Venkatesan, Shalini Anandan, Balaji Veeraraghavan*
Christian Medical College, Vellore

**Introduction:** Traditional serotyping based on the phenotypic variation of O- and H-antigen remains as the gold-standard for the identification and classification of *Salmonella* isolates...
for last 70 years. Molecular typing such as MLST or CRISPR on the other hand can provide serovar prediction as well as the evolutionary origin between the serovars.

**Aim and Objectives:** Improving the NTS serovar prediction accuracy by combining MLST and CRISPR subtyping tools for diagnosis and active surveillance to accurately identify NTS isolates using conventional serotyping, MLST and CRISPR typing & to identify the discrepancies in traditional serotyping of *Salmonella* in comparison with advanced molecular typing

**Methods:** In this study multidrug resistant (MDR) non typhoidal *Salmonella* (NTS) strains (n=35) isolated from clinical samples (blood and faeces) were identified by traditional phenotypic serotyping, biochemical testing and molecular typing. Serotypes and subtypes were assigned based on MLST and CRISPR typing and compared with the phenotypic results.

**Results:** Among the 35 MDR isolates tested 60% (21/35) isolates were ceftriaxone resistant and 91% (32/35) were non-susceptible to ciprofloxacin. Serovar prediction with regard to sequence types showed 48% (17/35) of the isolates were *S*. Typhimurium and 45% (16/35) were *S*. Agona (ST13). The remaining isolates (7%) belong to other serotypes. The *S*. Typhimurium isolates were assigned to ST36 (13/17), ST19 (2/17) and ST313 (2/17). CRISPR typing showed good correlation with MLST typing and revealed subtypes withinST13, ST19, and ST36. Mismatches occur in serovar designation between MLST/CRISPR database and serotyping particularly due to the misinterpretation of the antigenic structures.

**Conclusion:** MLST-CRISPR based typing has the potential to be applied for the genotyping of closely related *Salmonella*serovars. For crucial information on outbreak cases and for epidemiological investigation, concordance between serotyping and genotyping get more accurate results. Genotyping also provides insights into the evolution and population structure of NTS.

**MICP 380**

**IDENTIFICATION OF ANTIMICROBIAL RESISTANCE GENE USING SEQUENCE SIMILARITY NETWORK**

ArumugamAmala, Karthick Vasudevan, Naveen Kumar DevangaRagupathi, Isaac Arnold Emerson, Veeraraghavan Balaji
Christian Medical College and Hospital, Vellore

**Introduction:** Antibiotic resistance is a swiftly emerging sector in medical microbiology. This is due to bacteria developing resistance towards antimicrobials by changing its genetic material by acquiring mobile genetic elements. Sequence Similarity Networks (SSNs) are useful in identifying one such sequence based on the similarity.

**Aim and Objectives:** Identifying the function of hypothetical proteins through SSN in *Escherichia coli*

- To identify the sequences with the unknown molecular functions (hypothetical proteins) using SSN in relation to antimicrobial resistance.
- To identify the commonly shared genes/proteins based on centrality parameters.
- To identify potential drug target.

**Methods:** In the present study, SSN for twelve isolates of *E. coli* were generated. Network properties were calculated for all the study isolates. The potential drug target was identified. Construction of sequence similarity network was done by providing the FASTA file as input.
For the generated SSN network properties were calculated. The commonly shared proteins were identified using z-score based on centrality measures. The functional roles of hypothetical proteins were also identified. Further, analysis from CARD revealed the antimicrobial resistance genes and STRING revealed the interacting partners.

**Results:** The sequences with the unknown molecular functions were identified using SSNs in focus on antimicrobial resistance most of the sequences belongs to efflux pump related proteins. Comparative analysis of centrality measures and CARD results showed the gene *emrB* was commonly present in all the isolates. This gene belongs to major facilitator superfamily (MFS) antibiotic efflux pump. This gene is the potential drug target.

**Conclusion:** The potential benefit of SSNs is to spot sequence and structural relationships, procuring diverse and new in turn compared to conventional methods for relating sequences. Thus, the sequences with unknown molecular functions were identified using SSNs.

**MICP 11**

**TOLL LIKE RECEPTOR (TLR)-2 EXPRESSION AND TH17/TREGS RESPONSE INDUCED BY ASPERGILLUS FLAVUS IN CHRONIC RHINOSINUSITIS WITH NASAL POLYPOSIS (CRSWNP) PATIENTS**

Shukla Das, Gargi Rai, Mohammad A. Ansari, Praveen K. Singh
Department of Microbiology, University College of Medical Sciences & Guru Teg Bahadur Hospital, Delhi

**Introduction:** The pathogenesis of CRswNP involves *Aspergillus spp.* as a source of continuous stimulation causing hypersensitivity reactions. A paradigm shift of Th1/Th2 responses to Th17/Treg mediated inflammatory process is the key predictors of relapses in these patients. TLRs are engaged in modulating Th17/Treg cell functions.

**Aim & Objectives:** To study the TLR2 regulation with Th17/Treg in response to *A. flavus* antigen in understanding the disease outcome in CRSwNP

**Methods:** The study was done in 50 cases of CRSwNP and 30 healthy controls. Postoperatively tissue biopsies were subjected to histopathological and standard mycological investigations. RNA extraction done by TRIZol method from nasal polyp tissue and control tissue from the patients undergoing septoplasty. TLR-2 mRNA expression was analyzed using RT-PCR. PBMCs isolated from cases and controls were seeded into culture plate in RPMI-1640 and treated with *A. flavus* antigen and PHAM. After treating with antigen, PBMCs were incubated at 37°C in humidified air containing 5% CO2 for 24 hrs. The cells were stained for Th17(CD161+IL23R+) and Treg (CD25+FoxP3+) cells surface and intracellular markers for flow cytometry analysis

**Results:** The profiles of CRSwNP patients were characterized using the symptom and CT score and recorded as 13.13±1.18 and 7.98±1.3, respectively. CD161+ and IL-23R+ the markers for Th17 cells was significantly high (p<0.05) whereas CD25FoxP3 (Treg cells) was significantly low in cases when treated to *A. flavus* antigen as compared to controls. TLR2 expression in cases was four-fold high as compared to cases. A significant positive correlation was found between TLR 2 and Th17

**Conclusion:** Rise in TLR2 and CD161+IL-23R+ levels in patients when stimulated with *A. flavus* antigen indicated a skewed Th17 response and probable Treg imbalance as indicated...
by low CD25FoxP3+ levels. Over expression of Th17 cells response leads to persistence and chronicity of infection.

**MICP 246**

**ALLERGIC FUNGAL RHINOSINUSITIS DUE TO MYRIODONTIUM KERATINOPHILUM- A RARE CASE REPORT**

Dr. A. Yamini, Dr. Anupma Jyoti Kindo, Dr. Sathish Kumar J.
Sri Ramachandra Institute of Higher Education and Research, Chennai

**Introduction:** To report a rare case of allergic fungal rhinosinusitis due to Myriodontiumkeratinophilum, which has not been previously reported.

**Methods:** A 41 year old female patient presented with history of nasal block and nasal discharge, following which she developed a pale glistening polypoidal mass in the left nasal cavity. The polypoidal mass with fungal debris was removed by functional endoscopic sinus surgery under general anaesthesia and sent for fungal culture, smear such as gram stain, KOH mount, lacto-phenol cotton-blue mount, Sabouraud’s dextrose agar to identify the type of growth, to diagnose the agent causing the fungal rhinosinusitis.

**Results:** Culture on SDA revealed the growth of white mould at 25-degree Celsius incubation. Lacto-phenol cotton-blue mount from the polypoidal mass and fungal debris revealed fungal hyphae which branched non-dichotomously and produced single conidia on denticles along the side of the hyphae. Slide culture was put up to identify the fungus, it revealed conidial arrangement consistent with that of Myriodontiumkeratinophilum species.

**Conclusion:** This case report lays emphasis on a thorough microbiological work up, to provide insightful information, thereby expanding our knowledge and spawning new research organisms which may not have been reported earlier. We hereby report a culture proven case of allergic fungal rhinosinusitis due to a very rare species, Myriodontiumkeratinophilum.

**MICP 38**

**CUNNINGAMELLA BERTHOLLETIAE FUNGAL CORNEAL ULCER: A CASE REPORT**

Drishti Sagar, Ashwini Dedwal, Swati Mudshigakar, Sunil Bhamare, Rajesh Karyakarte
Department of Microbiology, B.J. Government Medical College and Sassoon General Hospital, Pune

**Introduction:** Zygomycoses are rare fungal infections usually found in immunocompromised and malnourished patients. They are rapidly progressing infections with a high mortality rate. Orbital and intracranial extension of rhinocerebralzygomycosis is fatal and may rapidly develop worsening ophthalmoplegia and even blindness. Here we report arare case of fungal corneal ulcer due to Cunninghamellabertholletiae. As the symptoms, clinical signs and imaging findings of these infections are non-specific, a high index of suspicion is required for timely diagnosis.

**Case details:** An 80-year old male farmer residing in Pune presented to the Ophthalmology department with history of traumatic injury to the left eye with a pointed wooden stickone month back. He complained of pain, redness, diminution of vision and discharge from the eye
one week after the injury. There was no history of diabetes, previous antifungal or immunosuppressive drug use or any history suggestive of immunocompromised state. On examination, anterior segment revealed a corneal ulcer with infiltrate measuring 5x6mm involving central area of the cornea. Endothelial plaque was present. There were no satellite lesions or hypopyon present. Right eye showed no visible abnormality. Patient was HIV negative. Corneal scrapping from the ulcer was subjected to microscopy and culture. Fungal filaments were wide, hyaline, aseptate as seen on 10% potassium hydroxide mount. Fungal culture on Sabouraud’s dextrose agar at 37°C and 45°C revealed cotton candy colony which was white initially but later turned grey with rapid growth within 4 days. Broad, aseptate, ribbon like hyphae with long branched sporangiophores terminating in swollen vesicles were seen on Lactophenol cotton blue mount and slide culture. With these findings the isolate was identified as Cunninghamellabertholletiae. A therapeutic penetrating keratoplasty was done and voriconazole eye drops were started. Later liposomal amphotericin B was administered and patient’s vision was gradually improved. He was relieved on discharge but was lost to follow up.

Conclusion: A strong clinical suspicion and high vigilance by the microbiologists is imperative to diagnose rare keratomycoses of the eye. Timely diagnosis and prompt antifungal therapy can prevent angioinvasion and tissue destruction.

MICP 66

A CASE REPORT ON CHROMOBLASTOMYCOSIS

Dr.V.Kavitha, DR.A.Vijayalakshmi, DR.J.Rajeswari
Chengalpattu Medical College, Chennai

Introduction: Chromoblastomycosis is a chronic subcutaneous mycotic infection caused by dermatomycotic saprophytic moulds. It is also known as implantation mycosis. It occurs most commonly in rural workers. The fungus penetrates the skin usually due to traumatic implantation. The disease is characterized by presence of nodules and verrucous plaques. The disease commonly involves upper and lower limbs. We present here a case report of chromoblastomycosis. Fonsaceapedrosoi isolated from tissue biopsy samples in our tertiary care hospital at Chengalpattu, Tamil Nadu.

Case History: An 18 year old female presented to the dermatology outpatient department with a diffuse verrucous swelling over left fore arm for a period of 7 months. Spontaneous onset gradually progressive lesion. The patient gives a history of trauma 8 months back. Clinical evaluation was done. X – Ray of left fore arm and wrist revealed osteolytic lesions.

Methods: Incisional biopsy tissue specimens was examined with 10 % potassium hydroxide mount and sub cultured onto a set of Sabouraud’s dextrose agar. Lacto phenol cotton blue (LPCB) Wet mount was done for demonstration of morphology.

Results: The fungal growth was identified as Fonsaceapedrosoi based on its morphology and microscopic appearance. On SDA Olive grey to black coloured colonies with jet black reverse pigmentation. On LPCB Septate branching hyphae with barrel shaped blastoconidiaand sub-erect conidiophores that branch at the apices are seen (Cladosporium type of conidiation). Histopathology of these biopsy samples revealed septate branching hyphae and sclerotic bodies which confirmed the diagnosis of chromoblastomycosis.

Conclusion: Chromoblastomycosis is treated using Anti fungals like Amphotericin –B and azole group of drugs. Early diagnosis and treatment of these conditions will help in preventing disfigurement in cases of advanced lesions.
MICP 103

A RARE CASE REPORT OF ILIOPSOAS ABSCESS CAUSED BY ASPERGILLUS FUMIGATES

M Srividhya¹, C Revathy²
¹Postgraduate MD Microbiology ²Professor and HOD
Department of Microbiology, Tirunelveli Medical College, Tirunelveli

Introduction: Iliopsoas abscess is a relatively rare and potentially life-threatening disease. In over 88% of the patient with iliopsoas abscess, Staphylococcus aureus is the most common organism. The other causative organisms include E. coli, Streptococcus species and Mycobacterium tuberculosis. Only few cases of fungus as a cause for iliopsoas abscess are described. We present one such case of iliopsoas abscess caused by Aspergillus fumigatus.

Case report: A 60 year old male presented with 10 days history of fever, vomiting, left hip pain and lower limb pain. There was no history of diabetes mellitus, tuberculosis, HIV, or any other immunosuppression. Physical examination revealed typical Psoas spasm and patient was lying with left hip joint flexed. Ultrasound revealed left iliopsoas abscess and needle aspiration was done, which revealed pus. Pus was sent to microbiological laboratory for culture. Gram stain and KOH done. The material was inoculated in duplicate on blood agar, Macconkey agar &Sabouraud’s dextrose agar with and without antibiotics at 25°C & 37°C. A repeat specimens were taken after 2&3 days and processed in a same manner.

Results: Fungal elements were observed in KOH mount. Bacteriological culture were negative, SDA showed smoky green powdery colonies, reverse was white in all plates. LPCB mount showed hyaline septate hyphae, conical shaped vesicle and conidia arising from upper third of vesicle, phialides were arranged in single row. The culture was also sent to MALDI-TOF test, and confirmed as Aspergillus fumigatus. The patient started on with Inj.Voricanazole

Conclusion: Iliopsoas abscess is generally associated with immunocompromised state; the present case has no such features but patient typically presented with the features of psoas abscess. So the present case is distinctive as its own with Aspergillus fumigatus as a cause for iliopsoas abscess. Therefore, definite diagnosis by microbiological examination in a specialized laboratory is necessary for instituting appropriate therapy.

MICP 115

SUBCUTANEOUS MYCOSIS DUE TO FUNGUS SYNCEPHALASTRUM RACEMOSUM: A RARE CASE REPORT

Dr.Namita Das, Dr.S Dhal, Dr.D Mohapatra
SCB MCH, Cuttack

Introduction: Syncephalastrumracemosum is a filamentous fungus belongs to class zygomycetes and order mucorales. It causes highly invasive diseases mainly affecting skin and soft tissue evenafter aggressive treatment in immunocompromised individuals. Here we report a case ofsubcutaneous mycosis due fungus Syncephalastrumracemosum in an immunocompromised patient.
**Case Report:** A 50 year old lady came to orthopedics OPD of SCB medical college and hospital, Cuttak with a swelling in lateral side of right forearm 5cm below the wrist joint without any history of trauma. She was a known case of diabetes mellitus type 2 and on oral hypoglycemc drugs since 5 years.

**Methods:** Under aseptic conditions fine needle aspiration was done and material was processed for cytological and microbiological studies. In microbiological studies the bacterial profile came out negative, whereas mycological profile came out positive for fungal elements. The fungus was identified as *Syncephalostrum racemosum*, which was further confirmed by a second sample from the swelling. Excessive debridement along with intravenous Amphotericin B leads to improvement in the patient.

**Conclusion:** Although mucormycosis is uncommon but it can cause life-threatening infection in immunocompromised patients. So timely identification and treatment can overcome the fatality of the disease.

**CASE REPORT OF BLOOD STREAM INFECTION BY CANDIDA AURIS**

Dr Neetu Biyani, Dr Divya Bangera, Dr Shashikala Shivaprapakash
Sir H.N. Reliance Foundation Hospital, Mumbai

**Introduction:** *Candida auris* is an emerging yeast that can be misidentified as other fungi unless specialized laboratory technology is used, is multidrug resistant, and can spread in healthcare settings. This case report describes two cases of blood stream infection caused by *Candida auris* and the infection control measures taken by the hospital to prevent spread of this organism.

**Aims and Objectives:** Identification of *C. auris* in laboratory, to differentiate between colonization and infection of *Candida auris* and infection control measures for *C. auris* infection or colonization

**Methods:** Blood culture was performed on Bactalert system and flagged positive within 48 hrs. Subculture was done on 5% Sheep Blood agar and Sabouraud’s dextrose agar. Tiny, white round colonies grew after 48 hrs and identification was done by MALDI TOF system. Antifungal sensitivity was done by micro broth dilution.

**Results:** Yeast was identified as *Candida auris* and contact isolation was started for both the patients along with other infection control measures. One isolate was resistant to azole group and sensitive to Caspofungin, Anidulafungin and Amphotericin B and started with Anidulafungin and the patient survived. The second patient had pan drug resistant *C. auris* and succumbed.

**Conclusion:** Morbidity and mortality associated with *Candida auris* blood stream infection is high, so treatment should be started immediately. Even after treatment for invasive infections, patients generally remain colonized with *C. auris* for long periods, and perhaps indefinitely. Therefore, all infection control measures should be followed during and after treatment for *C. auris* infection. Infection control measures like placing the patient in contact isolation in single room till discharge, reinforcement of hand hygiene strictly and high touch surface cleaning, floor and terminal cleaning with 1% sodium hypochlorite with appropriate contact time (15-20 mins) should be done. Dedicated equipment should be there for patient cubicle. If in case mobile equipment are used e.g.: ECG machine, portable X-ray, USG, disinfect the equipment at the ante room after each use.
RECURRENT PNEUMONIA DUE TO SYMCEPHALASTRUM RACEMOSUM IN AN IMMUNOCOMPROMISED PATIENT

Priyanka Pandit, Sunil Kumar, Amit Kumar Biswas
Command Hospital, Pune

Introduction: The fungal agents belonging to the class Zygomycetes, from being considered initially as saprophytic fungi, are thought to be dreaded opportunistic pathogens. They have special predilection for immunocompromised hosts, resulting in fatal mycosis. Zygomycosis is now an emerging mycotic disease. We report here a case of recurrent pneumonia caused by Syncephalastrum racemosum belonging to the order Mucorales in an adult renal recipient patient.

Aims and Objectives: To study the cause of recurrent pneumonia in an immunocompromised patient of renal transplant.

Methods: BAL was received for gram stain, ZN stain, KOH mount, cytology and malignant cells. Specimen was processed for pyogenic, fungal and MTB cultures. MTB PCR was done too. Specimen was inoculated on Sabouraud’s dextrose agar (SDA) with Chloramphenicol and incubated at both room temperature and 37° C.

Results: Gram stain and ZN stain was negative for any microorganisms or AFB. KOH mount showed fungal elements in the form of broad non-septate hyphae. The fungal cultures grew cottony colonies which were white at first and then turned to grey. Lacto phenol cotton blue mount showed broad, aspetate hyphae with wide angle branching. The sporangiophores bore chains of spores formed within long, finger like tubular sporangia. A diagnosis of Syncephalastrum racemosum was made.

Discussion: Syncephalastrum racemosum rarely causes an invasive disease and a very high index of suspicion is required in an immunosuppressed patient. The mode of acquisition of pulmonary zygomycosis is by inhalation of sporangiophores. The patient had kept presenting repeatedly for recurrent pneumonia. Once a diagnosis of Syncephalastrum racemosum was made, the patient was started on Amphotericin B. The patient showed dramatic improvement with radiological evidence of clearing thus reiterating the fact that this organism is an emerging cause of invasive mycosis.

INVASIVE PULMONARY PAECILOMYCES LILACINUS INFECTION IN DIFFUSE LARGE B-CELL LYMPHOMA: A RARE CASE REPORT

Shiny Queensty1, Anisha2, Manickavasagam2, Anupma Jyoti Kindo1
1Department of Microbiology, 2Department of Medical Oncology, Sri Ramachandra Medical College & Research Institute, Sri Ramachandra Institute of Higher Education &Research, Chennai

Introduction: Immunodeficiency due to various causes has increased the incidence of mycosis dramatically. Paecilomyces is a globally distributed saprophytic filamentous fungus, which exists in the soil, decaying plants and food products. Paecilomyces lilacinus and
Paecilomyces variotii are the most frequently isolated species from humans. Recent studies have reported fungemia, endocarditis, peritonitis, osteomyelitis and rarely pneumonia due to it. Risk factors for Paecilomyces include malignancies causing depressed cellular immunity, corticosteroid use, diabetes mellitus and organ transplantation.

**Case Report:** A 60-years-old man who is a known case of chronic kidney disease presented with one-week history of difficulty in swallowing and weight loss. On further evaluation, CT scan of head & neck showed mass in the nasopharynx. Biopsy of the mass revealed it to be diffuse large B-cell Lymphoma (DLBCL). PET scan revealed active tuberculous lesions in the right lung. So, bronchoscopy was done & bronchoalveolar lavage sample was sent for microscopy [KOH, AFB] and culture. KOH & AFB smears were made and the sample was inoculated in Sabouraud’s Dextrose Agar slope and Potato Dextrose Agar plate.

**Result:** KOH smear was found to be positive for fungal elements. AFB smear was negative. White colonies grew on Potato dextrose agar after one week and later showed a lilac colour on the obverse. The fungus was recognized based on its colony morphology, microscopic structures and thermophilicity. Slide mount on Lacto Phenol Cotton Blue showed features suggestive of *Paecilomyces lilacinus*. Clinicians were informed about the results and were asked to start the patient on antifungal therapy.

