

Study of Clinical and Laboratory Profile of HIV Infected Patients in a Tertiary Care Hospital in Coastal Karnataka.

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Introduction: The Human Immunodeficiency Virus (HIV) causes a pandemic infection. Much of the morbidity and mortality among the patients infected with HIV are due to Immunodeficiency leading to various opportunistic infections.

Objective and Methods: The aim of this one-year retrospective study was to determine the demographic, laboratory and clinical characteristics of HIV-positive patients in a tertiary care setting in coastal Karnataka. The relevant data was collected by reviewing the previous medical records of the patients and recorded by pre-designed proforma. Statistical analysis was performed using SPSS software, version 16 for Windows.

Results: A total of 558 HIV infected adults were studied. The patients infected with HIV were predominantly males (66%). Median age was 45 years and 48% of them belonged to WHO clinical stage 3. The most frequent opportunistic infections (OIs) noted were tuberculosis (13.8%) and candidiasis (11.3%). The most common malignancy among the study group was Non-Hodgkin's lymphoma (1.6%). The median CD4⁺ T lymphocyte count was 276 cells/mm³. Only 40% patients underwent HIV viral load testing. Antiretroviral therapy was given in 58% subjects, of which 98% patients were initiated with nucleoside reverse transcriptase inhibitors-based regimen.

Conclusion: We found tuberculosis and candidiasis to be the most frequent OIs. There is a need for utilizing HIV viral load test as prognostic marker in patients infected with HIV to guide effective antiretroviral therapy.

Demographic And Clinical Profile Of Patients infected with Dengue Virus serotypes 1, 2 And 3 In North Karnataka.

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Abstract:

Introduction: Dengue fever is a mosquito borne disease caused by Flavivirus and has clinical presentation varying from being asymptomatic to severe complications (dengue shock syndrome and dengue hemorrhagic fever) depending on the serotype of the virus involved. Cross protective immunity between the serotypes is lacking, hence severity of the disease is more if multiple infections occur with two different serotypes. Hence data on demographic specific prevalence of virus serotypes is vital to optimal clinical measures.

Aim: The present study aimed to identify the dengue virus serotypes prevalent in the North Karnataka region of India in correlation to clinical presentation of the disease.

Materials and methods: A prospective study was carried out in a Teaching hospital of North Karnataka, India from June 2012 to March 2016. 1000 serum samples were tested for NS 1 antigen IgM and IgG antibodies by ELISA method. Samples positive for NS-1 were subjected to RT- PCR for the detection of serotypes.

Results: Of the 1000 serum sample test 462 serum samples were positive for dengue virus antigen or antibodies. 245 patients (53.03%) were male and 217 patients (46.96%) were female. Age group 16 to 30 years were more affected followed by 31-45 years, over 45 years and 0-15 years age group. Maximum number of cases were observed in Bidar city followed by Humnabad, Aurad, Bhalki and Baswakalyan regions. Malaise was predominant symptom in

DENV-3 ($p < 0.05$), while Headache ($p < 0.001$) and retro-orbital pain (< 0.05) were predominant symptoms in DENV-2. GI symptoms (nausea, abdominal pain and diarrhea) were significantly common in DENV-2 ($p < 0.001$). Hepatomegaly was frequently observed in DENV-2 (17.02%), ($p < 0.05$). 462 samples were positive for either NS-1, IgM or IgG or in combination. Viral RNA was extracted from 119 samples positive for NS-1 antigen by ELISA. Of the 119 samples tested for serotyping by RT-PCR, 38 belonged to Dengue serotype -1 (DENV-1), 46 were of Dengue serotype 2 (DENV-2) and 35 belonged to Dengue serotype 3 (DENV-3). A change in the earlier serotype -1 and 2 from 2011 to 2013 to the present serotype DENV -2 and DENV-3 was observed and constant presence of DENV-2 in circulation was recorded.

Conclusion: Dengue virus serotype -1, 2 and 3 were prevalent in our study population and severe clinical manifestations were observed in patients suffering from Dengue virus serotype-2 and 3.

The Preparedness against Biological Threats in the State of Karnataka in an Era of Global Public Health Threats

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Introduction

Global public health threats related to infectious pathogens including those of animal origin are on a rise. The outbreak of Ebola virus disease in West Africa was a major public health emergency that posed serious challenge to the global health security's and preparedness for it. Achieving goals of alleviating threats and reducing risks posed by the emerging infections needs close alliance with health authorities.

Objective

To assess the status of preparedness of the health system against possible biological threats in the state of Karnataka.

Method

The interview based questionnaire survey was conducted among the designated district officials in charge of public health emergency operations in the human and the animal health units of 12 randomly selected districts in Karnataka, across the regions. The major domains of the questionnaire were based on the GHSA (Global Health Security Agenda) and IHR (International Health Regulations) tools.

Results

The study found that most district officials were well oriented about their regular work and some conversant with IHR requirements. They were generally trained and experienced in coping with health emergency in the districts. The number of officials trained for surveillance in the animal husbandry department were more than the health department. Whereas the health department officials had undergone more trainings in emerging infectious diseases.

On the status of logistic preparedness, the study found that officials were not very updated about details of cold chain capacity or stocks that can be made available in emergencies. Out of

the 12 districts there were no hospitals that provided services at par with the government hospitals in both the sectors.

Conclusion

The study suggests, that there is an orientation and some training on health emergency preparedness, and substantial gap in the capacity still exists in the state of Karnataka which makes it vulnerable.

Sepsis in Oncology Patients: Bacteriological Profile, Antimicrobial Susceptibility Pattern and Associated Risk Factors

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ABSTRACT

Introduction: Sepsis is one of the important cause of morbidity and mortality in oncology patients. Patient's immune system is directly or indirectly affected by cancer. Lactose fermenting gram negative bacilli like *Escherichia coli* and *Klebsiella pneumonia* and non lactose fermenting gram negative bacilli like *Pseudomonas aeruginosa* and *Acinetobacter baumannii* are the most common causes of sepsis in cancer patients.

Objectives: This research was undertaken to identify the organisms responsible for sepsis in oncology patients, to analyse the predisposing factors and the antimicrobial susceptibility pattern of the isolates.

Materials and Methods: Blood culture reports of oncology patients with suspected sepsis were studied retrospectively and prospectively. Patients case histories were collected from Medical Record Department, KMC Attavar, Mangalore. Predisposing factors for sepsis in oncology patients were recorded using a structured pro forma.

Results: Among the 47 positive cultures, gram negative bacilli were isolated from 40 (75.48%), gram positive cocci from 12 (22.64%) and Diphtheroids from one blood culture sample (1.88%). The most commonly isolated gram positive organism was Coagulase negative Staphylococci (CONS) and the most common gram negative isolate was *K.pneumoniae*. Intravenous Catheters (93.61%), Post Chemotherapy (85.10%) and Blood transfusion (74.46%) were the most commonly seen predisposing factors.

Conclusion: Study of blood stream infections in oncology patients is essential to prevent sepsis in such patients. This study helped in identifying the bacteria commonly responsible for sepsis in oncology patients and their antibiotic susceptibility pattern which may help in prompt and appropriate treatment. It also helped in analysing the common predisposing factors associated with sepsis in oncology patients.

Antibiogram of Clinically Significant *Staphylococcus aureus* and its association with Biofilm Production.

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Introduction: Invasive *Staphylococcus aureus* is defined as the isolation of *Staphylococcus aureus* from sites such as blood, synovial fluid, cerebrospinal fluid, pleural fluid, bone or from deep-seated abscesses. *Staphylococcus aureus* maybe associated with resistance to multiple antibiotics and biofilm formation. Biofilm formation increases the mutation rates and thus favours the spread of antibiotic resistance.

Objectives: The purpose of this study was to evaluate the antibiotic resistance of invasive isolates of *Staphylococcus aureus*, its association with biofilm production, treatment and outcome in these patients.

Methods: Antibiotic Susceptibility was done by modified Kirby-Bauer disc diffusion method and biofilm production was detected by using microtitre plate. Demographic data, co-morbidities, treatment and outcome was noted from the medical records department.

Results: Out of the total 80 invasive *Staphylococcus aureus* strains, majority (80%) were skin and soft tissue infections followed by blood stream infections (15%) and bone infections (5%). Of the

33(41.3%) methicillin resistant *Staphylococcus aureus* i.e MRSA isolates, 5(15.2%) were hospital acquired-MRSA and 28(84.8%) were community acquired-MRSA. MSb phenotype was the most common phenotype observed in CA-MRSA and HA-MRSA and hence clindamycin may be an effective alternative to vancomycin in the treatment of MRSA. Among the 21(26.3%) strains that were biofilm producers, resistance to penicillin (57.14%) and cephalothin (57.1%) was higher compared to non-biofilm producers (penicillin 45.7%, cephalothin 35.6%) suggesting that β -lactams may not be useful in biofilm producers. A high prevalence of multidrug resistant strains (53.75%) was found. 73(91.3%) patients improved with antibiotic treatment and mortality was 2.5%(n=2).

Conclusion: Biofilm producers exhibited higher resistance to beta lactams. Clindamycin may be a good empirical antibiotic of choice in CA-MRSA, HA-MRSA and methicillin sensitive *Staphylococcus aureus*. Patient outcome improved with antibiotic therapy. Mortality observed was secondary to Staphylococcal bacteremia who had not received empirical antibiotic therapy. This supports the role of early start of antibiotic therapy in better patient outcome.

A Study on Antibiotic Resistance Patterns of *Escherichia coli* of Poultry Origin and Assessing the Activity of Alfalfa (*Medicago sativa*) and Oats (*Avena sativa*) on the Multi-Drug Resistant Strains

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Introduction: Colibacillosis is the most common infectious disease found in poultry flocks worldwide. Increasing rate of prevalence of *E. coli* in poultry has been a major concern. Specially the occurrence of multi-drug resistance strains has been a significant factor as it can present as a great threat to mankind. As to manage such menace, natural products with potential antimicrobial properties such as Alfalfa and oats could be served as promising solutions, used as substitute growth promoters and treatment options in poultry.