**Conclusion:** In hematological malignancies, there is an increased risk of invasive fungal infections. Occurrence of rare pathogenic fungi should be suspected in high risk groups and antifungal prophylaxis should be started at the earliest.

**A CASE REPORT OF BLACK GRAIN MYCETOMA**

Dr. N. Naga Lakshmi, Dr. Nikhat Sheerin, Dr. V.V. Shailaja, Dr. K.Nagamani  
Gandhi Medical College, Hyderabad

**Introduction:** Mycetoma is a localized chronic suppurative and deforming granulomatous infection in tropical & sub-tropical areas. It is a disorder of subcutaneous tissue, skin and bones, mainly of feet, characterized by a triad of localized swelling, underlying sinus tracts & production of grains and granules. Etiological classification divides it into Eumycetomacausued by fungus and Actinomycetoma caused by bacteria. Diagnosis is done by histopathological and microbiological examination.

**Aims & Objectives:** To isolate and identify the etiological agent in a clinically suspected case of mycetoma.

**Methods:** KOH mount of mycetoma granules, LPCB mount of growth on SDA slants, slide culture and MALDI-TOF.

**Results:** A dematiaceous fungi was grown & identified by MALDI-TOF.

**Conclusion:** Accurate diagnosis of mycetoma is helpful in adequate treatment, reducing morbidity and improving quality of life.

**CUTANEOUS HISTOPLASMOsis IN AN IMMUNOCOMPETENT PATIENT WITH RHEUMATOID ARTHRITIS**
Introduction: Histoplasmosis is a diagnostic challenge in India because of its protean manifestations and also because of inadequate mycological diagnostics facilities in health centres. The clinical manifestations range from acute to chronic pulmonary infection to fulminant disseminated disease. Cutaneous histoplasmosis is reported to occur in 17% of immunocompromised patients with disease. Primary cutaneous histoplasmosis in immunocompetent host is seen in 5% of cases.

Case: A 23 year old women residing in Shahdol district of Madhya Pradesh gave a history of erythematous nodules which had progressively involved the face, ears, extremities since 5 yrs. On examination, multiple, non-tender erythematous papule, nodules and plaque over the whole body with indurated plaques over the inner side of upper lip were observed. Patient had swelling and inflammation of proximal interphalangeal joints of left hand. No abnormality was detected in systemic examination. Investigation like hemogram, biochemistry, X-ray chest and radiological examination were normal and special investigations like ANA & anti ds-DNA were negative. ACE level & CD4 counts were within normal limits. RA test was negative but anti-CCP antibodies were detected in the patient. No abnormality was detected in whole body PET-CT scan.

Differential Diagnosis: Mucocutaneous leishmaniasis, Sarcoidosis, Lepromatous leprosy, Leukemia cutis, Mycosis fungoides, Deep fungal infections, Connective tissue disorders were considered.

Histopathology of the biopsy specimen revealed nodular granuloma and basophilic bodies with peripheral halo. Culture of biopsy tissue from the cutaneous lesion was negative for aerobic, anaerobic and Mycobacteria. However, yeast cells were seen in primary KOH mount and Gram stain. White cottony mould was isolated on Sabouraud dextrose agar at 25°C after 2 weeks. Slide culture of the mould confirmed Histoplasma capsulatum. Cutaneous lesions improved with liposomal amphotericin B. The rheumatic arthritis showed improvement with hydroxychloroquine.

Conclusion: Histoplasmosis can have varied clinical presentations. It should be kept as a differential diagnosis in immunocompetent patients presenting with cutaneous lesions because untreated histoplasmosis would result in morbidity and mortality.

MICP 447

CEREBRAL PHAEOHYPHOMYCOSIS IN IMMUNOCOMPETENT PATIENT BY CLADOPIHALOPHORA BANTIANA: A CASE REPORT

Priyanka Thorat, Shashir Wanjare, Pallavi Surase, Arshad Badar, Kunalsen Jagatdeo, Gita Nataraj
Seth G.S Medical College and K.E.M Hospital, Mumbai

Introduction: Cladophialophorabantiana is most commonly encountered agent causing Cerebral phaeohyphomycosis, a rare CNS infection. Other lesser known fungi are Exophiala dermatitidis, Rhinocladiella mackenziei and Ochroconis gallopava. Patients usually present with cerebral abscesses. Due to relative rarity of the disease itself and lack of specific symptoms and signs, the disease is difficult to diagnose.
Aims and Objectives: To describe a case report of Cladophialophorabantiana CNS infection.

Material and Method: A 40 year old male carpenter from rural Maharashtra presented to the emergency department with complaints of left sided hemicranial headache since 8 days. He had an episode of giddiness followed by fall 8 days back with history of projectile non bilious on-off vomiting since two days. The patient had no complaints of fever, seizure, ear infection and blurring of vision. There was no history of TB or any focal neurological disorder. A CT scan revealed a space occupying lesion (SOL) in right frontoparietal region with mass effect. Patient underwent right frontal craniotomy with excision of SOL. Pus collected from SOL was sent for microbiological examination. The specimen was processed as per standard protocol. Organism was identified by conventional methods. Brown fungal filaments were seen on KOH mount. Black velvety fungus grew on Sabouraud Dextrose Agar. Slide culture showed brown septate hyphae with conidiophores bearing branched chains of conidia suggestive of Cladophialophorabantiana. In spite of treatment with amphotericin B and Voriconazole, the patient succumbed to infection.

Conclusion: Cerebral phaeohyphomycosis is a relatively rare invasive fungal infection, usually presenting asSOL in immunocompetent hosts. Microbiological and pathological examinations of affected tissue can provide evidence-based management.

MICP 40 My-P13

EVALUATION OF VARIOUS SLIDE CULTURE METHODS FOR MORPHOLOGICAL IDENTIFICATION OF FUNGI

Aditi Minhas, Jyoti Sangwan, Pratibha Mane
Shaheed Hasan Khan Mewati Government Medical College, Nuh, Haryana

Introduction: Identification of fungi is difficult as exact morphology is difficult to obtain. Even after the advent of molecular techniques slide culture is the most common method for morphological identification of fungi. Since basic slide culture method has some disadvantages so, various modifications of slide culture have been suggested in literature.

Aim & Objectives: To compare various slide culture methods for morphological identification of fungi on the basis of different parameters.

Methods: This observational cross-sectional study was conducted in Department of Microbiology SHKM GMC, from 1st May to 31st July 2019. In this study four genera of filamentous fungi namely Aspergillus, Mucor, Penicillium and Trichophyton were taken. To see the morphological details of the four fungi, various slide culture methods were performed namely: Basic slide culture, modified slide culture 1 and 2 and direct slide culture 1 and 2 as used by YevaRosana et al from Indonesia. The slide culture was done using SDA agar. Results were observed and noted on 2, 3, 5 and 7 days of inoculation and incubated at 35°C. The various parameters noted were: the ease of performance, the rate of growth on media, the chances of contamination and the ease with which the growth could be observed under microscope. All the findings were recorded.

Results and Conclusion: In terms of ease of performance modified slide culture 1 proved better than the rest. In terms of rate of growth on media direct culture 1 was better. Modified slide culture 2 had maximum chances of contamination. In terms of ease of observation basic slide culture was preferable. To conclude: for better identification of fungus, slide culture methods need to be modified.
ISOLATION AND IDENTIFICATION OF CANDIDA SPECIES FROM VARIOUS CLINICAL SPECIMENS AT V.S.G.H HOSPITAL, AHMEDABAD

Urvashi Limbachia
V.S.G.H Hospital, Ahmedabad

**Introduction:** Candida is a yeast like fungus, found as commensal on skin, mucous membrane, gastrointestinal tract and vagina. Candida species causes various clinical infections ranging from muco-cutaneous infection to life threatening invasive disease. Recent increase in resistance of Candida species to various antifungal drugs has made a serious concern.

**Aims and Objective:** The aim of the study was to isolate Candida from clinical samples, study distribution of Candida species in various clinical specimens, to know prevalence of non-albicans species and to study their resistance pattern to antifungal agents

**Method:** Candida isolates from various clinical samples during period of 6 months from January to June 2019 at Microbiology Department, NHL Medical College, Ahmedabad were subjected to gram stain, germ tube test, sugar assimilation and fermentation test, inoculation on CHROMagar and slide culture on Corn Meal Agar. Antifungal susceptibility testing was performed for all isolates of Candida species using disc diffusion method as recommended by clinical and laboratory standard institute (CLSI) M44 A document.

**Results:** Majority of isolates were from urine (43.72%) and sputum (41.33%) samples followed by vaginal and cervical swabs, blood and tracheal secretion.Candida albicans was the most common Candida species 73 (43.71%), followed by C.tropicalis 66 (39.52 %), C.glabrata5 (2.99%),C.krusei 4 (2.39%),Trichosporonbeigelii 3 (1.79%),C.auris 2 (1.19%), C.parapsilosis 1 (0.59%) and C.guilliermondii 1 (0.59%)were also isolated. Regarding antifungal susceptibility pattern Candida species were most susceptible to Nystatin (98.75%) and Amphotericin B (95.03%), followed by Voriconazole (56.25%), Fluconazole (54.03%), Clotrimazole (48.44%), Itraconazole (43.47%).

**Conclusion:** Along with C. albicans, nonalbicans species like C. tropicalis, C. auris, C. parapsilosis, C. glabrata, Trichosporonbeigelii are increasingly being isolated from clinical samples. Resistance to azole compounds are also increasing. CHROM agar is a single, rapid and inexpensive method for identification of most of species which can be confirmed by additional tests.

CHARACTERISATION AND ANTIFUNGAL SUSCEPTIBILITY OF CANDIDA SPECIES ISOLATED FROM CLINICAL CASES OF VULVOVAGINITIS AT A TERTIARY CARE HOSPITAL IN MUMBAI

Shubhangi B Arbad, Nazneen Malak, Nishat Khan, Vasant Baradkar, Jayanthi S Shastri
Department of Microbiology, Topiwala National Medical College, Mumbai, India

**Introduction:** Vulvovaginal candidiasis (VVC) is the commonest manifestation of genitourinary candidiasis in women of reproductive age group. Though Candida albicans is a common pathogen, a shift towards Non candida albicans (NCA) has been noted in recent
years which causes recurrent episodes. Accurate and reliable antifungal susceptibility testing is necessary to help the clinicians in better patient management and preventing the emerging antifungal resistance.

**Aims & Objectives:** To characterize and perform antifungal susceptibility of *Candida species* isolated from clinical cases of vulvovaginitis

**Methods:** A total of 150 *Candida* isolates from clinically suspected cases of vulvovaginal candidiasis were received in the Microbiology laboratory during the period May 2017 to October 2018. Standard mycological tests and antifungal susceptibility by disc diffusion method were performed on isolates.

**Results:** Three species isolated were *Candida albicans* 49.3% (74), *Candida glabrata* 29.3% (44) and *Candida tropicalis* 21.4% (32). The susceptibility of *Candida albicans* was 100% to Amphotericin B and Nystatin, 97.2% to Ketoconazole, 86.5% to Fluconazole and 60.8% to Itraconazole. *Candida glabrata* showed 100% susceptibility to Amphotericin B, 93.2% to Nystatin and Ketoconazole, 59.1% to Fluconazole, 56.8% to Clotrimazole and 45.5% to Itraconazole. *Candida tropicalis* showed 93.8% susceptibility to Amphotericin B and Nystatin, 84.4% to Ketoconazole, 68.8% to Fluconazole and 62.5% to Itraconazole. Susceptibility to Clotrimazole was 50%.

**Conclusion:** STI clinics in tertiary care centres and peripheral hospitals should support an approach of targeted screening for the diagnosis of vaginal discharge in patients. Speciation and antifungal susceptibility play a vital role in appropriate selection of antifungal agents for the treatment of fungal infections prior to the initiation of therapy, thus limiting the emergence and spread of drug resistance.

**MICP 350**

**PREVALENCE OF NON ALBICANS CANDIDA IN VARIOUS CLINICAL SAMPLES IN A TERTIARY CARE HOSPITAL, JAIPUR**

Dr. Shailja Agrawal, Dr R K Mishra, Dr Malvika Sharma
Department of Microbiology and Immunology, Sawai Man Singh Medical College, Jaipur

**Introduction:** Nosocomial fungal infections (invasive fungal infections acquired in a health care associated setting) have emerged as major pathogen in human being and are associated with high morbidity & mortality despite antifungal therapy. Common risk factors being use of immunosuppressive agents (corticosteroids, chemotherapy, malnutrition, malignancy & neutropenia) while others primarily provide route of infection (extensive burns, indwelling catheters) & some act in combination. Earlier Candida albicans infection was more prevalent than non albicans Candida; but during the last decade increase in prevalence of non albicans species have been noted. Non albicans Candida species also demonstrated the production of virulence factors once attributed to Candida albicans & also demonstrated high resistance to azole group of antifungal agents.

**Aims & Objectives:** To isolate & detect prevalence of various Candida species in a tertiary care hospital, Jaipur.

**Methods:** It is a retrospective study; which included 229 various clinical samples for the period of 6 months (1st march 2019 to 31st august 2019) received in Mycology lab, department of Microbiology, SMS hospital Jaipur. Out of these 229 various samples, 148 showed Candida species on SDA; which was confirmed by Grams staining. These Candida isolates were further incubated for Germ tube testing & inoculated on Dalmau for species identification.
Results: Out of 148 Candida isolates, non albicans Candida was found to be more prevalent than Candida albicans. The distribution of species among non albicans Candida was as follows: Candida tropicalis was 70.94% (n=10), Candida krusei 0.08% (13), Candida parapsilosis 0.06% (n=10), Candida pseudotropicalis 0.02% (n=4). Prevalence of Candida albicans was 10.8% (n=16).

Conclusion: In this study, Non albicans Candida (NAC) were the predominant pathogens associated with various clinical type of Candidiasis, therefore; it can be concluded that NAC species have emerged as an important cause of infections. Its isolation from clinical specimens can no longer be ignored as non-pathogenic isolate. So; continuous monitoring of the species distribution & antifungal susceptibility of candidemia case is necessary.

MICP 358

DIAGNOSIS OF CRYPTOCCOSIS FROM RANGE OF CLINICAL SPECIMENS: A CASE SERIES

Lonika Lodha1, Tadepalli Karuna1, V Sukrita Ayer1, Bhavna Dhingra2, Saurabh Saigal3, Mahendra Atlani4
1Department of Microbiology, 2Department of Paediatrics, 3Department of Anaesthesiology and Critical Care, 4Department of Nephrology
AIIMS Bhopal

Introduction: Cryptococcosis, caused by pathogenic encapsulated yeasts in the genus Cryptococcus, has worldwide distribution and wide array of clinical presentations. Cryptococcus neoformans and Cryptococcus gattii are the most clinically relevant species. Clinical disease is common in the lungs and CNS, other sites include skin, prostate, eyes, and bone/joints.

Aims & Objectives: Documentation of the variety of clinical specimens diagnosed as cryptococcosis in a tertiary care hospital and determination of predominant causativespecies.

Methods: An observational study over a period of six months was conducted to prepare a case series of cryptococcosis. Specimens which were received in mycology lab from the inpatient and outpatient departments of the hospital with clinical suspicion of cryptococcosis were subjected to direct microscopy (India Ink staining, Gram staining, KOH mount) followed by culture inoculation in suitable media at 25°C and 37°C. Detection of cryptococcal antigen was done using lateral flow assay kit. Molecular confirmation of isolates was performed at a reference centre.

Results: Four cases of cryptococcosis were diagnosed during the course of the study. One of the patients had history suggestive of immunocompromised state. Specimens received were: mediastinal mass biopsy and serum from paediatric female; CSF from adult male; BAL fluid from adult male; skin biopsy and CSF from adult male in immunocompromised state (post renal transplant). In all cases, yeast cells were seen on KOH mount, India Ink staining was suggestive of Cryptococcus, and lateral flow assay for cryptococcal antigen in serum was positive. All except one sample showed growth on culture. Molecular confirmation (performed at PGIMER, Chandigarh) of the phenotypically identified isolates showed that the predominant species was Cryptococcus neoformans var. grubii.

Conclusion: A substantial proportion of cryptococcosis cases do not present with any overt history of immunocompromise. Diagnosis is delayed due to subacute and atypical presentations, which in turn leads to delay in treatment and increased mortality.
MICP 387

CANDIDA UTILIS IN NEONATAL SEPSIS CASES IN OUR HOSPITAL

Dr. Tabassum Sultana, Dr. V. V. Shailaja, Dr. Sheerin Gandhi Medical College, Hyderabad

**Introduction:** Blood stream infections (BSIs) are severe diseases characterized by a high morbidity & mortality, which is directly related with delay in administration of first adequate anti-infectious agent. A growing number of Candidemia cases have been observed in recent years & Candida species have been placed as a fourth most common micro-organism isolated from blood samples. Candida blood stream infections carry a significant mortality risk. The isolation of causative pathogens followed by their subsequent identification & susceptibility testing, enables implementation of a proper therapy and has a direct impact on patients’ recovery.

**Aims & Objectives:** Early detection of neonatal candidemias to guide effective & early anti-infective therapy.

**Methods:** Upon blood culture positivity in BacT/ALERT, Gram staining was performed with a blood culture aliquot, it showed gram-positive budding yeast cells. All yeasts isolated were subjected to identification using Vitek 2 system using protocols prescribed by the manufacturer.

**Results:** A total of 7 yeast isolates were recovered from 569 blood samples. Among these 7 yeast isolates, 5 isolates were identified by Vitek 2 system as Candida utilis (97%)

**Conclusion:** Early speciation of positive clinical specimens has immense potential to impact the therapeutic decisions regarding empirical anti-fungal therapy.

MICP 390

PREVALENCE AND DEVELOPMENT OF RAPID DETECTION OF FUNGAL KERATITIS FROM A TERTIARY CARE CENTER IN NORTH INDIA

Yamini Tawde, Sourav Das, Shreya Singh, Anup K Ghosh
Department of Medical Microbiology, PGIMER, Chandigarh

**Introduction:** Fungal Keratitis (FK), an infection of cornea by fungal pathogen is the leading cause of blindness and visual impairment. It accounts for 30–40% of the total microbial keratitis cases. FK is present worldwide but more prevalent in tropical and developing countries, predominantly caused by Aspergillus sp, Fusarium sp and dematiaceous group of fungi. Prevalence and geographic distribution of these fungal agents varies in India. Diagnosis of FK usually involves conventional microscopy and culture which results in delay in diagnosis and treatment. Thus, the development of molecular based rapid diagnostics is of immense importance.

**Aims and Objectives:** To study the prevalence of FK in a Tertiary care center from North India and to standardize a multiplex PCR for five most common FK agents namely Aspergillus sp, Fusarium sp, Scedosporium sp, Alternaria sp and Curvularia sp.

**Methods:** A total of 1502 suspected FK patients (01-01-2016 to 31-08-2019) were included and routine microbiological procedures i.e. 10% KOH mount, Calcofluor staining and culture on SDA plates (both at 25°C & 37°C) were performed. A multiplex PCR targeting five above
mentioned fungal genus was standardized using pure culture DNA and the genus-specific primers designed against the ITS regions.

**Results:** Total of 1502 patients, 232 (15.44%) were positive for fungal culture and 327 (21.77%) were positive by direct microscopy. Aspergillus sp. (n=118; 50.86%) was the predominant followed by Fusarium sp. (n=70; 30.10%), melanized group of fungi (n=26; 11.20%) and Acremonium sp. (n=8; 3.44%). Multiplex PCR targeting above mentioned species was standardized using genus specific primers having varying band length (Fusarium sp- 73 bp, Aspergillus sp-156 bp, Curvularia sp-124 bp, Alternaria sp- 103 bp and Scedosporium sp- 57 bp)

**Conclusion:** Aspergillus species is predominantly observed causing FK in North India followed by Fusarium and melanized group of fungi. Standardization of Mutiplex PCR can aid in faster diagnosis and treatment.

**MICP 448**

PREVALENCE OF YEASTS SPECIES ISOLATED FROM THE DIVERSE SAMPLES AT DR LAL PATH LABS, DELHI, INDIA

Dr Shalabh Malik
National Head, Microbiology & Serology, Lal Path Labs, Delhi

**Introduction:** Among the fungal infection in human beings candidemia are predominantly reported but approximately 90% of human invasive fungal infection are caused by only few species, in our study Candida albicans remain the most common Candida species, whereas the morbidity and mortality caused by Non albicans Candida (NAC) species are increasing.

**Aims & Objectives:** This retrospective laboratory-based study aims at determining the prevalence and antifungal susceptibility pattern of Candida albicans and Non albicans Candida from various clinical specimens in microbiology department of Dr Lal Path Labs.

**Methods:** This retrospective study was conducted on 2240 samples, taken between January 2019 to July 2019, performed at Microbiology department of Dr. Lal Path Labs. Conventional (culture, microscopic examination) and identification by use of more advanced and standardized methods, such as MALDI-TOF followed by antifungal susceptibility testing was done using Vitek 2 Ast YS07 card.

**Results:** A total number of 737(32.9%) 16 species of Candida isolates were isolated from various clinical specimens. Majority of isolates were obtained from respiratory tract sputum, followed by bronchoalveolar lavage, endotracheal tip, pus, urine, high vaginal swab, nail, blood. Among them, Candida albicans (54.9%), C. tropicalis (14.7%), C. glabrata (11.7%), C. parapsilosis(4.3%), and C krusei (3.5%) were the five predominant candida species. Uncommon Candida species such as Candida auris, Candida cantenulata, Candida metapsilosis, Candidalusitaniae, Candida haemulonii, Rhodoturulamucilaginosa, Trichosporonasahii, Malassezia pachydermatitis, Cryptococcus magnus, Kodameaeohmeri were also isolated in this study.