Objectives and Methods: This prospective observational study was carried out to demonstrate the (1) incidence of *E. coli* in various poultry isolates, (2) to study their antibiotic susceptibility patterns and (3) to assess the antibacterial activity of Alfalfa and oats against these *E. coli* isolates obtained from poultry. Identification of isolates and in-vitro antibiotic susceptibility testing were performed as per standard protocol and assessment of antibacterial activity of Alfalfa and oats was done by using agar well diffusion method on multi-drug resistance (MDR) isolates.

Results: Total incidence of *E.coli* was found to be 85%. Highest resistance was observed against ciprofloxacin (23%). Among the isolated strains MDR patterns was observed in 23.3%. Petroleum ether extract of Alfalfa (60%) showed the highest antimicrobial activity against both sensitive and MDR *E. coli* isolates while least activity was observed on using ethyl acetate extract of oats (35%).

Conclusion: Poultry sources are well recognized as reservoirs of antibacterial resistance. Therefore, maintenance of hygiene to prevent the contamination of various poultry sources with pathogenic *E. coli* strains and maximizing the usage of natural feeds instead of antibiotics as growth promoters should be initiated for betterment of mankind.

Abstract

Title: Knowledge and Attitude about Nipah virus infection among Medicos , Mysuru, India.

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Introduction: As the deadly Nipah virus, which took the life of 18 people in 2018, resurfaces in Kerala, Karnataka being near by state is put on high alert. Eight districts in Karnataka have been put on a high alert and maximum surveillance, among which Mysore is one such district. So with this background, this study intends to assess the knowledge and attitude about Nipah virus infection among the medical students of JSS Medical College, Mysuru district.

Objective: To assess the knowledge and attitude about Nipah virus infection among undergraduate medical students.

Method: It is a cross sectional study done among the 4th term and 8th term MBBS students, of JSS Medical College, Mysuru . The study sample of 271 was obtained by convenient sampling method. Students who were present for the class were included and those who were absent for the class and not willing to participate in the study were excluded. Data regarding knowledge and attitude was collected using pretested semi-structured questionnaire. Data was analysed using SPSS-24. Descriptive statistics like percentage, mean and standard deviation were applied. Inferential statistical tests like chi-square test were applied for association. P value <0.05 was considered statistically significant.

Results: Among the 271 undergraduate medical students, 51% were from 8th term and 49% were from 4th term. Among them, 47% had acceptable knowledge and 44% had good knowledge about the epidemiology and clinical features about Nipah virus. 34% of the students had good attitude regarding Nipah virus .

Conclusion: Being future doctors they need to have better knowledge and attitude towards infectious diseases like Nipah to tackle such outbreaks in the future. Medical education should also concentrate on how to face the sudden outbreaks of Emerging and Reemerging diseases.

Key words: Nipah virus, Mysuru city.

Microbiological Profile and Antibiotic Susceptibility Pattern of Uropathogens Isolated Among Cancer Patients at a Tertiary Care Cancer Centre, North Kerala.

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Introduction:

Cancer is a significant cause of death worldwide, and more than half of them occur in developing countries. Urinary tract infections (UTIs) are among the most common infectious diseases affecting humans, and represent an important public health problem with a substantial economic burden. The extensive and inappropriate use of antimicrobial agents has resulted in the development of antibiotic resistance which has become a major problem worldwide. Hence, this study aims to analyze the microbiological profile and to study their antibiotic susceptibility patterns of uropathogens causing Urinary tract infections (UTIs) in cancer patients.

Objective Methods:

In the current study, etiological and antimicrobial susceptibility profile of urine cultures over a period of 3 years (January 2016 - December 2018) at a tertiary cancer care hospital was analyzed. Microbial and its antibiotic profile of the urine culture samples were retrieved from the microbiology laboratory data register. Identification and susceptibility testing of these uropathogens was performed by using automated VITEK 2 Compact system.

Results:

A total of 4978 urine samples were analyzed. Significant bacteriuria was seen in 1104 (22%) samples, 90 (2%) samples had an insignificant bacteriuria and no growth was seen in 3784 (76%) samples. Gram negative bacilli accounted for (n = 884; 80%) followed by Gram-positive cocci (n = 184; 17%) and Candida (n = 36; 3%). *Escherichia coli* (41%) were the predominant causative agent followed by *Klebsiella pneumoniae* (22%) and Enterococci (11%). Gram-negative bacilli showed maximum sensitivity to amikacin followed by carbapenems. All the Gram-positive isolates were found to be susceptible to vancomycin and linezolid.

Conclusion:

This study emphasizes the need for hospitals to make guidelines for antimicrobial stewardship based on the antibiograms framed, in order to combat and control the problem of antibiotic resistance, thereby helping clinicians to select appropriate antibiotic therapy for these cancer patients.

Abstract Title: To Study Clinico Epidemiological Profile And Quality Of Life Of People Living With Hiv On 10 Years Of Combination Antiretroviral Therapy

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Introduction:

QOL estimated among PLHIV on ART specifically, shows several factors being relevant to QOL including depression, age, sex, religion, level of education, CD4 count, marital status, opportunistic infections and socio-economic status. We analysed 150 patients on cART since 10 years

Objectives:

To Study Clinico Epidemiological Profile And Quality Of Life Of People Living With HIV On 10 Years Of Combination Antiretroviral Therapy

Methods:

Inclusion criteria:

1. HIV Positive regardless of language, age, sex, nationality, religion and race for a period of ten years.
2. On cART for minimum of 10 years.
3. Infection Confirmed by ELISA OR WESTERN BLOTTING.
4. Age >18yrs.
5. Willing to give informed consent.

Exclusion criteria:

1. Age <18

The data collected included patient's details, personal history, past medical illness, details of ART treatment, CD4 count ,etc. The patients were clinically examined thoroughly and the investigations were noted. Quality of life was assessed by world health organisation Geneva scale.

Results:

HIV infection was mainly found in rural population, illiterates, poor socio-economic status and mostly associated with opportunistic infections; common route of transmission was heterosexual contact. Clinical profile of patients on cART (CD4 < 300) was lesser compared to those with any number of CD4 count.

Quality of life: Out of 150 patients

104 - good physical activity ,

100 - good self-esteem ,

100 - dependency and good work mobility,

10 - good support from sexual relationship,

84 - good Safety, Home support , Financial support, Care from relatives, Leisure activities,

68- not worried about death.

Conclusions:

Most of the HIV affected population were males in reproductive age affecting nation's economy, people with less primary education , heterosexual contact .

Increasing literacy improves understanding the disease, its mode of transmission, personal protective measures and societal responsibilities . Quality of life was better with patients on cART.

Assessment of Preparedness against Emerging Infectious Disease amongst Private
Hospitals in a District of South India

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Introduction: The emergence of many infectious diseases has been of serious public health implication in the 21st century. Hospital preparedness is a key step in strengthening a country's ability to address any Public Health Emergency of International Concern caused by these diseases. Since in India 80% of the health care utilization happens in the private hospitals, it is of utmost importance to assess the preparedness level of these hospitals against emerging infectious diseases.

Objective: To assess the preparedness against emerging infectious diseases amongst private hospitals in a district of South India

Methods: The study was a cross-sectional study and hospitals which provided consent were included. The estimated participants were 54 and prior appointments were taken from each of them before the data collection.

Results: The results were expressed in descriptive manner. For the purpose of analysis the questionnaire was redistributed based on the monitoring and evaluation framework of IHR and its core capacities. It was found that there was a need to enhance the preparedness of the hospitals in the response against emerging infectious diseases. There were gaps in the implementation of various plans and protocols for staff training, risk communication, surge capacity, laboratory capacity and infection control in the hospitals.

Conclusion: The findings were suggestive of a need for preparedness of the hospitals against the upsurge of emerging infectious diseases.

Antibacterial Tolerance in Bacteria causing Urinary Tract Infections among pregnant women

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Abstract

Introduction :Urinary tract infection (UTI) is the most common infection experienced by humans after respiratory and gastro-intestinal infections, and also the most common cause of both community-acquired and nosocomial infections for patients admitted to hospitals. Due to the emergence of multidrug resistant (MDR) uropathogenic strains, the choice of antimicrobial agent is restricted.

Objectives:This study investigated the epidemiology of UTI, antimicrobial susceptibility and Antibacterial tolerance in Bacterial Population of pregnant women suffering from Urinary Tract Infections.

Methods :A total of 578 women patients were enrolled in study. A total of **219** pregnant women patients were screened for further study. Isolated uropathogens from urine sample of pregnant women patients suffered with Urinary Tract Infections (UTI) were identified with the help of VITEK-2 compact. Final identification was confirmed by 16srRNA sequencing.

Results:The predominant isolates were *Pseudomonas .aeruginosa* (58, 26.48%), and *Proteus* (56, 25.57%) followed by *Klebsiella pneumoniae*, (60, 27.39%) and *E. coli*, (45, 20.54%).Presence of *Citrobacter* and *staphylococcus* was less than 02%.*Pseudomonas aeruginosa*,*Proteus.spp* and *Klebsiella pneumoniae* showed resistance to most of antibiotics and sensitive to Amikacin and Norfloxacin.Increasing antimicrobial resistance has stimulated interest in non-antibiotic prophylaxis of Urinary Tract Infections.

Conclusion :Prophylaxis with non-antimicrobial agents does not result in an increase of antimicrobial resistance of the commensal flora. Therefore, the use of *probiotics and cranberry* products may be considered. Further research is also needed to define the optimal dosage.

Keywords: Urinary tract infection, Uropathogens, Pregnant women patients,
Antibacterial tolerance, VITEK2, 16s rRNA sequencing.

Molecular Epidemiology of Hepatitis A Virus in India

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Introduction

Hepatitis A virus (HAV) is a non-enveloped virus with a positive sense, single-stranded RNA genome. It is a member of *Picornaviridae* family under the genus Hepatovirus. There are seven HAV genotypes, with three genotypes (I, II and III) subdivided into subtypes A and B. Genotypes I, II, and III comprise all human strains. Other genotypes each include a single simian HAV strain. 1.4 million cases of hepatitis A infection occur worldwide annually. Africa, Asia, and South America are considered as high endemic areas. Subgenotype Ia and genotype III are the most prevalent worldwide. Sub-genotype IIIa has been reported as a major HAV genotype in India.

Objective

The current study was established to monitor the molecular epidemiology of HAV among the viral hepatitis cases from different parts of India during the time period 2017- 2018 as a part of Acute Febrile Illness (AFI) study at Manipal Institute of Virology.

Methods

Archived acute serum samples (39), which were already confirmed for HAV by Reverse transcriptase Real-Time PCR were selected. HAV RNA was extracted and the target region (5'UTR) was amplified, purified (14 samples) and genotyped.

Results

HAV genotype III, subgenotype "a" has been detected from 14 samples among 39 samples (study population) that showed Ct value <30 by Reverse transcriptase Real-Time PCR and were positive by conventional PCR.

Conclusion

HAV IIIa is the most prevalent subgenotype in India during the time period 2017-2018.

Molecular Epidemiology of Respiratory Syncytial Virus among Hospital-Based Acute Febrile Illness Surveillance Study Cases in India

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Introduction: Respiratory syncytial virus (RSV) is one among the ubiquitous viruses that cause respiratory tract infection in individuals of all age groups. RSV is an enveloped virus with negative single stranded genome that belongs to the family *Pneumoviridae* and the genus orthopneumovirus. RSV was divided into A and B subgroups based on the variability of the G gene and further divided into 20 and 36 genotypes respectively. In India, previous studies have reported the circulation of (GA2, GA5, NA1 and ON1) and (GB2, SAB4 and BA7, BA9, BA10, BA12) genotypes for RSV-A and RSV-B respectively.

Objective: This study intended to identify and characterize the circulating genotypes of RSV among from different parts of India that are among the list of Acute Febrile Illness (AFI) surveillance study sites during 2016–2018.

Methods: The throat/ nasopharyngeal swab samples (69) that were tested positive for RSV by real-time polymerase chain reaction (PCR) were retrieved. Viral RNA was extracted. The second hypervariable region of the glycoprotein (G) gene was amplified by conventional seminested reverse transcriptase PCR and the PCR products of either external or internal PCR were purified and sequenced.

Results: Out of 69 samples (study population), 62 (89.8%) were found positive by conventional PCR. Both RSV-A and RSV-B were detected. ON1 (31) and BA10 (21) genotypes of RSV-A and RSV-B respectively were identified among 52 sequences.

Conclusion: RSV-A and RSV-B subgroups are co-circulating in India during 2016-2018. RSV-A genotype ON1 and RSV-B genotype BA10 were the major circulating genotypes.

Identifying Inhibitors of Influenza Endonuclease for Anti-Influenza Activity – *In Silico* Approach

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Introduction

Influenza virus is known to cause an acute respiratory illness, which has an estimated mortality of 290,000 to 650,000 annually¹. The subtypes of this virus are responsible for causing seasonal infections, as well as pandemics. Antivirals against influenza virus have been categorized into neuraminidase inhibitors and M2 ion channel inhibitors. Increasing resistance against these drugs has led to the search for inhibitors targeting other proteins of the influenza virus. An endonuclease inhibitor, Baloxavir marboxil, developed by Shionogi & Co., Ltd., has been licensed for use against influenza in Japan. The PA subunit endonuclease is highly conserved, which renders it the potential to be a target for antiviral drug discovery against influenza.

Objective

To identify small molecule inhibitors of the influenza endonuclease by *in silico* molecular docking.

Methods

Molecular docking was performed using Schrödinger. The co-crystallized structure of Influenza A (H1N1) pdm09 virus PA subunit endonuclease bound to inhibitor baloxavir acid (PDB ID – 6FS6) was docked against the FDA approved drugs. High-throughput Virtual Screening (HTVS), Standard Precision (SP), Extra Precision (XP) and Induced Fit Docking (IFD) was performed to screen the drugs.

Results

The criteria for selection of the drug molecules were high docking scores, chemical interactions with the active site amino acid residues, commercial availability, and pharmacological action. Two compounds namely, dolutegravir and cefepime were selected. Dolutegravir is an HIV integrase inhibitor and cefepime is a broad-spectrum antibiotic.

Conclusion

The two drugs that were selected through *in silico* screening will be further assessed through *in vitro* assays for their activity against influenza virus.

Reference

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TITLE : A Study of Association of Serum Calcium levels in Dengue

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INTRODUCTION

Dengue is the most important arthropod-borne viral infection of humans. Infection can be asymptomatic or may give rise to varied manifestations. Multiple mechanisms were proposed for the pathogenesis of disease severity of dengue, like Ag-Ab enhancement of virus infection, exaggerated T cell response and increased cytokines.

Ca²⁺ has been shown to be essential for cytotoxic activity of the DENV-2 virus induced macrophage cytotoxin (CF2), dengue antigen increases the influx of Ca²⁺ into T-cells and proliferation of dengue-specific T-helper cells appears to be dependent on Ca²⁺. There are studies showing that hypocalcemia can be a predictor of severity of dengue.

Methodology

The clinical parameters recorded were presence of suggestive symptoms (fever, headache, retro-orbital pain, arthralgia, myalgia, rash, and bleeding manifestations), evidence of fluid leakage (pleural effusion and ascites), pulse rate, and systolic and diastolic blood pressure, spO₂ saturation. patients suspected to have probable dengue/ probable dengue fever with warning signs/severe dengue will be admitted and will be given an option of enrollment in the study.

After obtaining informed consent, all potentially eligible patients will be screened for enrollment. The following investigations were performed: Dengue NS1 and IgM is sent as per the duration fever. If patient is NS1 or IgM positive, patient shall be considered. NS1 positive patients shall be considered after igm confirmation. white cell count, platelet count, packed cell volume, serum free calcium

level, ECG, Liver function test, Renal Function Test, random blood sugar levels are also done.

Blood samples for the estimation of serum calcium were drawn on the day of admission. Hypocalcemia was defined as the presence of a serum corrected calcium $< 8.5 \text{ mg/dL}$.

RESULTS

Out of 100 dengue cases 37 developed severe dengue, 63 had non-severe dengue. Mean calcium levels in severe dengue were around 8.022 with a standard deviation of .484 and 8.494 in non-severe dengue with a standard deviation of .467.

CONCLUSIONS

Patients with severe dengue had low calcium levels on presentation compared with patients who had non-severe dengue.

Anaerobic Cocci: Not So Unusual Etiologies from Clinical Specimens

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Introduction

Anaerobic cocci have been identified as significant etiologies of clinical infections in various anatomical sites of the human body. Being a predominant part of endogenous microbial flora, they make up to approximately 25-30% of the total anaerobic isolates obtained from clinical specimens. Association of these bacteria in polymicrobial infections involving established aerobic pathogens and requirement of stringent laboratory methods for isolation and identification have led to these etiologies being underdiagnosed.

Objective

This study focusses on estimating the occurrence of anaerobic cocci from various clinical specimens.

Methods

This was a retrospective study conducted in the Department of Microbiology of a tertiary care teaching hospital for a period of three years from January 2016 to December 2018. All clinical specimens received for anaerobic culture during this period were included in the study except stool specimens received for *Clostridium difficile* and *Helicobacter pylori* infections. The specimens were processed as per standard protocol and the presence of anaerobic cocci was further assessed.

Results

Among the 1,449 specimens received for anaerobic culture, 17.74% (n=257) showed anaerobic growth yielding 371 anaerobes. Anaerobic cocci accounted to 36.92% mostly isolated from tissue samples and majority were Gram positive. *Peptoniphilus asaccharolyticus* was the most commonly isolated anaerobic coccus (29.19%). Out of 32.29% anaerobes showing monomicrobial growth, 33 were anaerobic cocci.

Conclusion

This study highlights the presence of anaerobic cocci in clinical specimens depicting their significant role in anaerobic infections. With the rising antibiotic resistance among various

anaerobic entities, accurate identification of associated pathogens becomes very crucial. Good specimen collection practices and efficient laboratory techniques are the mainstay for diagnosis. There is a need to look for these pathogens in anaerobic infections assisting in better management.

Non-Canine Mediated Human Rabies: A Case Series from a Rabies Diagnostic Laboratory

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Introduction: Rabies is a fatal zoonotic viral encephalitis caused by the Rabies Lyssavirus. Most human rabies cases in India are attributed to dog-mediated transmission. However, exposures to other animals are often neglected and human rabies cases acquired through non-canine animal exposures are under-reported.

Objective: To highlight the diagnostic challenges, the role of laboratory confirmation and the need for increased awareness about appropriate post-exposure prophylaxis following non-canine exposures through a case-series.

Methods: A retrospective analysis of laboratory confirmed human rabies cases at the Neurovirology laboratory, NIMHANS, Bangalore from January 2012 to December 2017 was carried out to determine the burden of non-dog mediated human rabies.

Results: Clinical samples were received from 264 suspected cases of human rabies at the Neurovirology laboratory during 2012-2017 (6 years). Laboratory confirmation was achieved in 107 (40.5%) cases. History of animal exposure was available in 218/264 (82.5%) cases. Out of these 212 (97.2%) reported exposure to dogs; 6 (2.8%) had exposures to other domestic/wild animals (cat, monkey and mongoose). Clinical and laboratory findings of three cases of non-dog mediated human rabies are presented. None of these three patients received timely, appropriate or adequate post-exposure prophylaxis and succumbed following onset of symptoms.

Conclusion: In a canine rabies-endemic country like India, cases of rabies transmitted by other domestic/stray/wild animals tend to be often underreported or ignored. There is a need for increased awareness among health-care workers about non-canine exposures leading to fatal rabies and appropriate post-exposure management in such patients to avoid unfortunate deaths.

Phytochemical Therapy to Control Clinically Relevant Biofilm Infections

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Abstract

Introduction: Rise of infectious diseases and spread of multidrug resistant superbugs is a global threat. While antibiotics have been highly effective in the past to control the pathogens, over reliance and misuse of these drugs have led us to the current post antibiotics era wherein microbes have developed resistance against last line drugs. Current need is to screen for alternative sustainable drug candidates with higher efficacy and safety against these pathogens which has the capability to form biofilm communities in infections and hence this study.