**Conclusion:** In the present study, Candida albicans were shown most resistant to antifungal drugs in comparison to Non albicans Candida except Caspofungin.

**MICP 52**

PREVALENCE OF OCULOMYCOSIS IN AND AROUND CHANDIGARH
Introduction: Oculomycosis is increasingly recognized as an important cause amongst clinical conditions responsible for ocular morbidity entailing blindness. The important clinical entities encountered in oculomycosis are mycotic keratitis, fungal endophthalmitis, and fungal infections of ocular adnexa like orbital cellulitis, dacyrocystitis, etc. Incidence varies from 7-63% in India with cornea being the most frequent site for fungal infection. These lesions are devastating and lead to economic problem for patients and their families.

Aims and Objectives: To find the prevalence of oculomycosis in and around Chandigarh and the associated risk factors.

Methods: Prospective observational study was conducted on all clinical ocular specimens received over a period of eighteen months (January 2017 to July 2018). Various samples received were corneal scrapings, vitreous tap, aqueous tap, recipient cornea, conjunctival swab, etc. Microbiological examination was done as direct microscopy and culture.

Results and Conclusion: A total of 337 ocular specimens were received from clinically suspected patients having oculomycosis during the said time period. Out of which, 80 were positive for fungal etiology giving an overall prevalence of oculomycosis as 23.73% or 237 cases per 1000 patients. Amongst these 80 samples, 68 (85%) cases were of mycotic keratitis while 12 (15%) were of fungal endophthalmitis. Most of the patients of oculomycosis (23.8%) belonged to the age group of 51-60 years and majority were male patients (71.3%). Thirty-three (41.3%) were farmers by occupation and they presented to the Eye OPD in the monsoon and early winter season. The commonest risk factor for mycotic keratitis was trauma with vegetative matter (36.8%) in fungal keratitis group while it was post cataract surgery (41.67%) in case of endophthalmitis group. We conclude that with this huge burden, fungal etiology of ocular diseases can’t be neglected. Rather there is urgent need to develop early, comprehensive strategy for diagnosis, management and prevention of oculomycosis.

MICP 78

ORBITAL APEX SYNDROME DUE TO RHIZOPUS HOMOTHALLICUS-A CASE REPORT

Hema K, Dillirani V, Indumathi V
Govt. Stanley Medical College, Chennai

A 42 years old female presented to the Ophthalmology department with the complaints of headache, inability to close the left eye, defective vision for the past 5 days. On examination, right eye vision was normal and left eye vision had only perception of light. There was pain and tenderness over left maxillary sinus. The patient developed cellulitis on the left side of the face. She was a known case of Diabetes on OHA and Insulin. Her fasting blood sugar was 398mg% with HbA1C 15gms%. MRI brain and para nasal sinuses showed possibility of Orbital apex syndrome, focal cerebritis and meningitis. Diagnostic nasal endoscopy was done and biopsy was taken. Multiple greyish brown tissue and large polyps were received in the lab. Specimen was subjected to KOH which showed broad aseptate hyphae. Fungal culture was done on Sabouraud dextrose agar without cycloheximide and incubated both at 25-degreecelcius and 37-degreecelcius. Growth was observed within 3days of incubation. Cotton
wooly colonies which turned to greyish black. Lactophenol Cotton Blue mount of the fungus showed broad aseptate hyphae, bearing globose sporangia with zygospore suggestive of Mucormycosis.

**MICP 225**

**A RARE CASE OF CORNEAL ULCER CAUSED BY BIPOLARIS SPICIFERA- A CASE REPORT**

Amber Prasad, Manoj Kumar, Ashok Kumar Sharma, Kumari Seema
Department of Microbiology, RIMS, Bariatu, Ranchi

**Introduction:** Aspergillus and Fusarium are the most common fungi causing mycotic keratitis. Injury to the eye with vegetable matter, cow tail injury, long-term use of topical steroids is some of the risk factors for mycotic keratitis. There are few case reports of keratitis caused by Bipolaris. We present a case report of keratitis due to *B. spicifera* from eastern side of India.

**Aims & Objectives:** To report a rare case of keratitis infected by *Bipolaris spicifera*.

**Methods:** A 65-year-old man presented to the emergency, with redness, pain, and defective vision in the right eye (RE) of 15-day duration which deteriorated day by day. He gave a history of injury while working in the paddy field. He consulted a local doctor in the village but with no relief. On examination, his best-corrected visual acuity was 6/12. Slit-lamp evaluation of the LE revealed ciliary congestion with the corneal infiltrate measuring 3.5 mm × 3 mm. There was no hypopyon. Scrapings were taken from the corneal lesion under topical anesthesia for Gram's staining and 10% potassium hydroxide (KOH) mount. Additional scrapings were taken to inoculate 5% sheep blood agar (SBA) and Sabouraud's dextrose agar (SDA) plates (Hi-Media Laboratories Pvt. Ltd, Mumbai, India). The patient was started on topical besifloxacin Q 4 hourly, itraconazole Q 6 hourly, fortified gentamicin Q 6 hourly, and atropine eye drops two times a day and oral acetazolamide (250mg) twice daily. The KOH mount of the corneal scrapings showed phaeoid, septate, branching, filamentous mold suggestive of keratomycoses due to phaeoid fungi. The SBA and SDA plates were incubated at 37°C and 25°C, respectively. The blood agar plates after 48 h incubation had no bacterial growth. Fungal growth was observed following 5 days of incubation of the SDA plates. Fungi were identified as *B. spicifera* based on macroscopic and microscopic characters.

**Results & Conclusions:** *B. spicifera* is a rare cause of corneal phaeohyphomycosis. A brownish pigmented infiltration is an important diagnostic clue, however microbiologic studies and further molecular studies are required to obtain a definite diagnosis. Although antifungal medication and debridement are the mainstay of most corneal fungal infection, therapeutic penetrating keratoplasty can prevent morbidity related to this fungal infection.

**MICP 401**

**SPECTRUM OF MYCOTIC KERATITIS IN BIHAR: STUDY FROM A TERTIARY CARE HOSPITAL**

Ajay Kumar Prabhat, Vidyut Prakash, Kamlesh Rajpal, Shailesh Kumar, S.K. Shahi
Department of Microbiology, Indira Gandhi Institute of Medical Sciences, Patna
**Introduction:** Mycotic keratitis presents as an ophthalmic problem causing visual disability due to its protracted course and unfavorable response. People of low socioeconomic classes who often come in contact with fungal spores during day to day activities as well as Immuno-compromised persons suffer from this infection more often. Identifying the fungal spectrum in each geographical location may help to choose the empirical treatment and prevent blindness.

**Aims and Objectives:** To study the magnitude of fungal corneal ulcer and identify the predominant etiological agents in this region in clinically diagnosed fungal corneal ulcers in patients attending a tertiary care centre in Bihar.

**Methods:** All patients who are clinically diagnosed to have fungal corneal ulcer, based on history and slit lamp findings over a period of 1 year were included in the study. We collected 211 number of corneal scraping samples from patients clinically suspected to have fungal corneal ulcer. Direct microscopy of 10% potassium hydroxide (KOH) mount, gram staining, fungal culture on Sabouraud’s Dextrose Agar (SDA) media and LPCB mount was performed.

**Results:** Out of the total 211 patients, males predomination (n=120) for suspected fungal keratitis. Maximum number of samples from age group 40-60 years. The fungus culture was positive in 31 cases (14.7%). KOH positivity was seen in 23 cases (10.9%). The fungus isolated were Aspergillus flavus (29%), Curvularia species (22.6%), Aspergillus fumigates (27.27%), Aspergillus niger (9.7%), Fusarium (9.7%), Rhizopus (9.7%), Candida albicans (6.5%).

**Conclusion:** Because of the serious consequences of infectious keratitis, it is important to know the exact etiology to institute appropriate therapy in time. Laboratory confirmation should be undertaken to rule out fungal infection before prescribing corticosteroid and antibacterial antibiotics.
common isolate followed by Trichophyton mentagrophyte (30%), and Trichophyton rubrum (22%).

**Conclusion:** Dermatophytes are assuming greater significance both in developed and developing countries particularly due to the advent of immunosuppressive drugs and diseases like AIDS. Knowing their clinicomycological pattern may help somewhere in prevention as well as diagnosing this infection.

**MICP 112**

**PREVALENCE AND SPECIES IDENTIFICATION OF DERMATOPHYTOSIS IN TERTIARY CARE HOSPITAL, RIMS, RANCHI, JHARKHAND**

Dr. Anita Raj, Dr. (Prof) Manoj Kumar, Dr. Ashok Kumar Sharma, Dr. Amber Prasad
RIMS, Ranchi

**Introduction:** Dermatophytoses is common worldwide and continue to increases. It is a fungal infection of human predominantly caused by keratinophilic mycelia fungi known as dermatophytes such as Trichophyton, Epidermophyton and Microsporum.

**Aims and Objectives:** To determine prevalence of dermatophytes and species identification.

**Methods:** This cross-sectional study was carried out from December 2018 to May 2019 in Microbiology Department of RIMS, Ranchi. A total 62 clinically diagnosed cases of dermatophytes who presented to veneral and skin department of RIMS, Ranchi were included in our study. After detailed history and clinical examination specimens such as nail, hair, skin scrapping was sent to department of Microbiology for microscopic examination and fungal culture.

**Results:** In our study male:female ratio is 3:1. Corporis was the most common clinical presentation followed by T. cruris. T mentagrophytes was most common isolates followed by T. rubrum and rest are Microsporum and other Trichophyton species.

**Conclusion:** KOH positive has higher positively rate than culture positive. Family history was present in (43%) of cases. Good hygiene and non sharing behaviour of objects such as towels, handkerchief can prevent transmission and further spread of such infection.

**MICP 267**

**OCCURRENCE OF DERMATOPHYTES, YEASTS AND OTHER FUNGI IN CLINICALLY SUSPECTED CASES OF ONYCHOMYCOSIS**

Dr. Md Iqbal Ahmed, Dr. Raksha Yoganand, Dr. Raghunatha S, Dr. Rudresh S M, Dr. Ravi G S
1. Dept of Microbiology, ESIC-MC & PGIMSR Rajajinagar Bangalore
2. Dept of Dermatology and VenerologyESIC-MC & PGIMSR Rajajinagar Bangalore

**Introduction:** Onychomycosis is a fungal infection of nail apparatus caused by various dermatophytes, yeast and non dermatophyticmoulds. It is the most common nail disorder accounting up to 50% of onychopathies and about 30% of all cutaneous fungal infection. This may occur as a primary event or a secondary infection of a previously diseased or traumatized nail. Recently there has been a worldwide increase in the incidence of onychomycosis with social, cultural and economical factors contributing to it. In developing
countries, higher priorities in socioeconomic concerns and health issues for other diseases have resulted in low awareness of onychomycosis. Though there is a clearly diseased appearance associated with this condition, it is often regarded as a cosmetic problem of relatively minor importance.

**Aims and Objectives:** The present study was undertaken to isolate and identify the etiological agents of onychomycosis.

**Methods:** Study was done over a period of 8 months from January 2019-August 2019. A total of 50 clinically suspected cases of onychomycosis attending the outpatient department of dermatology and venerology, ESI Hospital, ESI Medical College, Bangalore were studied. Nail clippings taken from patients were processed by potassium hydroxide (KOH) for direct microscopy and culture using SDA with Antibiotics and SDA plus antibiotics with Actidione

**Results:** Out of total of 50 suspected cases of onychomycosis. 16 cases(32%) were KOH positive and 34 cases (68%) were culture positive most common in male 21 cases(61.76%) and female 13 cases(38.24%), the most common fungi isolated were Non dermatophytic moulds in 27 cases(54%), Aspergillus niger was 37%, Trichophyton tonsurans (42.85%) was most commonly isolated among dermatophytes (14%). DSLO was the most common clinical variant(60%).

**Conclusion:** Hence laboratory diagnosis of onychomycosis is essential as many conditions of nail mimic onychomycosis. Though commonest causative agents of onychomycosis are dermatophytes, number of cases caused by non dermatophytes is on the rise.

**MICP 317**

**My-P28**

**E-TEST FOR DERMATOPHYTES: SHOULD WE OR SHOULD WE NOT?**

Kriti Maurya, Anupam Das, Manodeep Sen, Jyotsna Agarwal
Dr. Ram Manohar Lohia Institute of Medical Sciences, Lucknow

**Introduction:** Dermatophytosis is a very common problem throughout the world. About 20-25% of the world’s population are infected with dermatophytic fungi and the incidence is increasing on a steady basis. Dermatophytosis is frequently associated with relapses following the interruption of antifungal therapy. The incidence of fungal infections, including resistant infections, has increased during the last few years, and may be due to inadequate or irregular use of drugs or increased incidence of immunodeficiency states.

**Aims and Objectives:** To determine the performance of E-test method for antifungal susceptibility against T. mentagrophytes.

**Methods:** Present study was conducted in the department of Microbiology, Dr. Ram Manohar Lohia Institute of Medical Sciences, Lucknow. Samples collected were Skin, Hair and Nail. Direct microscopy was done using KOH wet mount (10%, 20%) followed by culture on SDA with 0.5% cycloheximide. Lacto-Phenol Cotton Blue mount, Slide culture for detailed morphology and urease test were done for speciation. Antifungal susceptibility was performed using E-Test for fluconazole and itraconazole against T. mentagrophytes.

**Results:** In present study, 78% (39/50) were positive by direct microscopy using KOH mount & 72% (36/50) were positive by culture. Dermatophytes isolated from culture positive cases were 83.33% (30/36) and 16.66% (6/36) were non-dermatophytes. Among all clinical types, most common was tinea corporis. T. mentagrophytes was most common species (61.7%). On
E-test methoditraconazole was more active with MIC range (µg/mL) 0.002-0.25 as compared to fluconazole with MIC range (µg/mL) 16-256.

**Conclusion:** The E-test is a new and promising method with broad applications in clinical laboratory practice, and is supported by the results of extensive testing of bacteria and yeasts. However, there are only a few reports describing the use of this method for dermatophytes. More studies are required to standardise the breakpoints of various antifungals used for the treatment of dermatophytes and evaluation of newer methods which are rapid and suitable for performance for routine laboratories.

**MICP 101**

**NON ALBICANS CANDIDA CAUSING URINARY TRACT INFECTIONS - AN EMERGING THREAT**

R Priyadharshini¹, C Revathy²
Post Graduate MD Microbiology¹, Professor and HOD², Department of Microbiology, Tirunelveli Medical College, Tirunelveli

**Introduction:** Candida species colonizes most of the human beings. Yet some people develop diseases due to Candida, among which genitourinary manifestations are extremely common. Candida albicans is the most infectious agent, but now non Candida albicans are also emerging as a pathogen. Several factors like immune suppression or illness, use of broad spectrum antibiotic and antimycotic drugs are associated with this change. Most of the non Candida albicans species are inherently resistant or acquire resistance, to commonly used antifungals.

**Aims and Objectives:** The study was done on females of reproductive age group (15-49 years) with symptoms of urinary tract infections in the department of Microbiology at Tirunelveli Medical College with the following objectives i.e. to isolate urinary tract infections due to Candida species among female patients and to speciate the isolates using germ tube and HIchrome agar techniques.

**Methods:** This study was conducted from February 2019 to July 2019. Clean catch midstream Urine samples were collected from inpatients and were processed according to the standard protocol. Speciation of Candida was performed by germ tube test, HIchrome agar techniques.

**Results:** 112 urine samples were collected for the test, out of which (29%) 33 samples were Culture positive for candida. Among them (30%) 10 were germ tube positive and were identified to be Candida albicans. Out of 33 isolates (30%) 10 isolates were C. albicans, (27%) 9 were C. parapsilosis, (21%) 7 were C. tropicalis, (12%) 4 were C. kruzei and (9%) 3 were C. glabrata.

**Conclusion:** In our study Candida non albicans species were the predominant pathogens isolated. Therefore, its significance can no longer be ignored as a contaminant. Some candida species like Candida kruzei are intrinsically resistant to fluconazole. Hence, the speciation of Candida non albicans has also become mandatory which necessitates instituting appropriate antifungals and thereby avoiding treatment failures.
EPIDEMIOLOGY OF INVASIVE CANDIDIASIS FROM TERTIARY CARE HOSPITAL

Azkalram, Mragnayani Pandey, Prashant Mani, Usha Yadav, Gagandeep Singh, Immaculata Xess
AIIMS, New Delhi

Introduction: Candida is an opportunistic pathogen which causes life-threatening infection with high rates of mortality especially in immunocompromised individuals. Mortality is as high as 70% if not given appropriate treatment.

Aims and Objective: To study the epidemiology of Invasive candidiasis in tertiary care hospital.

Methodology: This study was conducted for a period of 21 months from April 2017 to December 2018 at tertiary care hospital. The various samples were collected and processed by standard microbiological method. Speciation was done both by conventional and MALDI-TOF assay. Antifungal susceptibility test was done by micro-broth assay M27 A3.

Results: During the study period 154 cases were diagnosed as invasive candidiasis. The risk factors in our patients were acute pseudo pancreatitis cases with total parenteral therapy, CKD with DM, chronic Liver diseases and also premature babies. The mean age the patients were 34.58 year. There was shift towards the non-albicans species. Some of the uncommon species of candida and other yeast also reported. Antifungal susceptibility showed fluconazole resistances 8.5%, voriconazole 2.6%, amphotericin B 2.6% and echinocandins 5.2%.

Conclusions: Incidence of invasive candidiasis still high our patients. With advent of MALDI-TOF there is better recognition of rare species. There is shift towards the non-albicans species. There is a steady increase in fluconazole resistances and large no of our isolates are SDD which may turn to resistant in due course of time because of antifungal pressure. Echinocandin resistance is still low but may increase because of more use. Emergence of novel pathogens candida auris is real threat as it has a tendency to disseminate to another patient. Therefore, with continuously evolving epidemiology; proper speciation, antifungal susceptibility testing with rapid method of diagnosing is required for proper management of patients.

NON-ALBICANS CANDIDEMIA IN CHILDREN: A NEW THREAT

Tulika Majumder, Reena Ray Ghosh, K. Dhar, S. Kumar, M. Bandyopadhyay, M. Chatterjee
RGKMCH, Kolkata

Introduction: Candidemia is the leading cause of invasive fungal infections in hospitalized children. Candida species, namelyC. albicans, C. parapsilosis, C. glabrata, C. tropicalis and C. krusei- are responsible for >90% of all cases of candidemia in paediatric patients. Uncommon Candida species have now emerged among hospitalized children. These non albicans candida (NAC) frequently are not susceptible to fluconazole. So early identification of these NAC from critically ill children is important to start empirical antifungal therapy.
Aims and Objectives: This study was done to determine 1) The prevalence of non-albicans candidemia in children. 2) The current trend of species distribution.

Materials and Method: Blood samples were collected from children with sign and symptoms of sepsis from June-November 2019 in the Department of Microbiology, RGKMCH and processed by conventional blood culture method. Subculture done on blood agar and MacConkey agar plates. Pure growth of candida spp. on blood agar then processed as per standard mycological technique.

Results: A total 120 children were studied. Candida species were isolated from 17/120(14.2%) cases. Neonates and children <5 yrs of age group were more in number. Majority of candidemia episodes occurred in low birth weight baby, history of prolonged hospital stays, prolonged iv antibiotics and TPN. Among all candida isolated, 16% were candida albicans rest of 84% were NAC spp. Out of total NAC C. parapsilosis was the most predominant followed by C. tropicalis and C. guilliermondii.

Discussions and Conclusion: Current study showed that there is increased number of NAC compared to candida albicans in children. Identification of these NAC is very important because many of them are intrinsically resistance to many antifungal agents and they are mostly MDR strain. So where antifungal susceptibility is not available, species identification can guide a clinician to choose antifungal agents to start without delay.

MICP 230

CRYPTOCOCCUS NEOFORMANS CAUSING CHRONIC ENDOPTHALMITIS: A CASE REPORT

Neetu Mehrotra, Ashwini Dedwal, Sunil Bhamare, Rajesh Karyakarte
Department of Microbiology, B.J. Government Medical College and Sassoon General Hospital, Pune

Introduction: Cryptococcus neoformans is a rare cause of exogenous endophthalmitis especially in immunocompetent patient. Here, we report a case of exogenous endophthalmitis caused by Cryptococcus neoformans in an immunocompetent patient.

Case Details: A 45 years old patient, residing in Pune had diminished vision and redness of right eye post cataract surgery done in another institute. He was diagnosed as a case of endophthalmitis for which anterior vitrectomy and lens removal was done. His condition did not improve and he reported to our institute. On slit lamp examination he had circumcorneal congestion, vision of counting fingers at 1 meter. His fundal examination, intra ocular pressure was normal. Patient was HIV negative. Patient was admitted and started on oral and topical antibiotics. Anterior chamber wash was done and sample of the same was sent to department of microbiology for fungal culture. Direct microscopy was done but there were no significant findings. Sample was inoculated on Sabouraud’s dextrose agar and kept at 37°C and 25°C. After two days cream colored, moist colonies were observed. Gram stain was performed on the growth from the colony which showed budding yeast cells. India ink preparation was done which showed multiple clear halo. The colony was inoculated on urease agar and isolate was identified as Cryptococcus neoformans. This was confirmed using vitek AST-YS08 card. Patient was administered oral voriconazole and intra-vitreal injection of Amphotericin B. He was discharged two days later with vision of 6/60 and no complaints.
Conclusion: Microbiologists should be aware of cryptococcus as a cause of endophthalmitis in non-immunocompromised patient. Timely diagnosis and prompt antifungal therapy could prevent vision loss and provide symptomatic relief to the patient.