Methods: Microbes isolated from foot ulcers sampled from diabetic patients including *Pseudomonas aeruginosa* (PA) and *Staphylococcus aureus* (SA) were analysed for their ability to form biofilm. The strains were classified as high and low biofilm formers (HBF and LBF respectively) based on the crystal violet absorbance values measured after performing biofilm formation assay by microtiter plate method. Various natural compounds from plant origin like quercetin, 4-NPO, eugenol, chlorofuranone, and hamamelitannin were screened for their ability to inhibit biofilm formed by *P. aeruginosa* and *S. aureus in vitro*.

Results and discussion: Strains of *P. aeruginosa* were found to be high-biofilm producers when compared to the strains of *S. aureus*. Candidate HBF and LBF strains of *P. aeruginosa* (PA21 and PA333) and *S. aureus* (SA55 and SA36) were taken to check the antibiofilm property of the natural compounds. All the above mentioned phytochemicals tested showed significant effect on the biofilm formation ($P < 0.05$), and thus can be used alone or in combination with antibiotics to control biofilm formation in diabetic foot ulcers.

Acknowledgement: We thank Manipal School of Life Sciences, MAHE, MAC-ID and IGSTC for support. AW thank MAHE for Dr. TMA Pai PhD Scholarship.

Biofilm determination and Antimicrobial Susceptibility Pattern of *Staphylococcus aureus* Isolated from Bone and Joint Infections

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Introduction: Bone and joint infections mainly includes osteomyelitis, septic arthritis, prosthetic joint infections and spinal infections, which is caused by different bacterial species among which *Staphylococcus aureus* is the most common. Biofilm formation is an important virulence property of the *S. aureus* and is considered as a serious problem specifically in implanted related infection & their presence exert resistant to multiple antimicrobial agents. In this study, our main objectives are to detect the biofilm production and study the antimicrobial susceptibility pattern of *S. aureus* from bone and joint infections.

Methodology: A total of 67 *S. aureus* isolates were collected during the 6 months study period and identified by using standard protocol and Matrix Assisted Laser Desorption Ionization Time-Of-Flight (MALDI-TOF) VITEK®MS. Their Antimicrobial susceptibility patterns were recorded by Vitek®2 system (BioMerieux, Inc, Durham, NC). Biofilm production was analyzed by using Congo Red agar method and Tissue Culture Plate method.

Results: Among 67 isolates 52.2% (n=35) were isolated from orthopedic implant related infections and 47.6% (n=32) were isolated from non-implant related infections. Of total isolates 65.7% (44) were Methicillin resistance *Staphylococcus aureus* (MRSA). Out of 44 MRSA isolates 34% (n=15) were Multi-drug resistance (MDR) MRSA. Out of 67 isolates 73.13% (n=49) were biofilm producers by both the Congo Red agar method and Tissue Culture Plate method. A significant correlation was found between the MDR MRSA strains and their biofilm production with a P-value of 0.02.

Conclusion: High percentage of biofilm production was observed among orthopaedic implant related infections than the non-implant related infections. Among that MRSA strains were found to be prevalent in causing biofilm related infections.

Clinical and Microbiological Profile of Neonatal Sepsis in Tertiary Care Hospital, Puducherry.

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Abstract:

Background: Neonatal Sepsis is an unrestrained immune response due to bloodstream infection of microbes in the first four weeks of birth and accounted for long term morbidity and mortality. Therefore, the study focuses on the clinical and microbiological profile of neonatal sepsis; to study disease prevalence and the need of surveillance to manage and control newborn infections.

Objective Methods: A prospective observational study was conducted from February 2019 to June 2019, in tertiary care hospital, Puducherry. The study included 182 neonates admitted in NICU and questionnaire was filled by using the case details and venous blood samples were collected for routine laboratory investigations like blood culture, complete hemogram and CRP.

Result: Out of 1178 total births, 264(22.4%) neonates were admitted to NICU in which 182(69%) were sepsis positive. Neonatal Sepsis cases were categorized as, early onset sepsis (<48hrs) 117(64.3%), late onset sepsis (>48hrs) 65(35.7%), types of delivery – SVD 133(73%), emergency LSCS 49(27%), gestational age – term neonates 17(9.3%), preterm 132(72.7%), very preterm 33(18%), birth weight - normal birth weight 29(16%), low birth weight 153(84%), types of sepsis – clinical sepsis 122(67%), culture positive sepsis 60(33%), and bacterial species identified – *Klebsiella pneumonia* 18(30%), *Elizabethkingia species* 12(20%), *Acinetobacter baumannii* 6(10%), *Enterobacter species* 6(10%), *Citrobacter species* 6(10%), *E.coli* 6(10%), Methicillin Resistant *Staphylococcus aureus* 3(5%), *Pseudomonas aeruginosa* 3(5%). The overall mortality rate was observed in sepsis cases 40(22%).

Conclusion: The study results suggest that neonatal sepsis was more prevalent in early onset sepsis due to maternal factor and the improper use of aseptic technique during delivery followed by preterm and low birth weight neonates due to under-developed immune response and the mortality associated with *Klebsiella pneumonia* and *Elizabethkingia species*. As there is a trend of changing pattern of infectious organisms responsible for infection, proper surveillance is necessary to improve the diagnosis and treatment.

Serodiagnosis and Molecular Characterization of Rickettsia in and around Vijayapura, North Karnataka

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Abstract:

Introduction: Rickettsial diseases are important reoccurring infections that mostly go unnoticed or misdiagnosed due to low manifestation, non specific signs, symptoms and absence of widely available sensitive and specific tests. Failure of timely diagnosis leads to significant morbidity and mortality. Though the disease is rampant throughout the world, only a small number of case reports and studies have been reported from only some states of India in the past 15-20 yrs.

Objectives: To demonstrate the existence of Rickettsial infection in and around Vijayapura, Karnataka by serodiagnosis and molecular characterization and to develop a preliminary understanding of the distribution of these infections.

Methods: During the period of 2014-16, a total of 321 clinically suspected patients sample were examined by Weil Felix test. Samples showed agglutinin with OX2, OX2&OX19 and OXK antigens were screened for corresponding antibodies to SFG *R. conorii* and Scrub typhus by specific serological test IgM/ IgG ELISA. PCR was performed on blood clots of ELISA positive samples to identify the species.

Results: 134 samples showed agglutinins with Weil Felix antigens. Out of which 105 samples had titres suggestive of SFG rickettsiae, and 29 samples were suggestive of Scrub typhus infection. In *R. conorii* specific IgM ELISA 27 samples were positive with index >11, and in Scrub typhus IgM ELISA 8 samples were positive. PCR was performed to detect gltA, 17 kDa, and rOmp gene to confirm the SFG Rickettsial infection and 56 kDa gene for Scrub typhus.

Conclusion: Findings of our study clearly demonstrated that among the cases of pyrexia of unknown origin, Rickettsial infections are very significant in and around Vijayapur, North Karnataka region.

ABSTRACT

Sero logical status of Dengue in Patients with Acute Febrile Illness in a Tertiary Care Hospital, Nellore, Andhrapradesh.

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Introduction:

Globally Dengue virus is the most common vector borne virus & most common Arbo virus found in India. Differentiating Dengue viral fever in patients with acute febrile illness is a challenge for both physicians & microbiologists as there are other agents associated with acute febrile illness such as Chikungunya virus, Typhoid fever, Malaria, etc... Due to the presence of non specific manifestations during early phase of infection it is difficult to distinguish Dengue from cases of acute febrile illness. Clinical diagnosis alone may lead to false interpretation.

Methodology:

Study period: 6 months (July-December 2018)

Sample size: 600 serum samples

Age group : children (7-14 years) & adults (>50 years)

Inclusion criteria:

Fever >38°C, for the past 5 days

Signs & symptoms of acute febrile illness.

Collaborating departments: General medicine, Paediatrics, Pathology, Bio-chemistry

Collected samples were screened for complete blood picture, Liver enzymes (AST, ALT) & Dengue IgG/IgM Abs & NS1Ag with Dengue combi pack (J.Mitra&Co)

Results:

Of the 600 samples tested 140 (23.33%) were positive for Dengue IgG/IgM Abs & NS1Ag with low platelet count (<1 lakh/cumm), raised PCV >20%, with raised ALT, AST .

Conclusion:

Dengue is classified as one of many diseases in acute undifferentiated febrile illness as it shares similar clinical picture with other agents of acute febrile illness. This study was an attempt to know the Sero status of Dengue in patients with AFIs. Dengue manifestation range from asymptomatic to febrile illness, circulatory failure & even death. Fluids & electrolytes replacement is essential according to standard guidelines along with Platelet transfusion for Dengue.

Prioritization of Vaccine Target by Resistance Pathway Analysis in *Shigella flexneri*

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Abstract

Introduction: *Shigella flexneri* is a gram-negative enteric pathogen resistant to multiple antibiotics. *S. flexneri*, is the causative agent of diarrhoea and shigellosis, it is the major cause of morbidity and mortality of children < 5 years of age globally. It has been ranked as the significant global human health concern, owing to the susceptibility to multiple antibiotics. Identification of novel therapeutic targets to design vaccine is crucial to combat the *S. flexneri* pathogenicity.

Objective Methods: The current study is designed to identify and prioritize vaccine targets in multiple drug resistant (MDR) *S. flexneri*. A total of five resistance pathways (KEGG) namely Beta-lactam resistance, Cationic antimicrobial peptide (CAMP) resistance, Peptidoglycan biosynthesis, Carbapenem resistance, Vancomycin resistance were searched for crucial proteins and the same were analysed to identify potential vaccine targets. Various computational tools were employed to filter the proteins based on essential, human non-homologous and virulence factors which are required for pathogenicity and survival. The protein sequences were retrieved from UniProtKB for further analysis of qualitative characterization which is directional in prediction and prioritization of vaccine targets.

Results: Subtractive pathway analysis predicted a list of 31 proteins from *S. flexneri* as essential, human non-homologous metabolic proteins. Further, we prioritized 1 protein acriflavine resistance protein B (acrB) involved in beta-lactam resistance and CAMP resistance pathway as potential vaccine target. acrB is localized to the cytoplasmic membrane, it can be used as broad-spectrum vaccine target as it possesses 26 specific epitopes and it has a potential to interact with other related proteins to form an AcrAB-TolC complex which exhibits druggable properties.