Acknowledgement: Department of Ophthalmology, B.J. Government Medical College, Pune

MICP 277

MAJOR SEROTYPES OF CRYPTOCOCCUS NEOFORMANS IN HIV INFECTED INDIVIDUALS ATTENDING A TERTIARY CARE CENTRE IN ASSAM

Dr Purabi Baruah, Prof (Dr) Ajanta Sharma, Prof (Dr) Lahari Saikia, Dr Nilakshi Borah Gauhati Medical College & Hospital, Guwahati

Introduction: Cryptococcus neoformans is a common etiological agent of cryptococcosis and it is recognized as a species complex, comprising C. neoformans var. grubii, C. neoformans var. neoformans, and C. gattii. Life threatening infections due to Cryptococcus are caused predominantly by C. neoformans especially in HIV/AIDS patients. It is distributed worldwide in association with pigeon droppings. It is further classified into 5 serotypes based on antigenic differences of mucopolysaccharide capsule that permits distinction into 5 serotypes namely A, B, C, D and AD.

Aims and Objectives: To determine different serotypes of Cryptococcus neoformans circulating among HIV infected individuals.

Methods: A total of 128 CSF samples from the HIV infected patients attending a tertiary care centre in Assam were studied between January 2018 to January 2019. CSF samples were processed by culture on Sabouraud's dextrose agar with chloramphenicol, Indian ink preparation and lateral flow assay for Cryptococcal antigen. Colonies of Cryptococcus were identified by macroscopic and microscopic morphology, positive urease test, phenol oxidase activity on Bird seed agar. Serotyping of the isolates was done by amplification of the URA5 gene by PCR.

Results: Out of the 128 samples, 11 (8.6%) were positive in Indian ink preparation, 11 (8.6%) were culture positive and 17 (13.3%) were positive for Cryptococcal antigen. Of the 11 culture positive samples, 8 (72.7%) were found to be A/D serotype and one (9.1%) was found to be serotype B. Two isolates could not be serotyped.

Conclusion: Identification of serotypes of Cryptococcus neoformans strain has been useful for understanding the global epidemiology of Cryptococcal infection. Improved technologies, which accurately identify the different serotypes of Cryptococcus neoformans have been increasingly important for prognostic & therapeutic implications.

MICP 385

STUDY OF FUNGAL RHINOSINUSITIS AT A TERTIARY CARE HOSPITAL

Dr. Chaya A. Kumar, Dr. Komal Mirlekar, Dr. Neha Sharma, Dr. Sujata Baveja, Dr. Manish Kumar Agarwal Department of Microbiology, LTMMC and GH, Sion

Introduction: Fungal rhinosinusitis accounts for a global burden of 12 million cases. Socio-economic, geological characteristics and risk factors like diabetes mellitus, prolonged...
corticosteroid, anticancer drug use are the main determinants of incidence and prevalence of fungal disease.

**Aim:** To determine, clinical, radiological and microscopy, culture and histological features of fungal rhinosinusitis.

**Methods:** A record based retrospective study was conducted at a tertiary care hospital from December 2016 to July 2017 and included 11 cases of fungal rhinosinusitis. The study evaluated the demographics, clinical and radiological features and diagnosis of causative fungal agents by standard mycological procedures.

**Results:** Study included 8 men and 3 women. Median age was 47 yrs. A total of 8/11 (73%) had diabetes, one patient was on steroids, two were immunocompetent. The patients presented with facial pain 10/11 (90%), headache 8/11 (73%), nasal obstruction 7/11 (64%), nasal discharge 3/11 (27%) and loss of vision 6/11 (55%). CT scan revealed cavernous sinus thrombosis 4/11 (36%) and osteomyelitis of skull 5/10 (50%). Fungi were isolated in 9/11 (75%) cases. *Rhizopus* 3/11 (33.3%), *Mucor* 2/11 (16.6%), *Aspergillus flavus* 1/11 (8.3%) and *Rhinosporidiosis* 1/11 (8.3%) *Rhizopus+Aspergillus flavus* 1/11 (8.3%) were the etiological agents in fungal rhinosinusitis. Sensitivity of KOH and histopathology was 7/7(100%) and 5/6(83%) respectively compared with culture. Uncontrolled diabetes was observed in 5/8(63%) of patients having zygomycosis. Treatment included either amphotericin (54.5%), posaconazole (9.1%) or both amphotericin and posaconazole (27.3%). In 50% cases of zygomycosis, exenteration of eye ball was done. One patient expired.

**Conclusion:** In rhinosinusitis Zygomyces are the predominant etiological agents causing significant morbidity and mortality and are commonly associated with uncontrolled diabetes. Although culture is the diagnostic gold standard, histopathology aids in diagnosis.

---

**MICP 441**

**PNEUMOCYSTIS JIROVECCI PNEUMONIA – ATYPICAL CLINICAL CASE PRESENTATION**

Susmita Ray (Kundu), R. Ray (Ghosh), Mitali Chatterjee, P.K. Mukhopadhyay, S. Pal, K. Dhar
Department of Microbiology, R. G. Kar Medical College & Hospital, Kolkata

**Introduction:** Pneumocystis pneumonia which is a serious opportunistic infection found among immune compromised patient can also be found in immune competent individuals like malnourished children. It is responsible for high morbidity as well as mortality. The present case report describes a case of *Pneumocystisjirovecii* pneumonia in a child who is HIV negative and with no evidence of co-existing tuberculosis or any other immunosuppressive illness.

**Case report:** A 12 year old female patient presented with fever, neck rigidity, altered sensorium and respiratory distress since last two to three days, She was seronegative for HIV 1 antibody (CD 4 count 240/ml), Initially total count was high and patient was treated with meropenem, doxycycline, colistin, oseltamivir. Total count became normal subsequently but clinically patient was not improved. KOH examination of the DTA sample of this patient showed plenty of transparent cyst like structures suggestive of *Pneumocystisjirovecii* cyst. PAS and Giemsa confirmed presence of *Pneumocystisjirovecii*.

**Discussion:** Based on direct microscopy Giemsa stain & PAS stain of DTA along with clinical evaluation and radiological examination patient is diagnosed as *Pneumocystisjirovecii pneumonia*. 
Conclusion: We conclude with a remark that clinician must be aware of various radiological findings as well as atypical microscopic findings of clinical specimen in a case of non resolving pneumonia. During last decade pulmonary carriage of Pneumocystis jerovecii in healthy persons has been reevaluated.

MICP 332

FUSARIA SPP. ACROSS CLINICAL SYNDROMES AT A TERTIARY CARE HOSPITAL

Sunandini Kapoor1, T. Karuna1, Jogender1, Dinesh P. Asati2, Bharati Pandya3, Bhavana Sharma4
1. Department of Microbiology AIIMS Bhopal
2. Department of Dermatology and Venereology AIIMS Bhopal
3. Department of General Surgery AIIMS Bhopal
4. Department of Ophthalmology AIIMS Bhopal

Introduction: *Fusarium spp.* are phytopathogens causing diseases in humans including allergic fungal rhino sinusitis (AFRS), disseminated fusariosis, onychomycosis, mycotic keratitis, endophthalmitis, skin and soft tissue infections, mycotoxicoses. Infections due to this hyaline septate mould are becoming increasingly common particularly in immunocompromised patients. It is the third most common cause of mould infections and most common cause of fungal keratitis worldwide. Thus, we conducted this study to know clinical spectrum of *Fusarium spp.* in our region.

Aims & Objectives: An observational hospital-based study was conducted for a period of nine months, aimed to document spectrum of *Fusarium spp.* among patients visiting AIIMS, Bhopal with objective to know species distribution of *Fusarium* across clinical presentations.

Methods: Hospital based observational study was conducted over a period of nine months (January-September 2019). Samples from all patients across all departments at AIIMS, Bhopal with suspected mould infections were included. Samples received from patients with clinically suspected fungal infections were subjected to direct microscopy with potassium hydroxide, followed by culture inoculation in suitable media in duplicates at 25°C and 37°C. Molecular confirmation of species for 2 isolates phenotypically identified as *Fusarium solani species complex* (*FSSC*) was done at PGIMER, Mycology Reference Centre, Chandigarh.

Results: Total samples received during 9 months in Mycology section were 1112. Out of these, on direct microscopy, 274 showed budding yeast cells, 259 showed hyaline septate hyphae and 579 showed no fungal elements. Out of 259 samples, 236 were from Dermatology, 9 from CFM, 4 from ENT, 2 from Neurosurgery, 2 from General Surgery, 4 from Ophthalmology, 2 from Pulmonary Medicine. *Fusarium spp.* were isolated from 6 samples with clinical spectrum of onychomycosis (n=1), fungal keratitis (n=1), mycetoma (n=1) and dermatomycosis (n=3). 2 *Fusarium spp.* were identified as *Fusarium acutatum* and *Fusarium solani species complex* by sequencing.

Conclusion: *Fusarium spp.* cause multiple clinical manifestations in both immunocompetent and immunocompromised patients and drug resistance is documented.

MICP 105
FUNGAL CONTAMINATION OF SURFACES AND ARTICLES IN OPERATION THEATRES IN A TERTIARY CARE HOSPITAL

Dr Jharana Mahanta, Dr Dharitri Mohapatra, Dr Rakesh Panda, Dr Snigdharani Choudhury, Dr Sagarika Dhala, Dr D.P Mohanty, Dr Nirupama Chayani
Department of Microbiology, SCB Medical College and Hospital, Cuttack

Introduction: Nosocomial infections acquired during hospital admissions depend on characteristic of microorganisms which are present in the hospital environment. Cross contamination of microorganisms in contaminated surfaces, articles and hands of health care workers are considered to be the main route of spread of nosocomial infections.

Aim: To isolate and identify the fungal species present on the surfaces and articles of various operation theatres in a tertiary care hospital.

Methods: The present prospective study was conducted in department of microbiology, SCBMCH, Cuttack over a period of 12 months from August 2018 to August 2019. A total of 106 surface swabs specimens were collected from predefined surfaces and articles of various operation theatres like ophthalmology, surgery, orthopaedics, O&G, ENT, neurosurgery operation theatres with cotton tipped applicators, premoistened with sterile saline and inoculated in Sabouraud’s dextrose agar tube with 50 microgram/ml of chloramphenicol. They were incubated at 25°C in biological oxygen demand incubator for 4 weeks.

Results: Out of 106 samples, 24 (22.64%) were positive for moulds. The most predominant isolated fungi were Aspergillus spp (45.83%) Out of which Aspergillus niger (20.83%), Aspergillus terreus (12.5%), Aspergillus niger (12.5%) followed by 4 Penicillium spp (16.66%). Three Paecilomyces spp were isolated (12.5%) and 2 Chrysosporium spp (8.3%), 2 Drechslera spp (8.3%), 2 Curvularia spp (8.3%). The highest numbers of fungi isolated were from ophthalmology operation theatre of microscope handle (20.83%).

Conclusion: Because exposure to fungi can cause serious health problems, it is essential to evaluate the degree of contamination of fungi in hospital environment. Contamination can be reduced by hand washing before and after contact with various surfaces and intensifying cleaning routines would reduce the dissemination of pathogens.

MICP 98 ND-P1

DIARRHEA CAUSES AN AILING HEART

Dr. Shuvo Dutta, Dr. Debkishore Gupta, Dr. Subhranshu Mandal, Dr. Navaneeth P P
The Calcutta Medical Research Institute, Kolkata

Introduction: A new era in Microbiology has been heralded by availability of rapid point-of-care diagnostic tests such as automated Multiplex PCR systems. This is a case report describing how its use resulted in dramatic reduction in time to diagnosis compared to traditional methods, quick targeted treatment, avoidance of unnecessary interventions and large cost savings to the patient.

Case Description: A 17 year old male presented with abdominal pain associated with recurrent diarrheal episodes, headache, fever, vomiting and drowsiness since two days. ECG showed ST elevation in leads V2, V3, V4, V6-9, I and II. He was given loading dose of anti-platelet, statin, heparin 10,000 IU and referred to tertiary care center on ionotropic support.
On arrival, the patient was started on empiric antimicrobials (Piperacillin/Tazobactam, Metronidazole) and other supportive treatment. Echocardiogram showed LVEF 30%, Generalized wall hypokinesia, Moderate MR, TR. Trop T: >50, CPK: 6254 and CPKMB: 418. Stool sample was tested with BioFire® FilmArray® GastroIntestinal Panel and Shigella/Enteroinvasive E. coli (EIEC) detected in one hour. A provisional diagnosis of Shigella-induced Myocarditis was made. Empiric antimicrobials were advised to be stopped and Ciprofloxacin started. Patient became symptomatically better on third day and was fit for discharge soon afterwards.

**Discussion and Conclusion:** The traditional method of diagnosis involving enrichment and culture in selective media would have resulted in a delay of two or more days in making the correct diagnosis. Traditional methods also have low yields because the patient is often started on empiric antimicrobial therapy much before arrival at a tertiary care center. Rapid POC Diagnostic tests helped in this case by cutting short empiric treatment and instituting targeted therapy. This enabled earlier discharge and cost savings to the patient and is also beneficial from an anti-microbial stewardship perspective.

**MICP 359**

**EVALUATION OF A RAPID MULTIPLEX SYNDROMIC APPROACH BASED LOWER RESPIRATORY PANEL POLYMERASE CHAIN REACTION TEST**

Aruna Poojary, Pritam Pardeshi, Kalpana Pandit, Seema Rohra
Dept of Pathology & Microbiology, Breach Candy Hospital Trust, Mumbai

**Introduction:** Pneumonia remains an important cause of morbidity and mortality among adults and children. It may be community or hospital acquired where the pathogens often differ. Pneumonia is also an important cause of antibiotic overuse. Identifying the exact aetiology of pneumonia goes a long way in its appropriate management. The multiplex PCR under evaluation had a short turnaround time (TAT) of 2 hours with 34 targets comprising of typical and atypical bacteria and viruses causing pneumonia. In addition, it had gene targets for bacterial drug resistance.

**Aim & Objectives:** To compare a rapid multiplex real time nested PCR based syndromic approach test for lower respiratory specimens with culture results.

**Methods:** This was a prospective study from January to April 2019 in a 222-bed tertiary care hospital. Respiratory specimens comprising of sputum, endotracheal secretions (ETS) and bronchoalveolar lavage (BAL) were included in the study from outpatients and inpatients. All samples were negative for acid fast bacilli. Samples were processed for the rapid multiplex PCR and culture. Cultures were inoculated on conventional media and predominant organisms were identified and susceptibility performed on Vitek 2 Compact system.

**Results:** 58 specimens (34 IPD & 24 OPD) comprising of 24 sputum, 17 ETS & 17 BAL samples were included in the study. The rapid PCR panel detected 79%, 70% & 43.7% significant additional pathogens versus culture. In 21/58 (36.2%) of samples the rapid PCR detected viruses either alone or as co pathogens with bacteria. In 18/58 (31%) of samples drug resistance gene targets were detected. Bacterial pathogens showing >=10^6 copies/ml were found to co-relate as predominant pathogens with culture. The rapid PCR panel had a 100% negative predictive value and sensitivity.

**Conclusion:** The syndromic approach-based PCR is a rapid tool to evaluate the aetiology of all types of pneumonias excepting those caused by Mycobacteria.
DIAGNOSIS OF TUBERCULOSIS AND MDR-TB BY GENEXPERT MTB/RIF AT TERTIARY CARE HOSPITAL IN WESTERN RAJASTHAN: A RETROSPECTIVE STUDY

Dr. Asha (2nd Year Resident), Dr. Seema Surana, Deepshikhar Acharya
Dr. SNMC, Jodhpur

Introduction: Tuberculosis is the major public health concern. Pulmonary tuberculosis is the most common presentation whereas the percentage of extra pulmonary tuberculosis cases is 15-20%. This disease has a high prevalence in India, accounting for one fourth of the TB cases in the world, causing morbidity, mortality and major economical burden. The situation becomes more complicated due to emergence of MDR-TB, Pre XDR-TB and XDR-TB. In order to eliminate Tuberculosis, rapid and accurate diagnosis is the major requirement, hence WHO has recommended CBNAAT as rapid diagnostic test.

Aims & Objectives: To diagnose the tuberculosis with special reference to MDR-TB among the patients of Pulmonary and Extra Pulmonary tuberculosis by using GeneXpert MTB/RIF in western Rajasthan.

Methods: This retrospective study conducted during the time period of January 2019 to August 2019. A total 2438 Pulmonary and Extra pulmonary specimens of suspected tuberculosis patients have been processed by using rapid detection method GeneXpert MTB/RIF for the diagnosis of tuberculosis or MDR-TB under RNTCP in our tertiary care hospital.

Results: A total 2438 samples were processed by using GeneXpert MTB/RIF. Out of which 675 samples were found positive for *Mycobacterium tuberculosis* in which 580 and 83 specimens were sensitive and resistant for rifampicin respectively whereas 12 samples showed indeterminate result for rifampicin. A total of 272 extra pulmonary samples also processed in which 22 samples showed the presence of nucleic acid in which rifampicin found sensitive and resistant in 18 and 4 samples respectively.

Conclusion: This study highlights the importance of CBNAAT for diagnosis of *Mycobacterium tuberculosis* with its susceptibility to rifampicin. It is a milestone tool because of its simplicity and rapid turnaround time.

PERIODONTITIS AND PROSTATE CANCER?? A MYTH OR REALITY! ROLE OF MICROBES

Deepak Narang
Saraswati Dhanwantri Private Dental College, Parbhani, Maharashtra

Chronic inflammation and infections are associated with increased risk of prostate cancer. There is considerable evidence that proves interrelationship between (Bacteria-Virus) and carcinogenesis. Periodontitis is a chronic inflammatory disease triggered by gram-negative anaerobic bacteria which can migrate from oral cavity to prostate via blood circulation. The role of inflammatory responses in prostate as drivers of malignancy appears to be predisposed
by periodontal pathogens / periodontitis inflammatory mediators which lead to increase in Proliferative inflamed atrophy progressing to cancer.

**MICP 35**

**SUSCEPTIBILITY PROFILE OF MULTIDRUG RESISTANT GRAM-NEGATIVE BACTERIA AGAINST ANTIBIOTIC ADJUVANT CSE1034**

Dr Kanwaljit Kaur, Dr Sanjay Partap Singh, Dr SPS Shergill, Dr Santosh Karade

Command Hospital, Pune

**Introduction:** Multi drug resistance in Gram-negative bacteria is a growing threat due to irrational antibiotic use. CSE1034 is a new antibiotic adjuvant composed of ceftriaxone, sulbactam and disodium EDTA. It exhibits bactericidal action by inhibiting bacterial cell wall synthesis along with irreversible inhibition of beta-lactamase enzymes. EDTA effectively disorganizes biofilm formation thus increasing the porosity of cell wall thereby increasing concentration of antibiotic in bacterial cells.

**Aims and Objectives:** The present study was undertaken to assess in vitro susceptibility of CSE1034 against various microorganisms in different clinical samples.

**Methods:** A total of 822 gram-negative isolates from Jan 2018 to Aug 2018 from different clinical samples were tested for susceptibility against CSE1034. The isolates were identified by routine biochemical tests and Vitek. They were subjected to antibiotic testing by disk diffusion method on Mueller Hinton agar. The first line resistant isolates were subjected to second line testing along with antibiotic disc of CSE. The interpretation of sensitive/resistant was done as per CLSI guidelines.

**Results:** Out of the total 822 isolates, *E. coli* was the commonest isolate (54%) followed by *Klebsiella* as 22%, *Acinetobacter* as 6%, Proteus as 5.8% and *Pseudomonas* as 3%. *E. coli* exhibited 80% resistance to fluoroquinolones, 65% to cephalosporins, 56% to Gentamicin. But all the isolates were sensitive to CSE1034. *Klebsiella* showed 70% resistance to third generation cephalosporins with 45% resistance to cefoperazone+sulbactum. But CSE1034 was 100% sensitive. *Pseudomonas* exhibited 58% resistance to Aminoglycosides, 60-65% to cephalosporins, 32% to carbapenams and 50% to Piperacillin+Tazobactum and Cefoperazone+sulbactum and nil to CSE1034. *Acinetobacter* showed 96-100% resistance to third generation cephalosporins with 89% for Cefoperazone+sulbactum, 75-80% for aminoglycosides and 50% for carbapenams and 100% sensitivity to CSE1034.

**Conclusion:** Thus, from above findings it is clear that CSE1034 offers a hope for multi drug resistant gram-negative isolates.

**MICP 36**

**IMPORTANCE OF IMPLEMENTATION OF ANTIBIOTIC STEWARDSHIP PROGRAMME IN TERTIARY CARE HOSPITAL IN NAVI MUMBAI**

Dr Badrunnesa Khatun, Dr Shalini Yadav, Dr Kalyani Sen, Dr Nitin Kadam

Microbiology Department, MGM New Bombay Hospital, Vashi, Navi Mumbai

**Introduction:** Improper use of antibiotics & poor infection control practices are responsible for increased drug resistance in community. To prevent this Antibiotic Stewardship...
Programme (ASP) should be made & strictly implemented in all healthcare facilities. It serves as a backbone to decrease emergence of MDRO & changes in the resistance pattern in health care facilities, to optimize the usage of antibiotics for infections while keeping higher group of antibiotics as reserve & to decrease the cost of treatment.

Aims & Objectives: The aim of this study is to see effectiveness of implementation of antibiotic policy by various specialities for preoperative prophylaxis, appropriateness of Reserved Antibiotics usage and escalation & de-escalation as per culture report to curb emergence & spread of drug resistant organism.