Conclusion: Our findings mentioned above suggests that the strategy applied to search for resistance pathways to identify and analyse physicochemical properties of specific crucial proteins is promising in prioritization of one vaccine target.

Keywords: *Shigella*, shigellosis, diarrhea, MDR, vaccine target

Inconclusive transfusion transmitted infection screening results of whole blood donors and their impact on blood transfusion service.

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Background:

Transfusion transmitted infection (TTI) screening of all donated blood units is crucial to ensure blood safety. However, blood units with inconclusive viral marker TTI screening results although discarded as per regulatory rules and guidelines, pose many challenges to blood transfusion service in terms of loss of blood donors, inventory management and donor notification. This study was carried out to ascertain the proportion of inconclusive TTI screening tests for viral markers in our center and its impact on blood transfusion service.

Materials and methods:

Retrospective analysis of serological (Elisa and Enhanced Chemiluminescence) and nucleic acid testing (NAT) TTI screening reports of all blood donations from January 2018 to December 2018 for viral markers hepatitis B, C and HIV were performed. Institutional ethical committee clearance was sought and data required for the study was obtained from department records. The proportion of reactive, non-reactive and inconclusive test reports for each viral marker and subsequent wastage of blood units including the components prepared during the study period was noted.

Results :

Of total 16,251 donations during the study period 16,148 (99.36%) were nonreactive and 103 (0.63%) were initial reactive. On repeat serological and NAT molecular testing, 72 units turned non-reactive and were considered as inconclusive TTI report. The estimated blood inventory loss taking into consideration of components to have been prepared from each inconclusive whole blood unit is 210 blood components.

Conclusion : This study highlights the need for analyzing the causes of inconclusive TTI reports and to have consensus on approach towards reduction and management of these TTI inconclusive blood units including donor notification without compromising the blood safety.

Validation and standardization of in-house prepared external controls for screening of transfusion transmitted infectious disease: Experience from our tertiary care centre.

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Introduction

Quality is essential in a transfusion transmitted infections(TTI) screening laboratory, which would otherwise lead to TTI or wastage of blood and its components. The purpose of the control is to validate the reliability of the test system, evaluate the operator's performance and environmental conditions. Internal Control materials are provided along with the kit(positive and Negative) and external controls(borderline positive) may be purchased, obtained from a reference laboratory or made in-house. We discuss the standardization of in-house prepared controls for TTI screening.

Method: Retrospective data on the preparation and validation of controls was collected between May 2018 to May 2019. In-house external controls for each viral marker(HIV, HBV, HCV) were prepared by selecting a known reactive unit of the individual marker. Serial dilutions are prepared using a sero-negative serum. The last dilution is reserved for further testing if needed. These are processed for ELISA as per routine screening procedure of donor's blood.

Results: Dilution giving an E-ratio of 1.5-2 is selected for bulk preparation and validation is done on 3 consecutive runs. Aliquots of 500 μ L are prepared from bulk dilution, labelled and stored at -80°C which would be sufficient for 3 months. Validation was done by running random samples from the aliquots for further 5 consecutive runs. On an average 8-12 runs were required for validation of the procedure. The dilution of selected controls for the infectious markers(HIV, HBsAg, and HCV) was ranging between 64 – 2048. An LJ chart is plotted from the mean of the results and a mean beyond 2 Standard Deviation(SD) in two consecutive runs or a mean beyond 4 SD are considered invalid. The process was repeated every 3rd month to prepare next batch of controls.

Conclusion

The advantage of in-house prepared controls are ease of availability, reliability of the test results and less cost of production, making them feasible to be used in a laboratory.

Title: Virological Outcomes among People Living with HIV (PLHIV) on first-line Antiretroviral Therapy (ART) in Southern India. Introduction: Failure of ART is commonly diagnosed clinically, immunologically or virologically. Virological failure occurs at the earliest, followed by immunological failure and finally clinical failure. Suppressing the viral load to undetectable levels is the primary goal of ART. Viral load monitoring has been recently introduced in ART centres. There is hardly any data documenting virological outcomes among PLHIV taking treatment from ART centres, hence the need for this study. Aim: To analyse virological failure in PLHIV (people living with HIV) on first line ART. Methods: This is a cross-sectional study was carried out at HIV clinics attached to KMC Hospitals, Mangalore, India. Statistical analysis was performed using SPSS 11.0. Categorical data is described as frequency and percentage. Continuous variables is described as mean or median. Chi-square test was used and p value less than 0.05 was considered statistically significant. Results: We analysed data of 170 PLHIV. Majority of PLHIV were females 84 (50.3%). Majority of PLHIV belonged to age group of 30-60 years 148 (88.8%). Mean CD4 count was 506 ± 220 cells/ μ l. Median viral load was 20 IQR [0-143] copies/ml. In our study 22 (12.9%) had virological failure. Age, gender, marital status and adherence did not have any association with virological failure. Conclusion: Virological monitoring helps in early detection of ART failure. Strengthening of virological monitoring helps in switching over to second line ART at the earliest and also prevents pre-mature switching to second line ART in false positive immunological failure.

ABSTRACT

TITLE: Ceftazidime Susceptibility Patterns among Isolates of *B. pseudomallei*

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Introduction: Intravenous ceftazidime is the drug of choice during the intensive phase of treatment of melioidosis, caused by *Burkholderia pseudomallei*. Although most isolates are sensitive to ceftazidime, there have been reports of resistance, both from India and abroad. Reported primary resistance rate is low (Thailand-0.05%, Malaysia-0.5%, Australia-0.6%), but the organism is known to acquire resistance to ceftazidime during treatment.

Objectives: To determine the MIC of *B. pseudomallei* isolates to ceftazidime, and to look for a creeping rise in MICs of ceftazidime to *B. pseudomallei* isolates, over the years.

Methods: Clinical isolates of *B. pseudomallei* obtained from 2005 to 2018 were tested for susceptibility to ceftazidime, by modified Kirby-Bauer disc-diffusion method. MIC (minimum inhibitory concentration) of all isolates to ceftazidime was determined by agar dilution method, according to CLSI guidelines.

Results: Out of 259 isolates of *B. pseudomallei*, 258 (99.6%) were sensitive and 1 (0.4%) showed intermediate susceptibility to ceftazidime, by disc-diffusion. The MIC values for ceftazidime ranged from 1 µg/ml to 64 µg/ml. Out of these, 257 were sensitive with MIC ≤8 µg/ml, one (0.4%) showed intermediate susceptibility with MIC 16 µg/ml, and one (0.4%) was resistant with MIC 64 µg/ml. No significant changes or trends in susceptibility patterns were observed. The overall MIC₅₀, MIC₉₀, mean and modal MICs and geographic mean MIC values remained constant over the years, and no obvious population shift was observed.

Conclusion: MIC creep to ceftazidime was not detected. The two isolates of *B. pseudomallei* showing MICs of 16 µg/ml (intermediate) and 64 µg/ml (resistant) probably indicate isolated instances of increased MIC. Nevertheless, it is a cause for concern and continual vigilance is required. It shows that *B. pseudomallei* cannot be assumed to be uniformly sensitive to ceftazidime; susceptibility tests must always be done while treating patients, to ensure optimal medical care and to reduce mortality and morbidity.

A Rare Instance Of Probable Idiopathic CD4+ Lymphopenia Presenting With Cryptococcal Meningitis

Abstract

Infection with the encapsulated fungus *Cryptococcus* can commonly result in asymptomatic serological conversion, but it can also lead to disseminated disease (Cryptococcosis), especially in persons with defective cell-mediated immunity, common high risk groups including patients with hematologic malignancies, those requiring prolonged immunosuppression, patients with advanced HIV infection or a rare entity named Idiopathic CD4+ lymphopenia (ITC), defined as persistent CD4+ T cell lymphopenia in the absence of infection with human immunodeficiency virus (HIV)-1 or any other cause of immunodeficiency. We report one such instance of Cryptococcal meningitis in a patient with CD4+ counts of 230/ μ L, without any evidence of HIV infection or any evident cause of being immunocompromised.

Extra-nasal Rhinosporidiosis: A Clinical Quandary

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Abstract

Introduction: Rhinosporidiosis, caused by *Rhinosporidium seeberi*, is a chronic granulomatous disease primarily affecting the sinonasal tract. Endemic to south India, it may present at various extra-nasal sites and is often a clinical dilemma.

Objective: The present series aims to highlight the extra-nasal sites, clinical presentation, and differential diagnosis in the cases.

Method: All the cases with the diagnosis of extra-nasal rhinosporidiosis from January 2012 to June 2019 included in the study. The relevant demographic details, clinical features were retrieved from the records. Histopathology slides were reviewed for salient diagnostic features.

Results: Eight cases were identified with extra-nasal rhinosporidiosis. The age ranged from 11-73 years, and all the patients were males. Two patients had a prior history of rhinosporidiosis and presented with disseminated disease involving the nose, paranasal sinuses, nasopharynx, facial skin, oropharynx, and larynx. Two patients presented with conjunctival polypoidal mass near the medial canthus. Two patients with laryngobronchial lesions presented with hoarseness of voice and breathing difficulty. One case each of soft palate mass presenting with dysphagia; and multiple soft tissue masses on the abdomen, thigh, and pus draining ulcer on foot mimicking a malignancy. Presence of sporangia and a foreign body granulomatous reaction were consistent microscopic findings and ruled out a malignant cause. Patients were managed with laser-guided excision or wide local excision with cauterization of the base. Five cases showed a local recurrence within the next three years.

Conclusion: Extra-nasal rhinosporidiosis is rare and often presents with features which mime a malignancy and can range from polyps to subcutaneous swellings and ulcers. These extra-nasal lesions show a clinical predicament, and histopathological examination provides a definite answer. Local and distance recurrences mar the natural history of rhinosporidiosis. Increasing use of lasers during surgery helps in decreasing post-operative complications and recurrences.

Effect of Imipenem and Bacteriophage on Biofilms Produced by *Pseudomonas aeruginosa* on Endotracheal tubing- an *in-vitro* model system

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Introduction: Many alternatives have been tried to prevent biofilm formation by *Pseudomonas aeruginosa* in endotracheal tubes including the use of antibiotic coated tubes to prevent ventilator associated pneumonia and the newer strategy suggested has been the use of bacteriophages.