Methods: It is done by retrospective analysis in a tertiary care hospital with bed strength 183. Analysis for pre operative prophylaxis & escalation / de-escalation was done for IPD patients for the period 2017 to 2019 by doing periodic audit. Analysis for reserve antibiotic forms was done from 2015 to 2019.

Result: 1263 reserve antibiotic forms received from March 2015 to June 2019. Compliances for Reserve Antibiotics usage increases from 44% in 2015 to 75 % in 2019. ASP team intervened for inappropriate medication & communicates with the treating consultants for de-escalation or appropriate usage of Reserve antibiotics. Preoperative prophylaxis is important for patient’s post operative prognosis & stay in the hospital. Compliance of usage of recommended antibiotic increased from 50 % in 2017 to 82 % in 2019. As per audit de-escalation has also increased compliances from 57 % to 81 % after repeated intervention and communication.

Conclusion: Judicious use of antibiotics for pre operative prophylaxis & severely infected patients by developing evidence-based guidelines under the light of antibiotic implementation policy will help curb inappropriate antibiotic use & decrease resistance of microorganism for different antibiotics in India.

MICP 75

PATHOGENIC BACTERIA AND PARASITES CAUSING DIARRHOEA IN A TERTIARY CARE HOSPITAL: A RETROSPECTIVE STUDY

Dr Sudhansu Priyadarssini Biswal, Dr Dharitri Mohapatra, Dr Nirupama Chayani
Department of Microbiology, SCB MCH, Cuttack, Odisha

Introduction: In the recent years, effective management decreased the mortality due to diarrhoea but not in parallel to morbidity. Hence it still remains a prevalent cause of mortality and morbidity in developing countries like India. Contaminated food and water are major source for the transmission of agents causing diarrhoea and also spread of epidemics.

Aim & Objectives: To investigate the profile of bacteria and parasite in patient with diarrhoeal diseases reported to the department of microbiology.

Methods: A retrospective study was conducted in department of microbiology, SCB MCH, Cuttack from January 2016 to August 2019. The study included the diarrhoeal cases reported to hospital and the biological samples (stool and rectal swab) were analysed in the microbiology department for detection of pathogens by routine microscopy, culture sensitivity and biochemical reaction. The documented data in the department was analysed with regards to age, sex, locality and different pathogens isolated from the biological samples. Different serotyping and antibiogram profile of pathogens were also analysed.

Results: A total of 339 diarrhoeal cases where biological samples (189 stool and 150 rectal swabs) were analysed. The most common age group was 21-30 years with female (54%) outnumbered males (46%). Among bacterial pathogen the most common isolated bacteria
was Entero- pathogenic *E. coli* (11.5%) followed by *Vibrio cholerae* O1 ogawa (2.6%) and Hikojima serotype (2%) in stool and rectal swabs. *Entamoeba histolytica* is the most common (17.9%) parasite isolated followed by *Ancylostoma duodenale* (15.3%), *Giardia lamblia* (10%) and *Strongyloides stercoralis* (8.9%) in stool samples.

**Conclusion:** Enhanced surveillance of diarrhoeal diseases will serve as an early warning signal and reduce fatalities associated with infective diarrhoea.

**MICP 165**

EVALUATION OF EDUCATIONAL INTERVENTION ON KNOWLEDGE, ATTITUDE AND PRACTICE REGARDING STANDARD PRECAUTIONS AMONG HEALTH CARE WORKERS

Dr. Dharati T. Shah¹, Dr. Tannmay Mehta², Dr. Jayshri Pethani³

¹Second year resident doctor, ²Assistant Professor, ³Professor & Head

NHL Medical College, Ahmedabad

**Introduction:** Standard precautions are backbone of any efficient infection control program. Compliance of standard precautions has been a major challenge for health care workers especially in developing countries.

**Aims & Objectives:** To access the impact of educational intervention on health care workers (HCW) knowledge, attitude and practice towards standard precautions.

**Methods:** An interventional study was conducted among 150 HCW (50 doctors, 50 nurses, 50 technicians) in tertiary care hospital from June 2019 to September 2019. Knowledge, attitude and practice regarding standard precautions was assessed using a pre-test questionnaire. Educational intervention was done through video seminars, reminders by mobile messages and posters at strategic locations in the hospital followed by post-test questionnaire.

**Results:** HCWs have poor KAP about important aspects of standard precautions. Pre video KAP mean scores were highest among doctors followed by lab technicians and nurses. Improvement in knowledge, attitude and practice among all 3 types of HCWs were statistically significant (P value <0.005, unpaired t-test) after educational intervention.

**Conclusion:** knowledge, attitude and practice scores were improved after educational intervention, which shows that regular training programs regarding standard precautions are essential for HCWs.

**MICP 191**

INVITRO ACTIVITY OF A NOVEL BENZOQUINOLIZINE ANTIBIOTIC, LEVONADIFLOXACIN (WCK 771) AGAINST BLOOD STREAM GRAM-POSITIVE ISOLATES FROM A TERTIARY CARE HOSPITAL

Dr. Dhruv K Mamtora, Dr. SanjithSaseedharan, Pallavi Bhalekar, Surekha Katakdond, Prashant R Joshi, Ritika Rampal

Wockhardt Ltd, Mumbai
**Introduction:** Gram-positive infections especially methicillin resistant *S. aureus* (MRSA) is a major cause of infections such as Bacteraemia and nosocomial pneumonia with high morbidity and mortality rates. For bacteraemia overall mortality rates are in the range of 10-60%, however, there is dearth of bactericidal, safe, broad spectrum, oral and IV injectable therapy for the management of Gram-positive infections. Levonadifloxacin (WCK 771) and its oral prodrug, alalevonadifloxacin (WCK 2349), are novel injectable, benzoquinolizine antibiotics which have recently completed phase III in India for the treatment of ABSSSI caused by Gram-positive pathogens. Previous studies have established potent broad spectrum activity of these agents across gram-positive and quinolone-susceptible Gram-negative pathogens.

**Objective:** The study aimed to assess the potency of levonadifloxacin against gram-positive blood stream clinical isolates recently collected from SL Raheja hospital, Mumbai.

**Methods:** This prospective study was conducted from January to June 2019. Gram-positive pathogens (n=32) isolated from blood stream infections were isolated, identified and MICs of Levonadifloxacin and other antibiotics were determined as per CLSI. The susceptibility of isolates to antibacterial agents was defined following CLSI interpretive criteria (M100 E29).

**Results:** The study showed high prevalence of MRSA (62.5%) followed by QRSA (87.5%) and CoNS (MR-CoNS, 82.35%) in bacteraemia. Levonadifloxacin demonstrated significantly lower MIC50/90 values of 0.5/1 mg/L as compared to Levofloxacin (8/32 mg/L) and Moxifloxacin (2/8 mg/L) against studied Staphylococci spp. Similarly, Levonadifloxacin showed potent activity of 0.5-1 mg/L against MRSA, QRSA and MR-CoNS strains. The activity of levonadifloxacin was comparable to vancomycin and teicoplanin, however with the availability of oral, safe and rapid bactericidal activity, levonadifloxacin has a potential to provide superior therapeutic option.

**Conclusion:** The unique structural attributes and well differentiated mechanism of action facilitates Levonadifloxacin’s potent antibacterial activity against MDR Gram-positive pathogens.

**MICP 215 OT-P7**

**BURDEN OF REPRODUCTIVE TRACT INFECTIONS/SEXUALLY TRANSMITTED INFECTIONS AMONG PATIENT ATTENDEES OF RSTRRL, MUMBAI**

Manali Kedia, Nishat Khan, Jayanthi S Shastri, Padmaja Keskar*, Srika Acharya*, LatikaShivkar*

TNMC & BYL Nair Ch. Hospital, Mumbai Central, Mumbai, *MDACS

**Introduction:** Reproductive tract infections/sexually transmitted infections (RTI/STI) constitute one of the major public health problems in India. In symptomatic cases, syndromic case management is extended. Accurate and early etiological diagnosis is critical in identifying the pathogen for knowing the true burden of infection and enabling appropriate intervention. Regional STI Training, Research and Reference Laboratory (RSTRRL) receives samples from gynaecology OPDs and STD clinics across Mumbai. This study was conducted to estimate RTI/STI’s in the samples received from April 2016 to March 2019.

**Aims and Objectives:** To determine the burden of specific RTI/STI causing agents among patients attending the gynaecology and STD clinic OPD.

**Methods:** A total of 23355 samples (4385 swabs and 18970 blood samples) were received at RSTRRL from April 2016 to March 2019 and tested. Vaginal/cervical swab were subjected...
to Gram staining (Nugent scoring), wet mount and culture and sensitivity (Neisseria gonorrhoeae). VDRL, TPHA and HBsAg, HCV, HSV and Chlamydia trachomatis ELISA were done as per national guidelines.

**Results:** Non gonococcal cervicitis (NGC-40.07%), bacterial vaginosis (BV-35%) and vaginal candidiasis (VC-14.9%) were the leading cause of vaginal/cervical discharge. Vaginal candidiasis was more common in patients attending gynaecology OPDs, while NGC & BV were more common in patients attending STD OPDs. Only 11 patients were positive for Chlamydia trachomatis and 3 for Neisseria gonorrhoeae. High prevalence of Hepatitis C infection (10.01%) among patients attending STD OPDs in comparison to patients attending gynaecology OPDs (0.75%) is alarming and needs specific intervention. Incidence of HBV, HSV and syphilis was comparable among the patients attending the gynaecology OPD and STD clinic OPD.

**Conclusion:** Etiological diagnosis in all cases of RTI/STI should be made mandatory and should include HBV and HCV testing along with HIV for timely intervention and prevention of transmission. Strengthening of the laboratory facilities and network should be undertaken.

**MICP 240 OT-P8**

“A STUDY OF PSEUDOMONAS AERUGINOSA IN VARIOUS CLINICAL SAMPLES AND ITS ANTIBIOTIC RESISTANCE PATTERN IN PDU GOVT HOSPITAL, RAJKOT”

Dr. Suhani Gondha (2nd Year Resident in Microbiology), Dr. Ghanshyam Kavathia (Associate Professor), Dr. Prakash Modi (Professor & Head)
Department of Microbiology, P. D. U. Government Medical College, Rajkot

**Introduction:** Pseudomonas aeruginosa is an important cause of morbidity and mortality in hospitalized, critically ill patients and patients with underlying medical conditions. Several different epidemiological studies indicate that antibiotic resistance is increasing in clinical isolates.

**Aims & Objectives:** To isolates and identification of pseudomonas aeruginosa in various clinical samples & to review the current trend of antibiotic resistance pattern of pseudomonas aeruginosa in various clinical samples.

**Methods:** This study was conducted during January 2019 to August 2019 in Microbiology department of PDU Medical College Rajkot. Clinical samples were processed for isolation and examination of pseudomonas aeruginosa species. Pseudomonas aeruginosa identification was done on the basis of primary Gram’s stain, on the basis of their growth on routine MacConkey medium which showed lactose Non-fermenting pale colonies which were oxidase test positive and on Nutrient agar pigmented and non-pigmented colonies with oxidase positive. Antimicrobial susceptibility of all the isolates was performed by the disc-diffusion method according to CLSIs guidelines.

**Result:** Total of 13,170 samples were tested, in which 2,498 samples showed growth of bacteria. Out of 2,498 positive samples, in 187 samples pseudomonas aeruginosa species were isolated. It was predominantly isolated from pus samples (83.44%). The incidence was higher among males (57.43 %). Higher level of resistance was recorded for Ceftazidime (85.47%), Cefepime (79.39%), and all isolates were sensitive to Polymyxin-B (100%), Meropenam (100%).

**Conclusion:** On conclusion of this study it was found that total 187 pseudomonas aeruginosa species isolated. The study reveals 7.49% isolation rate of pseudomonas aeruginosa species.
To prevent the spread of the resistant bacteria, it is critically important to have strict antibiotic policies and surveillance programs for multidrug resistant organisms. Infection control procedures need to be implemented.

**MICP 253**

**CANDIDAEMIA IN NON-ICU SETTINGS WITH SPECIES DISTRIBUTION AND ANTIFUNGAL RESISTANCE IN A TERTIARY CARE HOSPITAL – AN 8 YEAR RETROSPECTIVE STUDY**

Kunalsen Jagatdeo, Shashir Wanjare, Pallavi Surase, Swati Deshpande, Gita Nataraj
Department of Microbiology, Seth G.S Medical College & KEM Hospital, Mumbai

**Introduction:** Invasive candidiasis is the most common fungal infection among hospitalized patients. *Candida* is the fourth most common cause of nosocomial bloodstream infection (BSI). As per Indian data, 6.51 candidaemia episodes were found in Intensive Care Units (ICUs) per 1000 admissions. However, data in non-ICU patients remains scarce. This usually leads to prolonged and increased cost of hospital care with greater morbidity and mortality. In view of this, a retrospective study was conducted among Non-ICU patients in a tertiary hospital.

**Aims and Objectives:** To estimate the episodes of candidaemia amongst Non-ICU patients and species distribution of these isolates.

**Methods:** A retrospective analysis of fungal blood cultures received between 2011-2018 in microbiology laboratory was carried out with respect to candidaemia episodes in different Non-ICU settings. Speciation of Candida was recorded. Available data for antifungal susceptibility was analysed.

**Results:** A total of 3332 fungal blood cultures were received from Non-ICU settings of which 398 (11.95%) were positive for candidaemia. Of the positive episodes of candidaemia, surgical wards accounted for 141 (35.43%) followed by Internal medicine 103 (25.87%), pediatrics 90 (22.61%), hematology 52 (13.06%) and from other wards 12 (3.01%). Majority of patients presented with acute febrile illness followed by surgical gastrointestinal ailments. The rate of candidaemia increased over the study period. *Non-albicans* Candida (80.15%) outnumbered *candida albicans* (11.45%) through-out the study period. Among the *non-albicans* candida, *Candida tropicalis* was more prevalent (40.95%) followed by *Candida glabrata* (28.25%), *Candida parapsilosis* (25.71%) and other candida species (5.07%). Available antifungal susceptibility results showed 18% resistance to fluconazole and 15% resistance to amphotericin B.

**Conclusion:** The burden of candidaemia is increasing even in Non-ICU settings with a higher prevalence for *non-albicans* candida. The emerging resistance of candida to antifungals necessitates their judicious use to avoid further resistance. Early suspicion of candidaemia in Non-ICU settings is warranted to improve patient outcome.

**MICP 290**

**CHARACTERIZATION OF ANTIBIOTIC RESISTANCE GENES IN FAECAL BACTERIAL ISOLATES COLLECTED FROM POULTRY AND HUMANS**

Khyati B\(^{1,2}\), Shrikala B\(^1\), Suchitra S\(^1\), Baliga B\(^1\)
Introduction - It has become necessary to address the challenge of antibiotic resistance. Tracking and estimation of burden of resistant organisms in the population, poultry and comparison of resistance pattern of humans and poultry is necessary so that specific intervention strategies can be formulated.

Aims & Objectives – The aim of this study was to characterize the genes responsible for conferring resistance to E. coli and Klebsiella isolated from faecal samples of poultry, healthy individuals, and poultry farmers by PCR.

Methods – The E. coli and Klebsiella isolates that were phenotypically confirmed to be ESBLs, quinolone resistant and tetracycline resistant were grown on 5% blood agar. DNA extraction was done by boiling the isolates at 100°C for 10 minutes. They were then cold centrifuged and the supernatant was taken for PCR. SHV, TEM, CTX-M, qnrA, qnrB, qnrS, and tetA genes were characterized.

Results – Out of the 10 ESBL producing poultry E. coli isolates, 9 harbored the SHV gene. 67 out of the 176 quinolone resistant poultry E. coli harbored qnrB gene. 23 of them had both qnrA and qnrS. 74% of tetracycline resistant E. coli isolates of poultry harbored the tetA gene. Almost 94% of Klebsiella isolates from poultry also harbored the qnrB gene. High prevalence of qnr genes was found in healthy individuals in the community also. 50 out of 58 quinolone resistant human E. coli isolates had the qnrB gene. 25% of ESBL E. coli and isolates from poultry farmers.

Conclusion – The reduced susceptibility of bacterial strains to antibiotics used in routine treatment of common infections is a threat to public health. The high prevalence of fluoroquinolone resistant strains which are also ESBL producers, even in healthy individuals and poultry which is a part of the food chain may lead to treatment failure.

MICP 301

CHARACTERIZATION OF INC-FII PLASMID CARRYING MPHA GENE IN SHIGELLA SONNEI USING HYBRID GENOME ANALYSIS

Dhiviya Prabaa MS, Dhivya M, Manigandan V, Karthick V, Joy S Michael, Balaji V
Christian Medical College, Vellore

Introduction: Shigella spp is a common cause of dysentery in Southeast Asia. Antimicrobial resistance is becoming widespread in Shigella spp, particularly to fluoroquinolones and third generation cephalosporins. Recently azithromycin is widely used in children and recommended as an alternative for Shigellosis in adults, particularly infected with MDR strains or when fluoroquinolones are inappropriate. However, CLSI guidelines suggest only epidemiological cut-off values of azithromycin MIC to categories non-wild type S. flexneri and S. sonnei.

Aims & Objectives: We investigated Shigella spp exhibiting azithromycin non-susceptibility and its associated resistance determinants characterized using hybrid genome analysis.

Methods: A total of 31 Shigella spp that are resistant to azithromycin by disc diffusion method was characterized in this study. Azithromycin MIC was determined by broth-micro dilution method and the results were interpreted using epidemiological cut-off suggested by the Clinical Laboratory Standards Institute (CLSI) guidelines 2016. The isolates were
analysed for the presence of *mph*A and *erm*B genes by PCR. Resistant gene positive isolate was further sequenced and analysed.

**Results:** Thirty-one *Shigella* isolates includes, six *S. flexneri* and twenty-five *S. sonnei*. The study isolates showed 35%, 100%, 97%, 13% and 16% resistant to ampicillin, trimethoprim/sulfamethoxazole, ciprofloxacin, cefotaxime and cefixime respectively. Azithromycin MIC for *Shigella* isolates ranges from 2 to 16 μg/ml. The PCR analysis showed that one *S. sonnei* isolate carried *mph*A gene. Further genome analysis of the isolate revealed the presence of *dfr*A17 in chromosome and *sul1, blaDHAl, qnrB4, intI1, tetR*, QacE genes within IncFII plasmid integrated in the chromosome.

**Conclusion:** Azithromycin is being increasingly used for the treatment of *Shigella* infections in developing countries, despite limited evidence. The present study highlights the need for continuous monitoring of emerging azithromycin resistance in *Shigella spp*, as the pathogen has the ability of acquiring resistance from colonizing microbiota by plasmid transfer.

**MICP 323**

**A CASE REPORT OF PROTOTHECA SPECIES ISOLATED FROM BLOOD FROM A PATIENT WITH NON-HODGKIN’S LYMPHOMA AT A TERTIARY CARE HOSPITAL**

Dr. J. Shiva Prasad, Dr. Neelima. A, Dr. Vijay Dharma Teja
Nizam Institute of Medical Sciences, Hyderabad

**Introduction:** *Prototheca* is unicellular achlorophyllous saprophyte algae. Protothecosis is an emerging environmental algal disease of humans and animals. First description of human infection was given by Davies et al as early as 1964. *Protothecazopfii* and *Protothecawickerhamii* are two species causing human infection. In human’s clinical presentation is in 3 forms: cutaneous protothecosis, olecranon bursitis and disseminated disease.

**Case study:** A 9 year old female patient suffering with non Hodgkin’s lymphoma stage 3 risk 4 in leukaemic phase with mediastinal and pelvic deposits, status post (s/p)6 cycles of chemotherapy since November 2018, presented with complaints of fever, body pains and loss of appetite since 1 month.

**Methods:** 2 sets of Blood cultures were sent on day 1 of fever. Bottles were incubated in BAC-T ALERT3D system. Time to positivity was 0.91. Gram stain was performed. Special stains like Calcoflour white, LPCB, per iodic acid Schiff, GomoriMethanamine silver stain were done. Subcultures were done on blood agar, SDA agar. Identification and susceptibility was done by VITEK-2 automated system. Further confirmation done by gene sequencing.

**Results:** Gram stain showed gram-positive yeast like cells measuring around 25μm. LPCB showed morula like structures. Vicek2 identified as Protothecazopfii which was susceptible to amphotericin B.

**Conclusion:** Protothecosis is an infective saprophytic algal disease of world-wide distribution. Though the disease is recorded in man and animals, the source of infection is not well understood. Immediate attention to skin injury, prompt chemotherapy in immunocompromised patient, avoiding contact with stagnant water and hygienic methods will certainly reduce the prevalence of protothecosis in humans.
STUDY OF BASELINE WIDAL TITRES AMONG APPARENTLY HEALTHY INDIVIDUALS IN AND AROUND KOLKATA

Dr. Anindita Ballav, Dr. Abhishek Sengupta, Dr. Reena Ray (Ghosh), Dr. Mitali Chatterjee
R. G. Kar Medical College and Hospital, Kolkata

Introduction: Enteric fever is endemic in developing countries like India. Enteric fever is considered as a major cause of morbidity and mortality in developing countries with more than 90% of cases found in Asia only. The Widal test is one of the extensively used and only available serodiagnostic test of enteric fever in developing economics. Its diagnostic titre value depends upon the baseline titre in a particular geographical region.

Objectives: The objectives of this study were to determine the baseline titres of Widal among apparently healthy populations and to define the significant titres of Widal test.