Objectives: The study aimed at finding the biofilm forming ability and antibiotic susceptibility of *P.aeruginosa* isolated from endotracheal samples and the effect of sub-inhibitory concentration of antipseudomonal antibiotic (Imipenem) in comparison to Pseudomonas phages.

Materials and methods: A total of 20 isolates of *P.aeruginosa* obtained from clinical endotracheal samples were taken for this study. The isolates were identified by VITEK 2 system or standard biochemical methods. Antibiotic susceptibility testing was performed by Kirby Bauer disc diffusion method as per CLSI guidelines. Sub-inhibitory concentration of antipseudomonal drug (Imipenem) was determined by tube dilution method. Antibiotic susceptibility testing was done by Kirby Bauer disc diffusion method and by VITEK 2 system. Biofilm assay was performed by modified O'Toole and Kolter method.

The results were analyzed by using SPSS 17.0 and by using Student's unpaired t test, Kruskal Wallis, ANOVA and HSD Tukey's test. P value of <0.05 was considered statistically significant.

Results: There was an increase in biofilm production in 60% of the *P.aeruginosa* strains in the presence of sub-inhibitory concentration of the anti-pseudomonal drug Imipenem, while a sharp decrease in the production of biofilm occurred in the presence of the phage. Imipenem resistant strains

were 100% sensitive to the phage treatment with marked decrease in the production of biofilm. 66.6% of the resistant strains produced lesser biofilm in the presence of sub-inhibitory concentration of Imipenem.

Conclusion: Results of the present study therefore, demonstrated the effectiveness of using bacteriophage as a biofilm reducing agent. This fact may help in assessing the different strategies in preventing biofilm formation by *P.aeruginosa* thereby helping to curb hospital acquired infections.

A case report of healthcare associated ventriculomeningitis managed with intra thecal colistin

Abstract

Healthcare associated ventriculitis and meningitis is a serious and life threatening complication of any neurosurgical procedure or penetrating head injury. Its management differs from community acquired meningitis, as it is most commonly associated with resistant organisms. We report a case of health care associated ventriculomeningitis, which developed after decompression craniotomy for severe traumatic brain injury. His cerebro spinal fluid (CSF) showed growth of resistant *Acinetobacter baumannii* and he was treated with intrathecal colistin along with intravenous colistin, as he had growth of same organism in blood culture report also. His neurological condition improved after the treatment, but he developed other complications and died.

A CASE OF MSSA BACTEREMIA COMPLICATED WITH INFECTIVE ENDOCARDITIS WITH MULTIPLE SEPTIC PULMONARY EMBOLI AND SOFT TISSUE ABSCESS

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Introduction: Bacteremia caused by Staphylococcus aureus is a serious infection associated with high morbidity and mortality and often results in metastatic infections such as infective endocarditis which have a negative impact on patient outcome. Emergence of MRSA has resulted in numerous complications and treatment challenges. Here we report a case of MSSA bacteremia with infective endocarditis with multiple septic pulmonary emboli and soft tissue abscess

Objective methods: 40-year-old male patient daily labourer presented with pain in the left side of the chest since two days prior to the hospital admission. Clinical examination was suggestive of left sided pleural effusion and an X-ray of chest confirmed the diagnosis. **Pleural fluid analysis showed exudative fluid. Culture of blood and pleural fluid grew MSSA.** Transesophageal echocardiogram showed vegetations over aortic valve. USG thigh showed abscess within gluteus medius and minimus muscle for which incision and drainage was done. **Pus culture grew same MSSA**

Results: . He was treated with cefazolin for six weeks duration. His chest pain subsided ,his fever came down , abscess over his thigh resolved . His caries right upper 3rd molar and right lower 2nd premolar teeth were extracted. He was discharged in a good condition.

Conclusion : Careful searching for metastatic abscesses and treatment with appropriate antibiotic for a proper duration, along with source detection is cornerstone in the management of Staphylococcal infection

Septic emboli presenting as symmetrical peripheral gangrene without disseminated intravascular coagulation or vasopressor use – a rarity

Dr Souvik Chaudhuri, Dr Sagar Maddani , Dr Shwethapriya R

Introduction

Septic emboli represent two insults to an individual, the early ischemic insult due to vascular occlusion and the insult due to the deep seated infective nidus, which is not responding to the antimicrobials. Mostly, extremity septic emboli are associated with implants, intravascular catheters or endovascular procedures, bacterial endocarditis or septic thrombophlebitis. Symmetrical peripheral gangrene (SPG) is characterized by a sudden onset of bilateral symmetrical gangrene in the absence of a major vaso-occlusive disease. It is a complication of disseminated intravascular coagulation, and is predisposed by sepsis with vasopressor use. For SPG to occur, a low flow state with disseminated intravascular coagulation (DIC) is usually present.

Results

We present a case of a 69 year gentleman who had sepsis post sigmoid diverticular resection and had Escherichia Coli in peritoneal fluid, with septic emboli presenting as SPG without vasopressor use. Thromboelastography ruled out DIC and vascular doppler was normal. He recovered from sepsis but digital amputation is planned.

Conclusion

One should be aware of possibility of SPG even without DIC or vasopressor use, and prompt antibiotic treatment of the infective etiology can prevent it.

TYPHOID FEVER AS A RARE CAUSE OF HAEMOLYTIC ANAEMIA , HEPATO-SPLENOMEGALY AND BONE MARROW GRANULOMAS

Typhoid fever is a systemic infectious disease caused by a Gram-negative agent *Salmonella typhi*. *Salmonella* infection may affect many sites, although the gastrointestinal tract is primarily affected. Most common extra intestinal organs involved are hepato - biliary system and spleen. Here we report a case of 48 year old male with culture proven typhoid fever present with fever , jaundice hepato -splenomegaly ,severe haemolytic anaemia and granulomatous lesions in the bone marrow.It should be considered that typhoid fever may lead to granuloma in several organs.

LOCALISED LEISHMANIA LYMPHADENITIS: A CASE REPORT

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Introduction:

Leishmaniasis is caused by an intracellular parasite Leishmania, transmitted to humans by the bite of a sand fly. Leishmaniasis is given less importance than the other prevalent infectious diseases. Diagnosis of the cases is often delayed due to lack of awareness and uncommon presentation. Leishmaniasis appear clinically as cutaneous, mucocutaneous and visceral depending on the species of leishmania involved.

METHODS:

We report a case of 72-year-old female presented with lymph node enlargement in the parotid region without any evidence of visceral or cutaneous lesion.

Case summary:

72-year-old female with previous history of IHD, with no history of travel outside Karnataka state, presented with lymph node enlargement in the parotid region, without any evidence of hepatosplenomegaly or cutaneous lesion. She had a history of pyogenic liver abscess, treated with pig tail drainage and intravenous antibiotics 1 year ago. HIV status was negative, her CD4 count was normal. CECT abdomen was normal. FNAC showed numerous tangle body macrophages filled with Leishmania amastigote forms and biopsy showed granulomas composed of epithelioid cells, histiocytes along with leishmania Donovan bodies. A diagnosis of localized leishmania lymphadenitis was made based. She was treated with single dose of IV liposomal amphotericin B and the patient responded favourably to treatment.

Conclusion:

Leishmania causing only enlarged lymph node is very uncommon presentation. Lymph node enlargement due to infection with leishmania should be considered in differential diagnosis of lymphadenopathy of unknown origin.

Title : Multiple Tuberculomas of the Brain

Authors: **Arundhati Prasad**, Dr. Adarsha GK, Dr. Manjunath Hande, Dr. Nithin Bhat

Introduction: Tuberculosis of the Central Nervous System is an uncommon (1% of Tuberculosis cases) but highly fatal disease. It has various manifestations like meningitis, Tuberculomas, miliary TB, abscess, cerebritis, and encephalopathy.

A 42 year old female presented with complaints of fever and headache for the past 6 days.

Systemic examination and initial labs were normal. Dengue, rickettsial, scrub typhus and leptospira were negative.

CT brain was done showing ill defined hypodensities in B/L parietal lobe and basal ganglia. MRI brain showed multiple altered intensity lesions showing thick rim enhancement diffusely scattered in B/L cerebral hemispheres, right cerebellar hemisphere and B/L basal ganglia with surrounding perilesional edema, suggestive of tuberculomas- caseating, with solid and liquid centers.

CSF examination showed increased WBC, protein, lactate and ADA levels.

She was started on ATT, iv mannitol and inj Dexona. Serial LFTs were normal and repeat CECT showed no significant progression or hydrocephalus changes. She was continued on anti edema and analgesics. Dexamethasone was tapered off gradually from iv to oral.

Result :

Patient felt symptomatically better and was discharged in a stable condition with advice to continue ATT for 18 months.

Conclusion:

For any patient with severe headache, TB CNS is an important differential diagnosis. Early diagnosis and treatment is crucial to reduce the associated mortality and morbidity of this condition. The most important factor for prognosis is the stage of the disease at which it is treated.

DOUBLE TROUBLE: H1N1 WITH DIAPHRAGMATIC PALSY AND MYOCARDITIS

Authors : Dr Anisha Umashankar, Dr Raviraj Acharya, Dr Savio Dsouza

Department of general medicine, KMC Manipal

INTRODUCTIONS

H1N1 virus essentially causes respiratory symptoms such as coryza, fever, cough, pharyngitis, laryngitis, and croup in children, pneumonia with secondary bacterial infection. Complications of H1N1 infection include secondary bacterial infection, ARDS, myositis, myocarditis, post infectious acute demyelinating encephalomyelitis, myocarditis.

Objectives

- To highlight the rare complications of unilateral diaphragmatic palsy and myocarditis as seen in this case.
- To describe the methods of identification and management of these complications

Method

Detailed description in the form of a case report.

Results

We present a case of 70-year-old diabetic female came who was diagnosed with H1N1. She had tachypnea and was then intubated in view of Type 2 respiratory failure and hypotension. A CXR done showed a radio opaque homogenous mass in the right lower zone (figure 1). She was started on antibiotics and oseltamivir for pneumonia and sepsis.

The two main hurdles in this particular case of H1N1 pneumonia - was weaning off the ventilator and arrhythmias.

Inability to wean off the ventilator raised the suspicion of right diaphragmatic palsy which was confirmed by fluoroscopy (figure 2 and 3). Neurological and mechanical causes were ruled out. The patient was given supportive ventilator care and then extubated on day 12. A repeat fluoroscopy at time of discharge was normal.

For the second problem, the patient had runs of ventricular tachycardia and ventricular premature contractions. An echo done showed globally hypokinetic left ventricle with reduced ejection fraction. Troponin T sent was elevated with repeat levels showing decreasing trend. The patient was started on amiodarone, beta blockers and antiplatelet and statins. A holters

24-hour ECG was done which showed long runs of non-sustained Ventricular tachyarrhythmia. Viral myocarditis was confirmed by a coronary angiogram which showed normal flow in the coronaries. The arrhythmias settled within a week.

Conclusion

To watch for rare complications that can pose a hurdle in the management of the common H1N1 infection.



figure 1

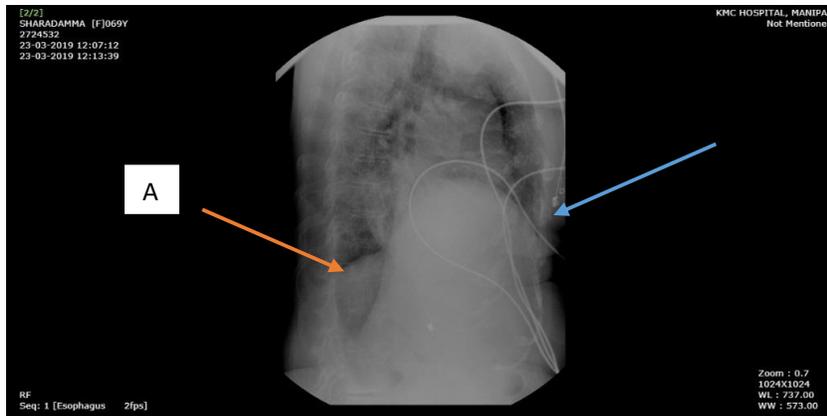


figure 2

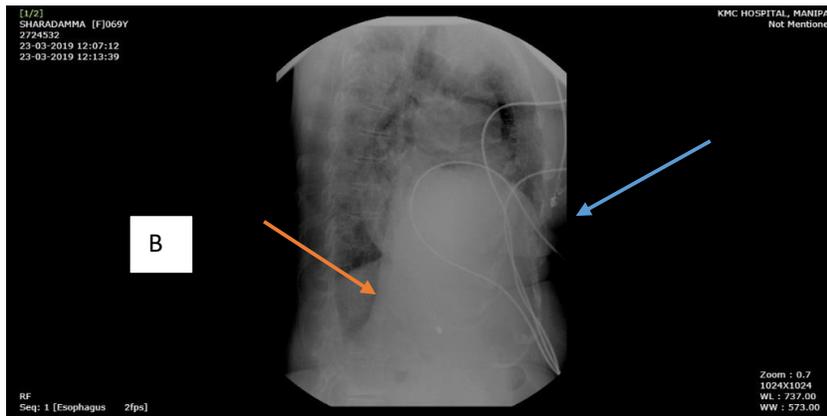


figure 3

MAHE_Abstract

Dengue-Malaria Co-infections Predominate in Acute Febrile Illnesses from North India

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In tropical countries malaria infections are often co-endemic and co-seasonal with other pathogens that cause acute febrile illnesses (AFI). Typically, in resource constrained clinical settings, once a patient is diagnosed as malaria positive, further diagnosis is not carried out. However, AFI due to a variety of pathogens have similar presentations and are hard to discriminate. Therefore, underlying co-infections may never be diagnosed and are inadvertently exposed to anti-malarial drugs, thereby worsening the issue of anti-microbial drug resistance. The extent of co-infection in malaria is still not very well investigated. We have addressed this question in our clinical center between 2016-2018 and find that about 77% of malaria cases harbor co-infections. We find about 11% of mixed species malaria infections, and about 66% of malaria co-infection with other pathogens. A major co-infecting pathogen in was found to be the Dengue virus which was present in about 44% of total infections. The nature of co-infection was found to be associated malaria outcomes. *Plasmodium* species mixed infections were higher in severe malaria compared to mild malaria. A detailed analysis of DENV serotypes revealed tha DENV 4 was higher in mild malaria as compared to severe malaria. Overall, our study suggests that the pathogenesis of severe malaria outcomes may be influenced by associated co-infections.

Bilateral cavities secondary to fungal infection- A case of Pulmonary mucormycosis

Dr.Ashwani Kumar, Dr.Ram Bhat, Dr.Raghavendra Rao, Dr.Sneha Seshadri

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ABSTRACT

Fungi of the *Mucor* genus are conditional pathogens that rarely cause disease in healthy individuals. However, inhalation of these spores may result in disease in subjects with impaired immune function. The organisms spread through the paranasal sinuses and respiratory system, or by the hematogenous or lymphatic route. The most common involvement is that of paranasal sinuses. Pulmonary mucormycosis accounts for ~25% of cases of mucormycosis with a fatality rate of >50%. Here we present a case of a 38 year old man who was admitted with fever, left sided facial pain, nasal discharge and cough with expectoration of 3 weeks duration. On evaluation he was found to have bilateral cavities in the lung. Bronchoscopic lavage fluid showed typical hyphae of mucormycosis. He was also in diabetic ketoacidosis. He was treated with amphotericin-B emulsion, IV insulin infusion and normal saline. However, he succumbed to the disease after 7 days of treatment. Fungal infections, especially mucormycosis should be considered in patients presenting with invasive lung pathology in the background of impaired immune function since the mortality rate is very high if treated late during the disease.

Title: Bugs and Bones: A study of 25 cases of Infectious Spondylodiscitis

Authors: **Dr. Cynthia Amrutha**, Dr. Shipra Rai, Dr. Shyamsunder Bhat, Dr. Kavitha Saravu

Introduction:

Infectious spondylodiscitis (IS) is an illness that presents a diagnostic dilemma. It is often associated with significant neurological morbidity, hence early diagnosis and treatment is crucial. As only a few Indian studies have dealt with IS, our study analyses the unique clinico-epidemiological profile of this disease in India and assesses the current management trends and outcome in these patients.

Objectives:

To study the Indian scenario of Infectious Spondylodiscitis and evaluate its diagnostic and treatment trends.

Methods:

A cross-sectional, retrospective study of 25 cases of microbiologically confirmed Infectious Spondylodiscitis in a single unit at a tertiary care hospital over a 18 month period (January 2018 to June 2019).

Results:

A total of 25 cases of IS were considered with a mean age of 49 years. Fifty two percent of the total cases were tubercular spondylodiscitis and 48% were non-tubercular spondylodiscitis. Among the cases of NTS, the organisms isolated were MRSA, Brucella, Escherichia coli and Citrobacter. The average time taken from onset of symptoms to diagnosis was 3 months in TS cases and 5 months in NTS cases. The most common presenting complaint was backache. Neurological complications were seen in 32% of the patients. MRI was the imaging modality used to confirm diagnosis in up to 80% of the patients. The most common vertebral site involved was lumbar. Medical and surgical management were required in 84% of the cases.

Conclusion:

The clinical conundrum in IS is primarily due to its atypical presentation. As there is paucity of Indian data for IS, our study describes the varied clinical profile of IS in India in comparison to the West. The higher tubercular burden of IS was also confirmed in our study and the time taken to presentation was markedly longer compared to the Western data. Therefore, understanding the spectrum of clinical presentation, early diagnosis and initiating appropriate treatment helps overcome hurdles of recurrence and debilitating neurological morbidity.

TITLE: THE TWO “FACES” OF KYASANUR FOREST DISEASE

Authors: Dr Akilesh S^[1], Dr Cynthia Amrutha^[2], Dr Shipra Rai^[3] Dr Kavitha Saravu^[4]

1. Junior resident, General Medicine, KMC, Manipal, 2. Assistant Professor, General Medicine, KMC, Manipal. 3. Assistant Professor, General Medicine, KMC, Manipal 4. Professor and Head of Unit, General Medicine, Coordinator, Manipal Centre for Infectious diseases (MAC ID), KMC, Manipal

Introduction: Kyasanur Forest disease (KFD) is a viral haemorrhagic fever and an emerging tropical disease in India. It is a tick borne Arbovirus (of Flaviviridae family). KFD is an important public health problem in Karnataka, India. Its importance is doubly highlighted by the recent outbreak in Shimoga, Karnataka and it may exhibit a biphasic pattern with haemorrhagic and/or neurologic features

Objective methods: This case report focusses on a young male from Shimoga with KFD and highlights the second phase of his illness which was predominantly neurological. It also describes the laboratory and radiological modalities used for the management of this case.

Case report: A 28 year old male from Shimoga presented with complaints of fever with myalgia for 1 week. Lab investigations showed leukopenia with thrombocytopenia and liver transaminitis. PCR for KFD was positive. He was treated symptomatically and discharged. He presented after a 5 week interval with fever, headache and vomiting with meningeal signs. Lab investigations showed leucocytosis. Lumbar puncture showed increased proteins and lymphocyte predominance which was suggestive of viral meningitis. He subsequently developed quadriparesis with bilateral hyper reflexia and flexor plantar. Nerve conduction study was non-specific but MRI brain was suggestive of leptomeningitis. RNA PCR for KFD was negative this time. Patient was symptomatically managed and discharged with full recovery of the symptoms after 2 weeks.

Conclusion: This case report emphasises the biphasic presentation in KFD. Hence a high degree of clinical suspicion is needed to identify the second phase of this disease which is heralded by neurological involvement and mandates a prolonged supportive care.

Brucellosis- An Elusive Disease

DESAI ANANYA(Junior Resident) ,DR.SHIPRA RAI(Assistant Professor),

DR. KAVITHA SARAVU(Professor and HOU)

KASTURBA HOSPITAL, MANIPAL

INTRODUCTION

Brucellosis is a zoonosis, caused by Brucella species, an intra-cellular slow growing bacteria, usually occurring in the rural pastoralist communities of Indian sub-continent , Mediterranean region, Central and South America. It is most often seen as a late presentation and is severely under-diagnosed.