Methods: The present study was conducted in the Department of Microbiology, R. G. Kar Medical College and Hospital, Kolkata from April, 2019 to September 2019. Hundred healthy individuals with different age and sex who reside in various places around this hospital were enrolled. None of the individual had a history of recent vaccination or recorded infection with Salmonella Spp. or other infectious disease within 6 months. Samples were initially screened by Widal slide agglutination test and further confirmed by the quantitative tube agglutination test.

Results: Among the 100 serum specimens which were tested, 55 samples showed titre of ≥ 1:20 and 45 samples showed titre of ≤ 1:20 against TO, TH. In the present study, the most frequently recorded titre of the reactive sera was 1:40 for the anti-O antibodies and it was 1:80 for the anti-H antibodies.

Conclusions: Based on the above results of our study, it has been recommended that the cut-off value of 1:80 for the anti-O antibodies and of 1:160 for the anti-H antibodies may be considered for the diagnostic purpose of enteric fever in this region.

INSERTION SEQUENCES AND SEQUENCE TYPES PROFILE OF CARBAPENEM-RESISTANT ACINETOBACTER BAUMANNII COLLECTED ACROSS INDIA

Saranya Vijayakumar, Kamini Walia, Vinod C Ohri, Balaji Veeraraghavan
Christian Medical College, Vellore

Introduction: Acinetobacter baumannii a nosocomial pathogen is of particular concern due to the global occurrence of multi-drug resistant (MDR) and pan-drug resistant (PDR) strains. A. baumannii presents high genetic plasticity which allows the acquisition of resistance determinants, in particular to carbapenems.

Aims and Objectives: To characterize the antimicrobial resistance genes, association of insertion sequences and sequence types of clinical isolates of carbapenem resistant A. baumannii.

Methods: A total of 763 non-duplicate isolates of A. baumannii received from 8 centres across India during January 2014 to December 2017 were studied. Susceptibility testing was done by Kirby-Bauer method. PCR was performed for detection of extended spectrum β-lactamases, metallo β-lactamases, oxacillinas and ISAba1. Mapping PCR was performed to
identify the position of ISAbal with respect to blaOXA-23 like and blaOXA-51 like gene. MLST was performed to identify the sequence type. Whole genome sequencing was done to decipher the genetic arrangement of ISAbal with blaOXA-23 like and with blaOXA-51 like.

**Results:** All the isolates were resistant to imipenem and meropenem. blaOXA-23 like was the predominant carbapenemase. All isolates were positive for ISAbal. The common sequence types were ST848, ST451 and ST1305 which belongs to International clone II. Whole genome sequencing showed considerable variation in the insertion site location.

**Conclusion:** The present study reveals the predominance of blaOXA-23 in A. baumannii with ISAbal thereby facilitating its successful dissemination. These strains were of ST-848, belonging to International clone II. The interplay between carbapenem resistance genes, insertion sequences and sequence types extend the genome plasticity of the pathogen and make this specific lineage more successful in spreading globally.

**MICP 365**

**FIRST REPORT ON OPTRA CARRYING LINEZOLID RESISTANT ENTEROCOCCUS FAECIUM IN INDIA: PLASMID-BORNE RESISTANCE IS ALARMING**

Yamuna Devi Bakthavatchalam, Karthick Vasudevan, Priyanka Babu, Ayyan Raj Neeravi, Balaji Veeraraghavan
Christian Medical College, Vellore

**Introduction:** Linezolid is an inevitable option for the treatment of vancomycin-resistant enterococci (VRE) infections. Linezolid resistance is rare in enterococci, but has also been reported in clinical isolates. Resistance to linezolid is caused by mutations in 23S rRNA or acquisition of cfr, optrA, or poxtA genes.

**Aim and Objectives:** Whole genome sequencing of linezolid resistant Enterococcus faecium isolates were performed, to determine chromosomal or mobilome mediated resistance marker for linezolid.

**Methods:** Two linezolid resistant E. faecium strains (VB3205 and VB3240) were isolated from bloodstream infection. Minimum inhibitory concentration (MIC) of linezolid was determined by using broth microdilution method. Whole genome sequencing was performed using both ion Torrent and minION sequencing. Hybrid assembly of these read were generated with unicycler hybrid (v. 0.4.6) and canu (v. 1.7).

**Results:** VB3205 (ST80) and VB3204 (ST17) had linezolid MIC of 512 and 1024 µg/ml respectively. Whole genome sequencing analysis revealed, a unique context of G2592T mutation in 23s rRNA and the presence of optrA in the genome of E. faecium both the isolates. A transposon Tn554 mediated insertion of optrA was observed in both chromosome and plasmid of these isolates. The optrA gene, found in this study, were identified as optrA variant thirteen (v13). Co-existence of vancomycin resistance encoding vanHAX operon and a copy of optrA gene on a novel conjugative plasmid (pVB3205_2) highlights the threat for potential dissemination.

**Conclusion:** This is the first genomic investigation of optrA-mediated oxazolidinone resistance in E. faecium using hybrid assembly of short and long sequencing reads. Our sequencing approach allowed the assembly of complete bacterial genomes and investigation of plasmid carrying optrA. Plasmid-mediated linezolid resistance in VRE is alarming.
THE INFLUENCE OF PROCALCITONIN (PCT) IN SEPSIS CASES

Shakeera Banu M, Deepasankari TL, Senthilraja R, Helen Hencida, Brahmadathan KN, Thangavelu, CP & Mani M
Department of Molecular Biology, Microbiological Laboratory Research & Services Pvt Ltd, Bangalore

Introduction: Rapid treatment of sepsis is of crucial importance for survival of patients. Specific and rapid markers of pathogenic infection have been required for early diagnosis of sepsis. One such measurement, Procalcitonin (PCT), has recently become of interest as a possible marker of the systemic inflammatory response to infection

Aim & Objective: This study represents the level of procalcitonin and severity of infection in sepsis cases.

Methods: A total of 44 suspected systemic inflammatory response syndrome (SIRS) caused by sepsis were included in the study in a period of Jan – June 2019. All the samples were analyzed for PCT with sepsis panel by High resolution melt curve analysis technology. The study was conducted at Molecular biology department, Microbiological laboratory, Bangalore.

Results: A total of 30 Male and 14 female cases were tested for PCT with sepsis. Out of 44 cases 43 were positive for different pathogens with drug resistant marker. We categorized PCT level into four different stage <0.5, 0.5-2, 2-10 and >10ng/mL compared with different severity. Among PCT four values, <0.5 is 14 (31%), 0.5 -2 – 11(25%), 2-10 is 6 (13%), >10 is 4 (9%) was identified. Without PCT, sepsis panel were tested in 10 (22%) cases. Enterobacteriaceae 52.2%, Staphylococcus spp. (43.1%), Acinetobacter baumannii (20.04%), Streptococcus specific gene (15.9%), Enterococcus faecium & VIM/NDM-1 (13.6%), Pseudomonas aeruginosa & Vancomycin A/B (11.3%) shows positivity. Less than 10% positivity was observed in E. coli, Candida sp, Klebsiella pneumoniae, Staphylococcus aureus, Streptococcus pneumonia, Enterococcus faecalis, oxa 1,oxa 48, Beta lactamase SHV, CTX-M Group 1, Klebsiella pneumoniae carbapenemase (KPC) & pan CMY+DHA-1.

Conclusions: Procalcitonin is among the most potential sepsis markers, capable of complementing clinical signs and based on Real-time PCR and melting curve analysis (HRMA) with PCT values, and sensitivity has drastically increased with short turnaround time in clinical samples. The highly specific and intensive molecular assay may help in rapid diagnosis and prompt treatment of patients with severe critical illnesses.
Introduction: HELLP syndrome is a life-threatening complication in pregnancy characterized by haemolysis, elevated liver enzymes and low platelet count. Meconium-stained amniotic fluid (MSAF) condition occurs in 7-22% of term deliveries, when colonic contents of the fetus are released into the liquor surrounding the fetus.

Aim & Objectives: We report a young pregnant woman carrying twin baby with HELLP syndrome, posted for emergency LSCS, meconium-stained amniotic fluid, who was diagnosed for sepsis panel in our laboratory.

Methods: Blood samples were collected from postpartum mother and tested for sepsis panel by realtime PCR High resolution melt cure analysis technology at Microbiological laboratory, Hyderabad.

Results: Blood culture was negative for this patient. Laboratory tests including liver function tests (LFT) revealed an aspartate amino transferase (AST) 350 IU/L and the alanine amino transferase (ALT) 200 IU/L. Coagulation tests such as Prothrombin Time (13 seconds), Partial Prothrombin Time (18 seconds) and INR (1) were in the normal range. Creatinine level was 0.4 mg/Dl. In Sepsis panel, results show Bacteroides bacteremia, pan bacterial DNA and beta-lactamase gene and Carbapenem resistant gene marker – KPC gene detected.

Conclusions: Women with a history of HELLP syndrome, emergency caesarian section are considered to have an increased risk of death. Bacteriodes bacteremia among neonates and women with postpartum fever after emergency c-section should be diagnosed. Therefore, this life-threatening condition should be closely monitored with proper diagnosis to detect neonatal bacteremia causing organism/pathogens and treated in a timely manner. Patient treated with piperacillin/tazobactam broad spectrum antibiotic, responded well and got discharged in good condition.

MICP 20

SEROPREVALENCE OF ANTI-TOXOPLASMA GONDII ANTIBODIES IN NORTH INDIA

Abhishek Mewara, Shreya Singh, Sumeeta Khurana*, Parakriti Gupta, Rakesh Sehgal
Department of Medical Parasitology, PGIMER, Chandigarh

Introduction: The prevalence of toxoplasmosis varies with socio-cultural practices, geographic factors, and routes of transmission. An awareness of the seroprevalence of anti-Toxoplasma antibodies in different clinical categories allows formulation of public health policies.

Aims & Objectives: This study was carried out to determine the seroprevalence of anti-Toxoplasma gondii antibodies in different groups of patients at a tertiary care hospital in North India.

Methods: The details of all patients clinically suspected of toxoplasmosis and subjected to screening for anti-T. gondii IgG and IgM antibodies from January 2004 to October 2014 from North India were retrospectively analysed.

Results: Of the 8397 samples received, an overall seropositivity of 21% (n=1763), and IgG and IgM seropositivity of 5.7% (n=481) and 15.3% (n=1282) was observed, respectively. Compared to the period of 2004 to 2012 (median seroprevalence 23.6%), a decline in seropositivity to 9.7% in 2013 and 8.1% in 2014 was noted. A rising seroprevalence with age and a higher seroprevalence in females vs. males (29.5%, n=1179 vs. 13.3%, n=584) was recorded. The highest seroprevalence was observed in suspected ocular toxoplasmosis (47.2%, n=47), followed by adult (30.8%, n=252), neurological (26.8%, n=77), HIV/AIDS
(18.9%, n= 267), post-transplant (17.1%, n=12), congenital (7.2%, n=144) and pediatric toxoplasmosis (8.8%, n=172). In patients screened for toxoplasma exposure, the seropositivity was 47.8% (n=11) in transplant screening and 44.9% (n=781) in antenatal screening.

**Conclusion:** Toxoplasma infection is highly prevalent in the population of North India across various clinical categories of patients. Future studies focusing on continuous monitoring of seroprevalence trends and elucidation of the risk factors associated with seropositivity in more defined groups of patients.

**MICP 26**

**OPHTALMOMYIASIS IN A YOUNG BOY FROM RURAL REGION OF CENTRAL INDIA: A CASE REPORT**

Durgesh G. Deshmukh, Supriya S. Tankhiwale, Vivek M Gujar
Dept of Microbiology, Shri Vasantrao Naik Govt Medical College, Yavatmal

We are presenting a case of 17 year old young boy with the clinical manifestations of external ophthalmyiasis which was caused by the larvae of the sheep nasal botfly, Oestrus ovis. Patient belonged to a farmer’s family, who worked in close contact with sheep and goats. The patient presented with severe conjunctivitis. The larvae were observed in the bulbar conjunctiva and following their removal, the symptom of eye inflammation improved in a few hours.

**MICP 64**

**A STUDY ON PREVALENCE OF INTESTINAL NEMATODE INFECTION AND ITS CORRELATION WITH ANAEMIA AMONG PREGNANT WOMEN IN A TERTIARY CARE HOSPITAL**

Dr S Thilagavathi, Dr Vijayalakshmi, Dr Usha Krishnan, Dr Sridevi
Chengalpattu Medical College, Chengalpattu

**Introduction:** Intestinal nematodes are helminthic parasites of the human gastrointestinal tract. They are endemic worldwide. People are infected with at least one of the four species—*Ascaris lumbricoides*, hookworm (*Necator americanus* and *Ancylostoma duodenale*) and *Trichuristrichiura*. Data from WHO disclosed that 44 million of pregnant women affected in the developing world and prevalence found to be 21.6%. Thus, this study will help to know the prevalence of intestinal nematode infection and its association with anaemia among pregnant women.

**Aim:** To study and estimate the prevalence of Intestinal nematode infection among pregnant women attending Tertiary care hospital.

**Objectives:** Wet mount, formol ether concentration method, kato-katz methods were performed and with agar plate culture for specific diagnosis. To correlate anaemia with helminthic parasite infection.

**Results:** A cross sectional study was conducted from January 2019 to August 2019. 200 stool samples collected from pregnant women. An overall prevalence of 6% (12/200) intestinal nematode infections was observed with 66.6% (8/12) affected with anaemia. More no. of anaemia is present with hookworm infestation (62.5%) 5/8 with hemoglobin range of 7.1 gms% -9.8 gms%. In this study the prevalence rate of hookworm is high 58.3% (7/12) followed by Ascaris lumbricoides 16.6% (2/12), Trichuris trichiura 16.6% (2/12) and coinfection of Trichuris trichiura and hookworm (1/12) 8.3%.

**Conclusion:** The total prevalence rate of intestinal parasitic infections in this study was on the lower side of the range of global estimated burden and also of the range among other studies in India. This could be explained by 2 doses of prophylactic antihelminthic treatment along with health education given during pregnancy. Though there is concurrent anaemia is present in about half of patients with worm infestations.

---

**MICP 197**

**A RARE CASE OF STRONGYLOIDES HYPERINFECTION SYNDROME IN A PATIENT OF CHRONIC STEROID ABUSE**

Sahu R.K., Padhi S, Paty B, Sahu S, Narasimham M.V., Mohanty I, Parida B
Department of Microbiology, M.K.C.G. Medical College, Berhampur, Odisha

**Introduction:** Strongyloidiasis caused by Strongyloides stercoralis, is one of the most common and globally distributed but still one of the most neglected parasitic infections. The most eccentric characteristic of this parasite is its ability to persist within the host and replicate for years with no or minimal symptoms. Most immunocompetent hosts are asymptomatic. However, in immunocompromised patients it has the capability of being life-threatening, leading to a spectrum of clinical complications. Strongyloidiasis hyperinfection syndrome is a manifestation of accelerated autoinfection in an immunocompromised host.

**Case Report:** We report here a case of Strongyloides hyperinfection syndrome in a patient of chronic steroid abuse. Patient was a 50 year old farmer with complains of watery diarrhea and abdominal cramps for 10 days. He used to work barefoot in the farm. He was non diabetic and non-reactive for HIV-1&2, but gave the history of intake of oral prednisolone 20mg daily for last 10 years. On examination all the parameters were found to be within normal range except eosinophilia. On microscopic examination of stool sample both adult and larval form of strongyloides were noticed. Taking into consideration of patient’s occupation, clinical manifestation and history of steroid use for a prolonged period this was diagnosed as a case of Strongyloides hyperinfection syndrome. The patient was treated with Thiabendazole 25 mg twice daily orally for 3 days after which patient recovered symptomatically. He was advised to repeat stool examination and found to be cleared of the parasite.

**Conclusion:** Hyperinfection syndrome is a rare condition, and high degree of suspicion is required for diagnosis.
DEMODEX BLEPHARITIS - A CASE REPORT FROM UTTARAKHAND

Umesh Varshney1, Govind Singh Titiyal2, Vinita Rawat1, Vikrant Negi1
1Department of Microbiology, 2Department of Ophthalmology,
Government Medical College, Haldwani (Uttarakhand)

Background: Demodex mite is an obligate human ecto-parasite found in or near the pilo-sebaceous units. Various species can cause the disease in human and animals. Two species, *Demodex folliculorum* and *Demodex brevis* can induce human demodicidosis. It may cause dermatitis, acne papulosa, contagious impetigo, anterior and posterior blepharitis, blepharo-conjunctivitis, blepharo-keratitis etc. Due to significant overlap with other anterior segment conditions, *Demodex* infestation remains underdiagnosed and undertreated. We report a case of *Demodex* blepharitis due to *Demodex folliculorum*.

Case: A 6-year-old male child presented with redness, swelling, itching, and pain in right eyelid for 2 months. He was treatment from elsewhere but did not get relieved. Slit lamp examination showed lid edema with anterior blepharitis; on eye lashes, there was cylindrical dandruff like deposits. Eye lashes epilation samples showed *Demodex folliculorum* on microscopic examination. Patient was advised lid hygiene, lid scrubs with tea tree oil, topical permethrin & antibiotic therapy and oral ivermectin. Patient improved symptomatically.

Conclusion: High index of clinical suspicion about the etiological role of *Demodex* can help in early diagnosis and appropriate, timely, and cost-effective management.

MICP 245

SEROPREVALENCE OF TOXOPLASMOSIS AND ECHINOCOCCOSIS IN HIV POSITIVE INDIVIDUALS ATTENDING ART CLINIC OF A TERTIARY CARE HOSPITAL

Harleen Kaur, Santosh Karade, Sourav Sen
Armed Forces Medical College, Pune

Introduction: Parasitic infections are highly endemic in India due to a low awareness about preventive strategies and limited access to healthcare facilities. These infections are a major cause of morbidity and mortality, especially amongst immunocompromised individuals; like people living with HIV/AIDS (PLHA). Among PLHA in India, they cause latent infections in more than half of affected population. Data on the prevalence of these diseases is scarce since majority of the population living in endemic areas has limited resources for immunological and imaging diagnostic testing. We conducted a study to find out the seroprevalence of two major parasitic infections i.e. Toxoplasmosis and Echinococciosis in a study population of HIV seropositive patients attending ART centre of a tertiary care hospital.

Aim and Objectives: To study the seroprevalence of toxoplasmosis and echinococciosis (checking for IgG antibodies against Toxoplasma and Echinococcus) in PLHA attending ART clinic of a tertiary care hospital & to study the demographic factors associated with these parasitic infections.

Methods: In this cross sectional study, 5 ml of whole blood sample was collected from 100 consecutive HIV seropositive individuals attending NACO ART clinic (after obtaining an informed consent). Patient data (including CD4 count) was collected and Indirect ELISA (with commercially available kit) performed on the serum samples for qualitative detection of IgG antibodies for Toxoplasmosis and Echinococcus.

301
**Results:** 92 samples processed (8 samples rejected due to haemolysis) yielded a seropositivity of 47.82% for Toxoplasmosis and 21.73% for Echinococcosis. The mean age and CD4 count of the study population was 36.28 years (SD=10.22) and 704.19/μl (SD=237.07).

**Conclusion:** The high seroprevalence of these two parasitic infections in PLHA in India needs to be studied in detail and should be suspected in PLHA alongside other bacterial and fungal infections.

**OPHTHALMOLMYIASIS EXTERNA- A CASE REPORT**

Pramod Bhoye, Manoj Vedpathak, Nirjhar Chatterjee, Vasant Baradkar, Jayanthi Shastri  
TNMC & BYL Nair Ch. Hospital, Mumbai

**Introduction:** Myiasis is the infestation of tissues including organs of animals or humans by fly larvae (Dipterous larvae) commonly known as maggots. *Oestrus ovis* (sheep botfly) is the most commonly reported cause in human. Population belonging to rural areas usually become accidental hosts but cases have been reported from suburban and urban regions as well.

**Case report:** A 17 year male school student, presented to the ophthalmology OPD with history of foreign body sensation, intense itching, reddening and watering from the left eye few minutes following a foreign body injury (flying insect). On thorough examination, conjunctival congestion and excessive watering was noticed in the left eye. White twitching larvae was seen on the palpebral conjunctiva and inner canthus. On slit lamp examination the anterior chamber, lens and intraocular pressure were normal. Best corrected visual acuity was 6/6. Removal of maggots was done by local anaesthesia with 4% topical xylocaine. Maggots were collected in a sterile container and send to Parasitology Section. Definitive management for the patient was mechanical removal of all the larvae. The patient was discharged with topical antibiotic Moxifloxacin with antihistaminics and asked for follow up after one week.

**Discussion:** A case of human Ophthalmolmyiasis is described here in a patient living in a cosmopolitan area. This disease is usually observed in rural areas, which is in contrast with this present case. External ophthalmomyiasis continues to be rarely reported from urban areas of Maharashtra and this report would alert the ophthalmologists to suspect ocular myiasis.

**Conclusion:** Depending on the species of larvae it can invade into deeper tissues. So, thorough mechanical removal and its rapid identification are necessary.

**IS AURAMINE AND RHODAMINE STAINING METHOD A BETTER SCREENING TOOL FOR IDENTIFICATION OF INTESTINAL PARASITE IN FECAL SAMPLE**

Dr Savitha D, Dr Vijay DhramaTej, Dr Umabala P, Dr Neelima A  
Nizam Institute of Medical Sciences, Hyderabad

**Introduction:** Enteric parasitic infections are one of the common causes of morbidity and mortality among immunocompromised individual in developing countries. Cryptosporidium,
Cyclospora and Microsporidium are common parasites causing diarrhea. WHO estimated that 1 billion people lack access to improved water and 2.5 billion have no access to basic sanitation. Cryptosporidium parvum is associated with 51% of water-associated outbreaks and Isospora belli with 1%. Cryptosporidiosis is “neglected disease” that typically affects the poorest population. This study was done to screen the stool samples for coccidian parasites by auramine rhodamine stain.