Objective Methods:

A 42 year old male, with h/o IHD presented with c/o cervical and low back pain, radiating to bilateral upper and lower limbs with difficulty in walking. On examination, he was found to have spinal tenderness at L2- L4 level, hypotonia of all four limbs with wasting predominantly in lower limbs and decreased vibration sense up to tibial tuberosity. MRI LS Spine showed spondylodiscitic changes with myositis and MRI cervical spine showed cervical myelopathy with gliosis. Neurosurgery opinion was taken for the same and patient was taken up for Decompressive Laminectomy with drainage of abscess.

Results:

Pus culture sent showed growth of Brucella spp. He was treated with injectable streptomycin and doxycycline initially for 2 weeks following which rifampicin and doxycycline were continued for 6 more weeks. Due to persistent pain and non-resolution of abscess on imaging, his treatment course was extended further.

Discussion:

Brucellosis is a disease of protean manifestations, caused by gram-negative bacilli which have no classic virulence factors or typical lipo-polysaccharide pathogenicity. It has a prolonged incubation period making it a class-B bio-terrorism agent. It is an elusive disease, often overlooked, although being a significant occupational hazard and food-borne agent. Treatment poses an issue, necessitating an ideal antibiotic combination for a prolonged period to prevent

relapse. Understanding the host-pathogen interaction with advanced methodology would help provide an accurate and rapid diagnosis and efficient treatment of the disease.

Prosthetic Knee Joint Infected With Mycobacterium Tuberculosis – A Case Report

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INTRODUCTION:

Deep prosthetic joint infection is a rare but serious complication of total knee replacement(TKR).

CASE REPORT:

We report a 46 year old lady, known case of retroviral disease(RVD) since 23 years, on antiretroviral treatment (ART), with CD4 count 211, with left TKR following road traffic accident, 5 months ago, presenting with pain, swelling and pus discharge. She was hospitalized and septic arthritis was suspected. Plain roentgenogram revealed gradations. Debridement was done. Histopathology of infected tissue revealed tubercular granulomas with Acid Fast Staining positive. Blood cultures were sterile. We believe the source for post TKR tuberculosis(TB) is cryptogenic and yet to be solved. She was started on antitubercular treatment(ATT) following which she gradually improved, wound site is better at 1 month follow up visit.

CONCLUSION:

Though TB is a common opportunistic infection in RVD, infection of prosthetic joint and presenting as septic arthritis is extremely rare and only published as case reports. In the absence of sepsis/bacteremia, having an isolated prosthetic joint infection leads one to think about tubercular aetiology requiring ATT. Need for revision surgery is debatable.

This is a unique report, where tubercular etiology of post TKR septic arthritis has been uncovered. It also highlights the necessity to maintain high index of suspicion and investigate further and specifically for Mycobacterium tuberculosis during surgical revision, in order to avoid permanent damage due to delayed treatment.

A Rare Presentation of Brucellosis with Hyperferritinemia

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Introduction

Brucellosis is the most common zoonosis in the world. Brucellosis is an infection with multiple presentations, whether in an endemic region or not. The symptoms and signs most commonly reported are fever, fatigue, malaise, chills, sweats, headaches, myalgia, arthralgia, and weight loss. Here we report a case of middle-aged man diagnosed with brucellosis who presented with high serum ferritin.

Case Report

40-year-old man, with no previously known comorbidities presented with complaints of pain in bilateral ankles for 15 days and insidious onset, low grade fever, intermittent for 3 months and outside reports of high S. Ferritin. Initial systemic examination was unremarkable. Initial laboratory investigations showed normal LFT and RFT. S. Ferritin was >2000 and CRP and ESR were normal. CBP was on the lower side of the normal range. RF and ANA Global were negative. Patient developed 1 episode of fever of 101 F during the hospital stay. Fever workup for various viral and bacterial etiologies were sent. Bone marrow aspiration and biopsy was done to rule out possible Still's disease and Haemophagocytic Lymphohistiocytosis which showed increased macrophages, platelet phagocytosis, increased iron stores (6+) and lympho-histiocytic clusters in the interstitium which was s/o infection related changes in the marrow. Blood culture and Bone marrow culture grew Brucella species. USG abdomen done showed mild splenomegaly. Echocardiography did not show any vegetations. Patient has been started on T. Doxycycline for 6 weeks and Inj. Gentamycin for the initial 2 weeks. The patient had come for follow up after one week and repeat CBP showed improvement and he was symptomatically better.

Conclusion

Brucellosis may show increased Serum Ferritin levels and it may be used to suspect and make an early diagnosis of Brucellosis.

It may also be associated with reactive Hemophagocytosis and the patient may possibly develop thrombocytopenia or pancytopenia.

A Case Report of HLH: Self Control Issues Faced by our Immune System.

Introduction:

HLH (hemophagocytosis lymphohistiocytosis) is a syndrome which results from abnormal response of immune system usually activated by an underlying infection or an autoimmune aetiology. It is characterised by fever, pancytopenia, splenomegaly and hemophagocytosis seen in bone marrow, spleen or lymph nodes, finally resulting in death on most cases. We describe a case of Hemophagocytic syndrome secondary to Cytomegalovirus / HZV infection.

Objective:

To create awareness on the possibility of HLH who presents with fever and pancytopenia post infection over the last few weeks.

Methods:

53-year-old male with nil pre-morbidities presented to the ER with history of treated HZO and high-grade fever, skin rashes and decreased urine output. Examination with full GCS and hemodynamic instability noted. Diffuse erythematous and scaly maculopapular rashes and petechiae of mucosal surfaces noted. routine labs were suggestive of severe neutropenia and MODS. Patient was started on cefepime - teicoplanin and inotropes as initial management. Usg abdomen and cect abdomen to look for intrabdominal cause of sepsis showed e/o hepatosplenomegaly. Peripheral smear and bone marrow reports were suggestive of hemophagocytosis. High ferritin and triglyceride levels were noted which satisfied the criteria for hemophagocytosis, though fibrinogen levels were not low which went against the diagnosis. hepatotropic virology sent was positive for CMV antibodies. Patient and lab parameters improved gradually.

Results:

Patient had a prolonged ICU stay but gradually recovered over 3 weeks. Idea was to avoid secondary hospital acquired infections. Patient followed up twice, monthly in the out-patient with an uneventful history.

Conclusion:

Diagnosis of HLH must be considered as a differential diagnosis when patient presents with fever and pancytopenia with a focus given to a history of past infections. high index of suspicion is prime to make a diagnosis of HLH. Finding out the cause of HLH is also of prime importance in adequate treatment and decreasing mortality.

STREPTOCOCCUS GORDONII: A RARE ORGANISM CAUSING INFECTIVE ENDOCARDITIS

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INTRODUCTION

Infective endocarditis(IE) is a life-threatening, multisystem disease that results from infection of the endocardial surface of the heart. *Streptococcus gordonii*, a Gram-positive cocci belonging to the Viridans group of Streptococci can cause acute bacterial endocarditis upon gaining access systemically.

Staphylococcus, Streptococcus, and Enterococcus species account for between 80 and 90% of all cases of IE worldwide. Here, we are reporting a rare case of IE due to *S. gordonii*.

OBJECTIVE METHODS

A 49 year old known case of Diabetes mellitus was admitted to the hospital with history of dyspnea on exertion, easy fatigability and high grade fever with chills since 2 day. He was diagnosed with Infective Endocarditis due to *S. Gordonii* with mitral valve prolapse and severe mitral regurgitation (MR).

On investigation, blood culture was positive for *S. Gordonii*. ECHO showed posterior mitral leaflet prolapse with 7X6mm vegetation on the undersurface, severe MR. Patient was on Ceftriaxone, which was continued (Inj. Ceftriaxone 2gm IV BD) along with gentamycin. He showed progressive renal failure and metabolic acidosis after which gentamycin was kept on hold. He had persistent hypoglycemia, total leucocyte count decreased to 500 and pro-calcitonin was 98. Sensorium was deteriorated, output decreased. He was advised for dialysis but patient party was not willing for further management.

RESULTS

Patient treated during hospital stay. Lasix, gentamycin, OHA, oral diuretics were kept on hold in view of renal failure, sepsis and persistent hypoglycemia

Patient was discharged against medical advice.

CONCLUSION

Here, despite aggressive antibiotic treatment, the patient succumbed to the disease. Early diagnosis of rare, potentially fatal disease followed by a prompt antibiotic regimen reduces the risk of high morbidity and mortality.

Title – New onset of Hyperglycemia and Hepatitis in patient living with HIV: Could Dolutegravir be implicated?

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Introduction – Dolutegravir, a recently added drug in the management against HIV, is characterized by an excellent safety and tolerability profile. Although, hyperglycemia has been reported in trials conducted to assess the efficacy of Dolutegravir, there have been only two case reports by far in the literature. Dolutegravir has been associated with a low rate of serum aminotransferase elevations during therapy, but has not been linked to instances of acute, clinically apparent liver injury. But since its approval, several case reports of acute hepatitis attributable to Dolutegravir have appeared.

Case Presentation – We present a case of a 58-year-old male who is a known case of RVD since 18 years with HTN and dyslipidemia who was switched to Dolutegravir 50mg, Tenofovir 300 mg and Lamivudine 300 mg to improve patient compliance. Approximately 3 months after switch to Dolutegravir, patient presented to the outpatient department with elevated blood sugar levels (HBA1C – 11.2g %) and hepatitis. No other cause for hyperglycemia was identified including active infections. Dolutegravir 50mg, Tenofovir 300 mg and lamivudine 300 mg was withheld, Abacavir and Lamivudine was started. His glycemic levels were managed with mixed insulin and metformin. Further, liver function test showed improvement in liver enzymes thereafter Atazanavir and Ritonavir were introduced. Patient was discharged 1 week later with better glycemic control.

Discussion – Monitoring of liver tests and glycemic levels is recommended in patients starting regimens that include Dolutegravir. Since this drug is a relatively new anti-retroviral drug, it is important that healthcare professionals report ADR to promote safe and effective use of this drug.