**Methods:** It was a prospective study done at Nizam’s Institute of Medical Sciences over a period of 2 months i.e. from (15/7/19 to 15/9/19). The stool sample will be subjected to direct microscopy by wet mount, iodine mount, modified acid-fast stain and auramine and rhodamine stain.

**Results:** A total of 80 stool samples were received. The coccidian parasites prevalence in this study was 6.25%. *Isospora* and 2 *Cryptosporidium* were detected by both modified acid-fast and auramine rhodamine stains. On wet mount 1 *Strongyloides* was seen. Among the positives a male preponderance (60%) was observed. All the positive cases reported were in the age group 15-40 yrs. All were immunocompromised. One was associated with HIV and others with ALL. One was a post transplant bone marrow case.

**Conclusion:** In this study the results of auramine were comparable to modified acid stain. Advantages of auramine rhodamine are a fluorescent stain it is very easy and quick to screen it is. All routine stool samples should be screened for coccidian parasites.

---

**MICP 354**

**PA-P9**

**A STUDY OF COMPARISON OF MODIFIED CENTRIFUGED BUFFY COAT SMEAR AND PERIPHERAL BLOOD SMEAR IN DIAGNOSIS OF MALARIA**

Dr. Sonal Thavare, Dr. Chaya A. Kumar, Dr Sujata Baveja, Dr. Rohini Gaikwad  
LTMMC and GH, Sion

**Introduction:** Malaria is a life-threatening parasitic disease, transmitted through the bites of infected female *Anopheles* mosquitoes. But it is preventable and curable, if accurately diagnosed and treated promptly.

**Aims and Objectives:** To compare peripheral blood smear (PBS), modified centrifuged buffy coat smear (CBCS) & rapid malaria antigen detection test (RMAT) in diagnosis of Malaria.

**Methods:** A prospective study was performed on 767 samples with clinical suspicion of malaria, for period of 1 year at a tertiary care hospital after permission of institutional ethical committee. 5ml of blood was collected in EDTA bulb. Rapid malaria antigen detection test was performed by using commercially available kit. Thick and thin smears and centrifuged buffy coat smears were prepared and stained with field’s stain and examined as per standard protocols. The results of PBS, CBCS & Rapid malaria antigen detection test were statistically analysed.

**Result:** Of 767 cases, 92 patients were diagnosed as malaria cases when one or more of the three i.e. PS, CBCS & malaria antigen detection test tested positive. After comparing results and statistical analysis, it was observed that, highest number of cases were detected by the malaria antigen detection test 90/92 (97.8%) & 84/92 (91.30%) by CBCS and 74/92 (80.43%) by PBS examination. Sensitivity & specificity of CBCS was 91% & 99.71% compared to 81.11% & 97.55% for PBS respectively.
Conclusion: CBCS examination is a more sensitive compared to peripheral smear. It helps in concentrating the parasites to give an apparent higher parasitic index. Hence, the CBCS method should be used as a routine test for diagnosis of malaria.

MICP 25

CLINICAL AND LABORATORY PARAMETERS PREDICTING SEVERITY OF DENGUE INFECTION

Durgesh GopalraoDeshmukh, Prashant Meshram, Vivek Madhukarrao Gujar, Pragati Abhimanyu Bulle, Supriya Sanjay Tankhiwale
Dept of Microbiology, Shri Vasantrao Naik Govt Medical College, Yavatmal

Introduction: Dengue infections are currently one of the most rapidly emerging arboviral infections in the world. There is high mortality associated with severe dengue infection so we conducted study to predict various factors indicating severity of dengue infection.

Methods: This cross-sectional study conducted in tertiary care hospital of central India. Data associated with various clinical features of dengue infection collected in predesigned questionnaire. Patient tested for complete blood count, serum alanine transaminase (ALT), aspartate transaminase (AST) levels, early dengue NS1 capture ELISA (Panbio, Brisbane, Australia) and commercial capture-IgM and IgG ELISA (Panbio, Brisbane, Australia).

Results: Total 678 suspected patients for dengue infection included in the study, 128(18.9%) patients were diagnosed as dengue positive, 58(45.3%) patients showed severe dengue infection, 66(51.6%) patients had thrombocytopenia, 38(29.7%) had raised liver enzymes, 62(48.4%) patients had decreased total leukocyte counts.

Conclusion: Our study demonstrated various clinical and laboratory parameters to predict severity of the dengue infection which can be used to categorize the patients in resource poor country like India for the management of dengue infection.

MICP 228

PREVALENCE AND SEASONAL VARIATION OF DENGUE INFECTION AMONG PATIENTS ATTENDING A TERTIARY CARE HOSPITAL

Dr Kamini Singh Ranawat, Dr Saroj Hooja, Dr Rameshwari Bithu
SMS Medical College and Hospital, Jaipur

Introduction: Dengue fever is an emerging acute febrile illness caused by arboviruses and presenting with wide spectrum of clinical manifestations ranging from self-limiting asymptomatic infection to severe fatal infection like dengue hemorrhagic fever and dengue shock syndrome with unpredictable outcome. It is endemic in India and in recent years it is appearing in the form of epidemics especially during monsoon and post monsoon season.

Aims and Objectives: To determine seroprevalence of dengue virus among clinically suspected cases & to determine the seasonal variation of dengue infection in the study setting.

Methods: A total of 24694 serum samples of clinically suspected dengue patients were collected from August 2018 to July 2019 and analysed for IgM antibodies by ELISA method (TRUSTwell dengue IgM ELISA kit) and any variations in disease reporting by gender, age and season were assessed.
Results: Out of the total 24694 serum samples analyzed during the study period, 3433 samples (13.90%) were found positive for dengue IgM antibodies. The positivity was significantly high among males as comparison to females and the most common affected age group was 16-30 year. The proportion of dengue cases was higher in monsoon and post monsoon season with maximum rate of positivity in the month of October (34.72%) followed by November (19.42%).

Conclusion: The present study confirms that dengue is mainly a disease of monsoon and post monsoon season. An in-depth observation of its trends will pave way towards its control and help contain dengue related morbidity and mortality.
Introduction: Dengue is an important vector borne viral disease in spite of implementation of National Vector Borne Disease Control Program – NVBDCP. It is most common cause of AFI – Acute Febrile Illness and is considered as notable public health problem because it spreads rapidly by the bite of infected mosquito. It has high incidence of mortality & morbidity in Telangana State during out breaks of viral fevers in Aug & Sept 2019.

Aims and Objectives: To emphasize on early investigation of a patient with bleeding manifestation & malaena and to determine early, accurate diagnosis.

Methods: Blood & Urine samples were processed for routine biochemical, pathological, microbiological investigations. In the department of Microbiology, serum sample is subjected to Dengue IgM-MAC ELISA & NS1 ELISA as well as IgM ELISA for Chikungunya. The results of various other parameters were analyzed.

Results: The case found to be positive for Dengue IgM- Antibodies & NS1 antigen by ELISA and negative for Chikungunya IgM Antibodies by ELISA. Other significant findings include raised APTT{36.7} and Thrombocytopenia 14000 per micro litre}. Other causes of bleeding manifestations were ruled out by relevant investigations.

Conclusion: Dengue Fever in differential diagnosis with bleeding manifestation with or without fever presentation especially during epidemics of viral fevers should be taken consideration. Early & accurate diagnosis with immediate and appropriate treatment/management will prevent mortality & morbidity.

MICP 382

The Clinical, Serological and Molecular Diagnosis of Dengue Infection at a Tertiary Care Institute in Western Rajasthan

Alisha Aggarwal, Ravisekhar Gadeppalli, Vijaya Lakshmi Nag, Gopal Krishna Bohra, Parwin Kumar, Sarika P. Kombade

AIIMS, Jodhpur

Introduction: Dengue infection is caused by one of the four serotypes DENV 1-4. In India, seropositivity varies from 25% - 60%. All 4 serotypes are seen in circulation in India, but the predominant serotype keeps changing with time.

Aims & Objectives: To determine the clinical and laboratory profile of patients admitted with dengue infection at a tertiary care hospital by application of NS1 and/or IgM capture ELISA on clinically suspected cases of Dengue and to find circulating serotypes by Real time PCR (qPCR).

Methods: The present study was a prospective pilot study done from August 2018 - February 2019 which included admitted patients of all age groups suspected of dengue infection. Serum samples were subjected to dengue-NS1 antigen detection and dengue-specific MAC-ELISA and Dengue IgM Antibody. Positive samples were subjected to qPCR for detection of dengue viral RNA and serotyping.

Results: A total of 448 patients were positive for dengue during the study period. Only 77 positive patients requiring hospital admission were included in the study while majority patients were managed on outdoor basis. Meanage of the patients was 22.6 years, with a male:female ratio of 3.5:1. Most common symptom was fever (n=77) followed by vomiting (n=39). Severe thrombocytopenia (platelet count <50,000) was present in 50.1% patients. Haematocrit was raised in 1.2% patients, SGOT and SGPT levels were raised in 70.1% and
53.2% respectively. Among 77 patients, 70 were positive for only NS1 antigen, 5 were positive for both NS1 and IgM Ab, while 2 patients were positive for only IgM Ab. Circulation of all four serotypes was observed on qPCR analysis while infection was dominated by DENV 3.

**Conclusion:** This study recommends stratifying the dengue patients according to WHO criteria and avoiding the use of thrombocytopenia as a single marker of severity of illness.

**MICP 394**

**DENGUE: A FIVEYEAR COMPREHENSIVE STUDY**

Dr Deepali Danave, Dr Sonal Agarwal, Dr N K Shaikh, Dr S K Kandle
Dr Vaishampayan Memorial Govt. Medical College, Solapur

**Introduction:** Dengue is a mosquito borne viral disease of global public health concern. It is a major cause of morbidity in most of the endemic regions of the world. Dengue is caused by dengue virus (DENV) that comprises four serotypes (DENV 1-4) and transmitted in humans by Aedes mosquito. Infection may range from mild, self limiting febrile illness (dengue fever) to a more severe form of dengue hemorrhagic fever and dengue shock syndrome.

**Aims and Objectives:** Diagnosis of dengue infection (DI) is made by RT-PCR or by the isolation of virus from blood in cell cultures. These gold standard tests are not within the reach of most laboratories. Detection of NS1 antigen and dengue specific IgM / IgG antibody has been the mainstay of diagnosis in DI. 50 % of the patients are seropositive for IgM antibodies by days 3-5 after onset of illness increasing to 80% by day 5 and 99% by day 10. IgG levels are generally detectable at the end of the week. We undertook the current study to evaluate the serologic and demographic profile of dengue patients in our district.

**Methods:** The study was carried out in the Department of Microbiology for a period of 5 years from 2014-2018. The study was hospital based and samples were also collected from community where suspected dengue cases occurred. IgM antibody detection was done by ELISA (Erbalisa) using manufacturer’s protocol.

**Results:** Of the 10,965 serum samples tested, 3,862 were positive while 7,103 were negative for dengue antibodies. Among positive cases paediatric population was nearly double as compared to adult population. The ratio of male to female cases was nearly same.

**Conclusion:** A laboratory has to provide reasonable diagnosis without high end technical support. Here antibody detection assays prove to be an excellent method.

**MICP 416**

**A STUDY OF DIFFERENT SEROLOGICAL PARAMETERS OF DENGUE INFECTION AT TERTIARY CARE CENTER IN WESTERN RAJASTHAN: A PROSPECTIVE STUDY**

Dr Durga Prasad (2nd Year Resident), Dr Smita Kulshreshth (Professor), Mr. Deep Shikhar Acharya (Senior Demonstrator)
Dr. S.N. Medical College, Jodhpur
**Introduction**: Dengue fever is an acute febrile illness caused by dengue virus (strain DENV 1 TO 4). An arthropod-borne virus of the family flaviviridae. This infection is transmitted by *aedes aegypti* and *aedes albopictus* mosquito. This fever is endemic in the Indian subcontinent and frequent epidemics occur as a public health concern. It is observed that NS1 (non-structural protein 1) antigen has its own importance in the diagnosis of dengue fever, which can be used as an early detection tool.

**Aim & Objective**: To know the prevalence of dengue infection along with its different serological parameters.

**Methods**: The present study was conducted during the time period of 1 August 2019 to 15 October 2019. This study includes blood samples of suspected dengue patients with complaints of fever and joint pain. The screening of dengue suspected cases was initially done by immunochromatographic test which shows the presence of NS1 antigen, IgM and IgG antibodies.

**Result**: A total of 7192 samples were processed out of which 832 samples were positive for dengue infection. The NS1 antigen parameter showing high positivity (718) in early infection followed by IgM (82), NS1+ IgM (31), IgG (2) and IgM+ IgG (1).

**Conclusion**: The present study shows high prevalence of NS1 antigen in the community, which can be a major tool for monitoring the patients of dengue. Immunochromatography test is easy, rapid and easily accessible for diagnosis in peripheral areas where ELISA, viral culture and PCR are not available.

---

**MICP 372**

“SEROPREVALENCE OF CHICKUNGUNYA AND ITS ASSOCIATED LABORATORY PARAMETERS”

Dr. Dhivya M, Dr. Amrutha Kumari B
MMCRI, Mysuru

**Introduction**: Chikungunya which is one of the neglected tropical diseases is a mosquito-borne illness caused by Chikungunya virus (CHIKV). The infection has an acute onset with clinical triad of fever, rash, and arthralgia. Prevalence is about 1.8 million and 8499 cases worldwide and in India respectively. Approximately 10–60% of affected individuals develop chronic arthritis that lasts for months to years following infection. CHIKV infection rarely results in mortality & currently there are no definite markers for determining the chronicity. Hence it has become important to understand the immune and pathogenic mechanisms. Levels of C-Reactive Protein (CRP) increase in response to infection and decrease with resolution of the condition. Thus, this study was undertaken to study the seroprevalence & associated laboratory parameters such as CRP and differential count.

**Aims & Objectives**: To know the seroprevalence of CHIK infection & to study CRP as a predictor of severity of the disease.

**Methods**: 162 clinically suspected patients were enrolled from MMCRI, Mysore during the month of August and September 2019. Relevant clinical details were noted. Serum samples were tested for CHIK immunoglobulin M (IgM) by ELISA. Chikungunya positive samples were then subjected for the semi-quantitative estimation of CRP. Other laboratory parameters were recorded.

**Results**: Out of the 162 patients tested, 25 were positive for chikungunya IgM (15.4%). Among the 25 positive cases, neutrophilia & lymphocytopenia were observed in 13 & 7 patients respectively and 8 were found to be positive for CRP with a mean of 24 mg/L.
**Conclusion:** IgM ELISA for Chikungunya infection should be included in the routine laboratory tests for acute febrile illness. The estimation of CRP level can be used as an important biomarker helpful in monitoring the prognosis of disease, but more research work needs to be done evaluating the effectiveness of CRP estimation in chikungunya.

**MICP 397**

**SEROLOGICAL DETECTION OF HANTAVIRUS INFECTION IN PATIENTS WITH ACUTE FEBRILE ILLNESS IN A TERTIARY HEALTH CARE CENTRE IN SOUTH KERALA**

Dr. Vineeta, Dr. Mercy John Idikula
II year-PG Resident, Department of Microbiology, PIMS & RC, Tiruvalla, Kerala
HOD & Professor, Department of Microbiology, PIMS & RC, Tiruvalla, Kerala

**Introduction:** Hantavirus is one of the causes of acute febrile illness especially in areas with high rodent population. Hence there is a possibility that many of the febrile cases presenting to our hospital could be due to Hantavirus.

**Aims & Objectives:** To detect Hantavirus infection among acute febrile patients attending a tertiary health care centre, in South Kerala & to describe the clinical & demographic features of serologically proven Hantavirus infections in the study population.

**Methods:** A descriptive cross-sectional study was conducted in the Department of Microbiology, Pushpagiri Medical College, Tiruvalla, Kerala from November 2018 – November 2019. A total of 90 samples received from patients with acute febrile illness of more than 101°F and less than 2 weeks duration were subjected to Hanta IgM & IgG ELISA (HANTAVIRUS POOL 1 EURASIA). Patient details were collected using a proforma and analyzed.

**Results:** Of the 90 serum samples, five (5.5%) & four (4.4%) were positive for Hanta IgM & IgG ELISA respectively. All the positive patients had fever >101°F along with other constitutional symptoms. The male to female ratio for IgM & IgG positives were 1:4 & 1:1 respectively.

**Conclusion:** Hantavirus infection must be considered as a differential diagnosis of patients presenting with acute febrile illness.

**MICP 55**

**EVALUATION OF A DIAGNOSTIC STRATEGY BASED ON TWO SEQUENTIAL ANTI HCV ANTIBODY DETECTION TESTS AGAINST GOLD STANDARD RTPCR**

Dr. Somenath Acharyal1, Dr. Gautam Barik1, Dr. Provash Chandra Sadhukhan2, Dr. Manideepa SenGupta1
1. Department of Microbiology, Medical College, Kolkata, India
2. Scientist-E, ICMR-NICED, Kolkata, India

**Introduction:** Diagnosis of HCV infection depends on detection of anti HCV antibody by ELISA and other methods. Anti HCV ELISA is associated with high false positive results which needs confirmation by gold standard RNA PCR. In this study we have evaluated a
combination of ELISA and HCV TRI-DOT assay to increase the specificity of antibody detection test.

**Aims and Objectives:** Evaluation of combined ELISA & TRI-DOT assay against RNA PCR and formulation of a strategy for diagnosis of HCV infection by this combination in a cost-effective manner.

**Methods:** A total of 103 patients were carefully selected in this study including patients from high risk group like thalassemia, post surgical etc. ELISA and TRI-DOT were done at department of microbiology, Medical College, Kolkata and RNA-PCR was performed at ICMR-NICED, Kolkata, using AB 7500 RTPCR instrument. Data was analysed using GraphPad and SPSS 20 software.

**Results:** Amongst 103 patients, 31 were both ELISA and TRI-DOT positive; among them HCV RNA was detected in 21 cases. Thirty-three patients were ELISA positive alone; among them RNA was detected only in 3 cases. HCV RNA could not be detected even by RNA-PCR in the control group of 39 patients where anti-HCV antibody could not be detected either by ELISA or TRI-DOT. After data analysis, it was found that the sensitivity of ELISA alone is 100% but specificity is only 49.36%. However, the combination of ELISA & TRI-DOT has a sensitivity of 100% along with specificity of 79.59%.

**Conclusion:** A combination of third generation ELISA and fourth generation HCV TRI-DOT assay increases the specificity of anti HCV antibody detection test from 49.36% to 79.59% while retaining 100% sensitivity. So we recommend anti HCV ELISA as screening test with all positive cases to be reconfirmed by HCV TRI-DOT assay.

**MICP 294**  
**Vi-P11**

**A STUDY ON OBSERVATION OF VARIOUS GENOTYPES OF HEPATITIS C VIRUS IN PATIENTS PRESENTING TO SUPERSPECIALITY INSTITUTE IN UTTAR PRADESH**

Ashish Verma, Peetam Singh, Jaya Garg, Jyotsna Agarwal  
Dr. RMLIMS, Lucknow

**Introduction**-Hepatitis C virus (HCV) is an established and leading cause of chronic hepatitis, liver cirrhosis and hepatocellular carcinoma worldwide. Genotyping and assessment of the viral load of HCV patients is important for designing the therapeutic strategies. This study was conducted to determine the distribution of various patterns of HCV genotypes in chronic hepatitis patients and their association with the viral load.

**Aims and Objectives**-The aim of this study was to study the distribution of various genotypes in HCV positive patients. The main objective of this study was to observe the viral load among various genotypes in HCV positive patients presenting to department of Gastroenterology of Dr. Ram Manohar Lohia Institute of Medical Sciences (Dr. RMLIMS), Lucknow.

**Methods**- This study was conducted in the Department of Microbiology, Dr. RMLIMS, Lucknow for a period of 2 years (October 2017 to September 2019). All the samples from the patients presenting to Department of Gastroenterology were initially tested by ELISA for detection of IgM against HCV (Qualisa). All 216 samples found to be positive by ELISA were tested for HCV Genotyping by 7500 Fast Dx Real-Time PCR Instrument and viral load for HCV by CobasTaqman 48(Roche) following manufacturer’s instructions.

**Results**- Out of a total 216 confirmed cases of HCV, about 52% were males and 48% were females. Among all the 6 genotypes of HCV (1a, 1b, 2, 3a, 3b, 4, 5 and 6), genotype 3a was
found to be predominant (about 83%) followed by genotype 1a which was found to be around 8%.

**Conclusion** - In our study we found that patients were almost equally distributed in males and females. Most common genotype was 3a. We did not find genotype 2, 5 and 6 in any patient.

**MICP 152**

**PREVENTION OF HEPATITIS B IN HEALTH CARE WORKERS: NEED OF THE HOUR**

Srestha Mitra, Neha Lal, Manoj Jais, Ravinder Kaur
Lady Hardinge Medical College, Delhi

**Introduction:** India falls in the intermediate endemicity zone (prevalence of 2-7%) for Hepatitis B, hence there is a high risk of acquiring infection through occupational exposure in health care workers (HCWs). HBV vaccine is mandatory for HCWs as part of their occupational health safety measures.

**Aims and Objectives:** This study aimed to measure the anti-HBs titres in HCWs vaccinated against hepatitis B.

**Methods:** In this cross-sectional study from January 2018 to August 2019; blood samples from medical students and HCWs who had received all three doses of hepatitis B vaccination on 0, 1 and 6 months and completed at least one month after vaccination since the last dose; were included. Samples were processed as per the standard operating procedures by ELISA method and quantitative titres of the subjects were estimated. In accordance to CDC guidelines, protective titres are taken as ≥10mIU/ml. HCWs with non-protective titres were advised to take full regime of HBV vaccine again provided free of cost and follow up on their anti-HBs titres.

**Results:** A total of 500 HCWs, aged 18 to 60 years were included in this study, of which 98 (20%) had non-protective titres and 402 (80%) had protective titres. Amongst the HCWs with non-protective titres, 15% were doctors, 30% nurses, 37% technicians and 10% were medical students. Only 11% HCWs opted for retesting who had non-protective titres after the first scheduled vaccination. They sero-converted subsequently after repeating vaccination schedule.

**Conclusion:** This study concluded that lack of awareness, practice and lax attitude is perilous among HCWs regarding the protection against HBV. It was also observed that HCWs were opting for getting titres tested as a result of regular mandatory training classes, which need to be conducted to raise awareness among HCWs. It is suggested, HBV vaccination and anti-HBs titre status should be mandated as a prerequisite requirement to join health care services.

**MICP 347**

**AWARENESS AND VACCINATION STATUS OF HEPATITIS B AMONG HEALTH CARE WORKERS IN A TERTIARY CARE TEACHING HOSPITAL OF CENTRAL INDIA**

Anika Saraf, V Sukrita Ayer, Anu Sethu Madhavan, Debasis Biswas, Shashwati Nema*
AIIMS Bhopal
Introduction: Healthcare workers (HCWs) are at high risk for hepatitis B virus (HBV) infection. Even though the vaccine is readily available, vaccination coverage and knowledge about the virus is unknown among many HCWs.

Aims & Objectives: 1) To assess the awareness level about HBV infection and its prophylaxis among the HCWs working in our tertiary care teaching hospital. 2) To assess reasons of incomplete vaccination or of not receiving vaccination among HCWs of our institute.

Methodology: A total of 150 HCWs working in our hospital which include 30 participants from each group i.e. doctors, nurses, interns, technicians and Grade IV employees were included. Pre-formulated questionnaires were distributed and their knowledge regarding the virus and its vaccine was assessed. Efforts were made to find out the vaccination coverage, reasons for incomplete and non-vaccination.

Results: 72.3% and 53.86% recruited HCWs could correctly answer the questions related to HBV and its vaccination respectively. Least correct responses were obtained by Grade IV employees. Majority of HCWs (62.67%) participated in the study received all 3 doses of HBV vaccine but documentation was maintained by only 30.67% participants. Main reason for incomplete vaccination reported were due to long time gap between the doses (40%) while main reasons for non vaccination was reported as no need of vaccination (28%).

Conclusion: The awareness about HBV among the HCWs was found to be good but low level of awareness was reported regarding vaccination. Although majority of HCWs have taken the recommended three doses of the vaccine, vaccination coverage was poor among Grade IV employees. Continued efforts are needed to increase the vaccine coverage among all unvaccinated health professionals and emphasis should be given on the periodic awareness programmes regarding HBV prevention, policy for screening of HBs antigen and HBV vaccination for all HCWs.

MICP 409

SEROPREVALENCE OF HEPATITIS B SURFACE ANTIGEN IN HOSPITAL ATTENDING POPULATION OF A TERTIARY CARE CENTRE

Dr. Richa Pandey¹, Dr. R. K. Maheshwari¹, Dr.Rameshwari Bithu¹, Dr. Manju Yadav¹
Department of Microbiology and Immunology, SMS Medical College, Jaipur

Introduction: Hepatitis B is a major infectious disease present globally. Hepatitis B surface antigen (HBsAg) is the first serological hallmark of HBV infection. Studying the seroprevalence of Hepatitis B surface antigen can help assess the magnitude of HBV infection in a community as large number of patients who come from different backgrounds attend the hospital.

Aim and Objective: The study was conducted to know the prevalence of hepatitis B surface antigen in population attending hospital

Methods: A retrospective study was carried out from a period of March 2019 to August 2019 on 80,680 patients attending various OPDS and admitted in various IPD’s of the hospital whose serum samples were submitted for serological evaluation of Hepatitis B surface antigen using Meriscreen rapid card test (Meril Diagnostics) based on immunochromatography.

Results: Of the tested 80,680 samples a total of 2215(2.74%) were found seropositive for hepatitis B surface antigen. Out of these, 1.54% were males and 0.55% were females.
Conclusion: It is mandatory that all patients coming for surgical procedures, all antenatal women, high risk patents and blood donors are screened for HBsAg as Hepatitis B virus is highly infectious. This study can help assess the magnitude of HBV infection prevalence in a community for its future control and prevention.

MICP 410

PREVALENCE OF BLOOD BORNE VIRAL INFECTIONS IN HEMODIALYSIS PATIENTS AT A TERTIARY CARE HOSPITAL

Dr. Sharon VaraSmrithi.P (Final year PG), Dr. I. Jahnavi Professor and Head Department of Microbiology, Guntur Medical College, Guntur

Introduction: A common problem in Hemodialysis (HD) center is the blood borne viral infections like Hepatitis C virus (HCV), Hepatitis B virus (HBV), and Human immunodeficiency virus (HIV) increasing morbidity and mortality of patients.

Aims and Objectives: To detect the prevalence of HCV, HBV, HIV infections in patients attending hemodialysis unit.

Methods: The present study was carried out in the Department of Microbiology in collaboration with the Department of Nephrology. The period of study was from July 2018 to July 2019. 584 patients with End Stage Renal Disease (ESRD) were included in the study. Whole Blood samples were collected, allowed to clot, serum was separated. Surface antigen (HBsAg) of HBV, antibodies to HCV and HIV were tested by in-vitro 3rd generation ELISA (ERBA ELISA) designed for qualitative determination and stored at -40°C for further studies.

Results: Out of 584, the sero-positivity was 71 (12.1%). HCV positive were 55 (9.4%). 11 (1.8%) were infected with HBV. and HIV positive were 5 (0.85%). The mean age of Hemodialysis patients included was 47.17 years (range 15–65 years) and 77.39% were males. Blood transfusion history was significant among 71 sero-positives, comprising 44 (61.97%) males and 8 (11.26%) females, p = 0.04(<0.05). Anti-HCV antibodies were detected in a greater number of patients within 36 to 45 years of age with male predominance. No co-infection was noted. Only 24 members were vaccinated for HBV in negative hemodialysis patients (513).

Conclusion: The practice of hemodialysis in India is growing and evolving. By implementing thorough and efficient Blood Borne Viral Pathogen screening tests, HBV vaccination for all and stringent infection control practices, hemodialysis will be strengthened.

MICP 423

SOCIODEMOGRAPHIC PROFILE OF HIV POSITIVE WOMEN WITH GENITAL HUMAN PAPILLOMAVIRUS INFECTION

Mahima Lall, RM Gupta, Lalit Dar, Aashish Choudhary, Neerja Bhatla
All India Institute of Medical Sciences, New Delhi

Introduction: Cervical cancer is an AIDS defining illness as per the centre for disease control (CDC). 90% of cervical cancers harbour high risk HPV (HRHPV). Women living with HIV AIDS (WLHA) have a higher risk of developing cervical dysplasias due to high
risk behaviour associated with increased chances of acquiring genital HPV. Cytology including Pap smears (Papanicolaou) are used for screening of invasive cervical intraepithelial neoplasia (CIN).

**Aim and Objective:** Our objective was to identify sociodemographic factors associated with genital HPV infection.

**Methods:** We enrolled 100 WLHA, at the All India Institute of Medical Sciences, New Delhi who were asked a detailed questionnaire which was filled after interviewing each patient for the following sociodemographic details; age, level of education, occupation, monthly income, risk factors for HIV, HIV status of husband, duration of HIV and duration of the antiretroviral therapy (ART). Awareness among the women regarding cervical cancer screening and knowledge about Pap smear was asked. After explaining the procedure in the language, they understood and taking consent, each woman underwent a gynaecological examination. Sample was collected for cytology and HPV detection and genotyping. We assessed the associations between sociodemographic factors and HPV infection.

**Results:** HPV genotyping yielded results for 93 women, 62/93 (66.7%) who were positive for any HPV type, mean age of subjects was 34.9 years. Duration of HIV infection ranged between 2-7 years and all were on antiretroviral treatment (ART). Majority of the HPV positive women belonged to the lower-middle class and were uneducated (42/93; 45.16%) and unaware of cervical cancer screening. No association was noted with marital status and HIV status of husband. There was a statistically significant (p 0.043) association between cytological abnormalities; high-grade, low-grade squamous intraepithelial lesions (HSIL and LSIL) and HPV positivity.

**Conclusion:** Sociodemographic factors in WLHA assume public health importance, thus directing targeted efforts towards the goal of cervical cancer elimination by 2030.

**LOW ORAL HUMAN PAPILLOMA VIRUS CARRIAGE IN NON-CANCEROUS INDIVIDUALS**

Santosh Karade*, Vikas Gupta#, Gunjan Dwivedi#, RM Gupta*
*Dept of Microbiology, AFMC Pune, #Department of ENT, CH(SC), Pune

**Background:** Human papilloma virus (HPV) comprises of over 200 related viruses responsible for benign and malignant lesions of oral and genital mucosa. Currently available HPV vaccines are protective against high risk HPV types 16, 18, 6 and11, which are commonly associated with carcinoma of uterine cervix. Prior studies have shown association of HPV16 with oropharyngeal cancers. The prevalence of oral HPV infection in Indian setting is under reported. In view of histological similarity of head and neck squamous cell carcinoma lesions with cervical carcinoma, there is need to study oral carriage of HPV in Indian population.

**Methods:** This pilot study was carried out at tertiary care hospital of western India to determine oral carriage of HPV among individuals presented to ENT OPD for lesions other than oral carcinoma. Nucleic acid extraction was performed on oral specimens and commercially available multiplex real-time PCR kit from FastTrack Diagnostics was used for detecting high risk HPV types. The assay also detects a housekeeping gene (human actin) as internal control from each sample to ensure the quality of the extraction process and the successful PCR.
Results: A total of 26 tonsillectomy specimen and 27 oropharyngeal swabs were collected over 8 months of study period. Data collection PCR amplification was successful from 52 samples. High-risk HPV 16 and 18 was not detected in any of the sample. One sample showed positivity towards pooled other 12 high-risk HPV genotypes (31, 33, 35, 39, 45, 51, 52, 56, 58, 59, 66 and 68)

Conclusions: HPV-16 and 18 are commonly associated with anogenital infection. In our study we found low prevalence of high-risk HPV oral specimen. Further study would be required to ascertain commonest genotype in Indian population and its association with head and neck cancers.

MICP 222

PREVALENCE OF HEPATITIS A & E VIRUSES IN THE PATIENTS PRESENTING WITH ACUTE VIRAL HEPATITIS IN A TERTIARY CARE HOSPITAL

Dr. Chandni, Dr. Shailpreet K. Sidhu, Dr Kanwardeep Singh, Dr. Loveena Oberoi, Dr. Sita Malhotra
Government Medical College, Amritsar

Introduction: Acute viral hepatitis (AVH) is a major public health problem in developing nations like India. Both Hepatitis A virus (HAV) and Hepatitis E virus (HEV) are transmitted through feco-oral route, causing acute viral hepatitis. Despite improving sanitation, health awareness, and socio-economic conditions, these infections continue to occur both in sporadic and epidemic forms in different parts of India.

Aims & Objectives: The study was conducted to know the seroprevalence of HAV and HEV in the patients presenting with acute viral hepatitis.

Methods: The retrospective study was conducted in the department of Microbiology, Government Medical College, Amritsar. Samples received from January 2018 to June 2019 were included in the study. A total of 581 samples were processed in this study. The serum samples were analysed for IgM anti-HAV and IgM anti-HEV for the detection of HAV and HEV respectively, using commercially available ELISA kits.

Results: The prevalence of HEV and HAV were found to be 14.1% and 11.3% respectively. The prevalence of HAV in paediatric age group (80.3%) was found to be higher as compared to adults (19.69%). However, the prevalence of HEV was higher in adults (90.24%) as compared to the paediatric age group (9.76%). The prevalence of HAV and HEV co-infection was 8.78%.

Conclusion: The prevalence of HAV is found more in children while HEV is more in adults. It is imperative to prevent fecal contamination of drinking water, improve sanitation and eating practices. These practices have known to decrease the prevalence in developing countries. And the preventive methodologies aimed towards providing clean drinking water and health education in the form of hand hygiene is also important.

MICP 232

DETECTION AND GENOTYPING OF ROTAVIRUS IN CHILDREN SUSPECTED WITH VIRAL DIARRHEA IN A TERTIARY CARE HOSPITAL IN CHENNAI
Introduction: Acute diarrhoeal diseases are a major public health problem leading to high morbidity and mortality in developing countries. Rotavirus is the leading cause of diarrhoea hospitalization among children worldwide. Studies in the last decade estimate the annual mortality due to rotavirus in India to be between 90,000 and 153,000.

Aims & Objectives: This study was carried out to determine the prevalence of rotavirus infection in children up to five years presenting with diarrhea and to determine the prevailing genotype in our locality.

Methods: A prospective study was carried out in children presenting to the outpatient department and admitted with diarrhea at Govt. Kilpauk Medical College & Hospital over a period of 6 months from February to July 2018. The stool samples children less than 5 years with diarrhea were collected and tested for Rotavirus antigen by ELISA. RNA extraction was done in the positive samples and subjected to RT-PCR. Polymerase Chain Reaction was done for the VP7 (G) and VP4 (P) genotyping.

Results: Out of 50 stool specimens tested, rotavirus was detected in 12 (24%) samples. There was a preponderance of infection observed in male children (75%) and in children aged 6 months to 11 months. All the 12 samples were positive by Rotavirus A Real-time PCR. Polymerase Chain Reaction was done for the VP7 (G) and VP4 (P) genotyping which showed G3 type in all while there was no amplification during P genotyping.

Conclusion: Rotavirus disease burden has greatly decreased since the introduction of rotavirus vaccination. This study shows that rotavirus genotype distribution and diversity has also changed since the introduction of vaccination with a shift towards G3 in Chennai and P typing has to be further investigated by sequencing. These changes will need continued surveillance, especially as the number and age of the vaccinated birth cohort’s increases over the coming years.

MICP 160

ASSESSMENT OF CD4 CELL COUNT AND VIRAL LOAD TEST IN HIV-INFECTED ADULTS

Dr. Monika Advani, Dr. Jyotsna Chandwani, Dr. Vijaylatha Rastogi, Dr. CK Meena
JLNMC, Ajmer

Introduction – CD4 cell count plays an essential role to monitor HIV treatment outcome, but fails to predict virological failure, while viral load provides information about virological failure. So, the viral load test prevents unnecessary change of treatment. Since there have not been many studies on this topic, this study was done to assess the use of both CD4 cell count and viral load in the monitoring HIV/AIDS progression.

Aim & Objective – To assess the CD4 cell count and viral load in HIV-infected adults.

Methods – This was a retrospective study, conducted on 197 patients receiving ART, from July 2018 to June 2019. CD4 cell count was done by BD FACS count system and viral load test was done by Real – time PCR.

Results – Of the 197, 168 (85.28%) were less than 45 years of age, 109 (55.33%) were males, 160 (81.22%) were heterosexual, 78 (39.59%) were primary school educated.
Out of 88 females, 63 (31.98%) were housewives, while in 109 males, 33 (16.75%) were laborers. The mean baseline CD4 cell count was 233.46 cells/mm³ while mean latest CD4 cell count was 371.67 cells/mm³. The mean baseline viral load was 230926.20 copies/ml. Of the 197, 12 underwent both baseline viral load (mean 394499.92 copies/ml) and latest viral load (mean 226389.83 copies/ml).

Conclusion - From this study, we can conclude that there is significant difference between the mean baseline and the mean latest CD4 cell counts, whereas there is insignificant difference between the mean baseline and the mean latest viral load, so this study concludes CD4 cell count is simple and convenient method, while viral load testing is a cumbersome and inconvenient method, and does not show effective prognosis. Hence, in Indian scenario set- up CD4 cell count is better than viral load test.

MICP 23

SEROPOSITIVITY OF RUBELLA ANTIBODIES IN WOMEN OF REPRODUCTIVE AGE GROUP IN TERTIARY CARE HOSPITAL

Dr Anupriya Yadav, Dr. Rameshwari Bithu
S.M.S Medical College, Jaipur

Introduction: Rubella is a mild, self limiting exanthematous disease of worldwide distribution. However, when acquired during pregnancy, particularly in the first and early second trimester can infect the placenta and fetus resulting in either spontaneous abortion; stillbirth/fetal death, neonate born with congenital rubella syndrome (CRS) or congenital rubella infection (CRI) without congenital defects. Rubella is endemic in India. So, to reduce the risk of adverse pregnancy outcome, it is important to know the proportion of women of reproductive age group who are susceptible to rubella infection.

Aims and Objectives: To know seropositivity of Rubella antibodies in women of reproductive age group in tertiary care hospital.

Methods: This study is conducted from June 2018 to July 2019 on 1240 women of reproductive age group. 2-3ml of blood sample is collected. Serum is separated and tested for IgG & IgM rubella specific antibodies by chemiluminescence.

Results: Overall prevalence of rubella IgG antibodies is found in 325 women (26.02%) showing that they are immune to rubella infection and IgM antibodies is found in 25 women (2.01%). Out of 325 rubella IgG antibody positive cases, maximum 205 cases (63.07%) are seen in age group 16-25 years and remaining 120 cases (36.92%) belong to age group 26-35 years.

Conclusion: This study revealed that the substantial percentage of reproductive age group women are susceptible to Rubella infection in our area. Hence screening of Rubella and immunization of women of reproductive age group is highly recommended in this area. Continuous evaluation of rubella infection susceptibility in this age group women is essential for prevention of Congenital rubella syndrome strategy.

MICP 17

CYTOMEGALOVIRUS REACTIVATION, ASSOCIATED RISK FACTORS AND CLINICAL OUTCOMES AMONG NON-IMMUNOSUPPRESSED CRITICALLY ILL
CIRRHOTIC ADULTS: A PROSPECTIVE (LONGITUDINAL) OBSERVATIONAL STUDY

Dr. Dhara Shah1, Dr. Ekta Gupta1, Dr. Sukriti Baweja2, Dr. Samba Siva Rao Pasupuleti3, Dr. Archana Ramalingam4, Dr. Lalita Gouri Mitra5, Dr. Rakhi Maiwall6 and Shivkumar Sarin6
(1)Clinical Virology, Institute of Liver and Biliary Sciences, New Delhi; (2)Molecular and Cellular Medicine, Institute of Liver and Biliary Sciences, New Delhi; (3)Research and Biostatistics, Institute of Liver and Biliary Sciences, New Delhi; (4)Epidemiology and Clinical Research, Institute of Liver and Biliary Sciences, New Delhi; (5)Critical Care Medicine, Institute of Liver and Biliary Sciences, New Delhi; (6) Hepatology, Institute of Liver and Biliary Sciences, New Delhi

Introduction: Although Cytomegalovirus (CMV) reactivation is not uncommon in critically ill patients, it has not been studied for cirrhotic Liver-ICU patients.

Aims & Objectives: This prospective study was done to determine the incidence of CMV reactivation, associated risk factors and dynamic host cytokine responses and its influence on clinical outcomes among sero-positive (anti CMV IgG-positive) non-immunosuppressed critically ill cirrhotic adults. Methods: CMV reactivation (CMV-plasma-DNAemia; ≥ 500 IU/ml), risk factors, cytokine levels using ELISA and clinical outcomes were assessed at day 0, 7, 14 and 21 in Liver-ICU.

Results: Of 94 consecutive sero-positive non-immunosuppressed critically ill cirrhotic adults monitored, 55(48 men) patients were enrolled. Cumulative incidence at 7-day follow-up and incidence rate (or density) during 21-day follow-up for CMV reactivation were 30.9% (95% confidence interval, CI: 19.1 - 44. 80) and 2.75% per person-day (95% CI: 1.68 - 4.26% per person-day), respectively. Total leukocyte count was an independent risk factor for CMV reactivation (OR: 1.15, 95% CI: 1.00-1. 32, p=0.04). CMV reactivation (day 7) was associated with increased SIRS (p=0.01), nosocomial bacterial infection (p=0.009) and ARDS (p=0.04). Among patients with CMV reactivation, anti-inflammatory cytokine IL-10 tended to be raised at day 0 vs day 7 (p=0.07), whereas an amplified inflammatory response was seen coinciding with CMV reactivation as raised pro-inflammatory cytokines, TNF-α and IFN-γ, at day 7 (p=0.05 and 0.01, respectively). ICU-Mortality (61.8%) did not differ with and without CMV reactivation. (55 % vs. 65.7%, p= 0.43). Patients with CMV reactivation experienced early death and slightly longer stay in ICU. (Log rank p=0.06 and 0.17, respectively).

Conclusions: Incidence rate of CMV reactivation was considerable among critically ill nonimmunosuppressed cirrhotic adults. Although CMV reactivation was associated with more severe organ dysfunction and amplified pro-inflammatory cytokine response during LiverICU stay, it did not significantly influence mortality and length of stay in Liver-ICU.
CONFERENCE SECRETERIAT
Dr. Sujata Baveja & Dr. Gita Nataraj
Organizing Secretaries
Department of Microbiology
Room no 414, 4th Floor, College Building,
Lokmanya Tilak Municipal, Medical College
& General Hospital, Sion, Mumbai 400022
P: +91 22-2407 3959
W: www.microcon2019.org