Awareness and Community-Personal Protection Level against Malaria in Two Northern Districts of Karnataka: A Cross-Sectional Study

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ABSTRACT

INTRODUCTION:

Malaria is a communicable disease with great global public health importance. India is endemic for the disease and 4% global incidence and deaths due to the disease occur in India. Karnataka a southern state in the country contributes 0.89% of cases annually and currently is in the pre-elimination phase of the disease. The study was conducted in two districts of Karnataka currently in the pre-elimination phase of the disease.

OBJECTIVE:

To assess the awareness about malaria, its prevention and treatment among residents of the districts and to assess the community-personal protection level against malaria.

METHODS:
A cross-sectional study was conducted in 2 urban and 6 rural randomly selected clusters in Raichur and Bagalkot districts of Karnataka. A total of 480 individuals were assessed for awareness and community-personal protection level by direct interview using a structured questionnaire. The data collected was analyzed using SPSS-22.
RESULTS:
The present study found that 43.1% of residents of Raichur and Bagalkot districts were aware that malaria is transmitted through mosquito bite. 39% of respondents were able to identify at least one symptom of malaria while 44.6% were aware of at least one preventive measure to be taken against transmission of the disease. 46.3% of study participants knew at least one local person or facility providing blood testing for diagnosis and treatment of malaria.60.8% of households surveyed under the study owned at least one mosquito net in their house. The proportion of houses where indoor spraying was done was only 3.5%.
CONCLUSION:
The general awareness about malaria and its prevention and the level of community personal protection is notably low in the study region. So, we recommend additional awareness programmes and other appropriate interventions from the health system to improve these.

KEYWORDS: Malaria, Awareness, Community-Personal Protection

Impact of implementing nucleic acid testing towards blood safety; Experience from a tertiary care transfusion center, India.

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Background:

Nucleic acid testing (NAT) is a molecular technique for screening blood donations to reduce the risk of transfusion transmitted infections (TTIs) in the recipients. However NAT is not a mandatory test in India. We aimed to study the impact of routine NAT towards transfusion safety.

Materials and Methods:

A retrospective review of the data on the TTI testing of blood units collected from April 2017 to May 2019 was performed to analyze the NAT yield. Mini pool NAT was performed using the Cobas TaqScreen using Cobas s201 (Roche Diagnostics) system. It is a qualitative in vitro test for the direct detection of Human Immunodeficiency Virus Type 1 (HIV-1), HIV-2 RNA, Hepatitis C Virus (HCV) RNA, and Hepatitis B Virus (HBV) DNA in human plasma. NAT yield was defined as the number of NAT confirmed-positive but antibody-negative donations. The NAT yield rate was the number of NAT yield donations divided by the total number of donations tested for both nucleic acids and antibody. The descriptive statistics were used for the data analysis.

Results:

A total of 30,042 voluntary blood donors were screened for TTI during the study period. The sero-prevalence of HIV, HCV, HBV were 0.15, 0.15 and 0.38 respectively. On excluding the TTI sero-reactive samples, 28,043 samples were subjected to NAT. NAT yield was 4 and NAT yield rate was 0.013%. Considering the practice of 100% component separation at our center, we could prevent transmission of TTI to 12 patients.

Conclusion:

NAT has improved the blood safety by detecting the virus in the pre-seroconversion, window period blood donations.

Vitamin D Levels in Diabetic Foot Infection in a Tertiary Healthcare Facility - a Pilot Study

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Introduction:

Diabetic foot ulcers (DFU) is a growing concern with considerable morbidity, mortality, and limb loss associated with diabetes. Diabetic foot infections (DFI) and vitamin D deficiency are significantly prevalent among Indian population. Vitamin D possess immunomodulatory effect and levels lower than 10ng/ml was considered as the cut-off point for DFI.

Objective: To assess the vitamin D status among patients with infected diabetic foot.

Method: A hospital databased cross-sectional pilot study was carried out to find the levels of Vitamin D among diabetic foot ulcer patients who were admitted over the last 3 years (2016-2018) at Kasturba Hospital, Manipal. The cases were identified from the medical records department using ICD-10 code E11.5 and vitamin D test details of the patients were extracted from the database through information technology (IT) department from hospital computerized data management system using VIT007 lab test code.

Results: Vitamin D status was known for 62 diabetic foot ulcer patients, of which, 35 were excluded due to comorbid conditions that can alter the vitamin D levels (such as chronic kidney diseases) and outpatient data were excluded due to lack of complete information. The selected 27 patients were grouped into optimal [n=3 (11.1%)], sufficient [n=4 (14.8%)], insufficient [n=5 (n=18.5%)], deficient [n=7 (25.9%)], and severely deficient [n=8 (29.7%)], based on the vitamin D levels [serum 25(OH)D]. The microbial culture reports of severely deficient showed predominantly high polymicrobial growth. *Staphylococcus aureus* was the most commonly isolated organism from the diabetic foot ulcer. While 60% of patients in the insufficient category did not have the aerobic organisms.

Conclusion: The study concludes that majority of the patients had insufficient (<30ng/ml) vitamin D levels. There is also an increase in polymicrobial growth in this category. Hence, we hypothesized that severe vitamin D deficiency is a risk factor for DFI. A large, well designed, sufficiently powered study is required to test this hypothesis.

Keywords: Vitamin D, Diabetic foot, Foot infection, Vitamin D deficiency

Clinico-pathological Profile in Febrile Children Undergoing Cancer Chemotherapy and its Association with Viral Pathogens

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ABSTRACT:

Introduction:-

Fever during chemotherapy is a frequent problem in children with malignancies. Fever is defined as temperature >38.5 deg centigrade or <38deg centigrade persistent for one hour. Chemotherapy-induced neutropenia is the most important risk factor for severe infection. Neutropenia is defined as absolute neutrophil count <500mm ^{3}. Since establishing the cause of fever in neutropenic patients is difficult, empiric administration of broad-spectrum antibiotics is recommended. Viral infections, especially respiratory viral pathogens, account for significant morbidity in children in general and in children with febrile neutropenia.

.**Objectives and Methodology: -**

1.To study the clinico-pathological profile of fever in children undergoing cancer chemotherapy

2.To identify the proportion of viral positivity during episodes of fever

A crossectional study was conducted among the children of 0-18years age group, diagnosed with cancer. Children who developed fever were sampled for routine microbial cultures at every episode. Throat swab/blood and stool specimens were the various samples collected for isolation of virus. Quantitative real time PCR(q-PCR) was done for the identification of virus.

Results: -

Of the 89 febrile episodes that were recorded in 42 patients, 59.5% were neutropenic. ALL accounted for 70% of all the cases, followed by AML and Neuroblastoma constituting 43.8% and 4.5% respectively. Children receiving induction phase of chemotherapy were at highest risk for developing febrile illness. Viral positivity was seen in 4.5%. Astrovirus, Noro virus and Respiratory Syncytial virus were isolated. 15% of the febrile episodes had blood culture positivity. Of these gram positive and gram-negative organisms constituted to 46% and 53% respectively. Among the gram-positive bacteria, Staphylococcus aureus was the most frequent organism cultured. Fungal pathogens were associated with 2% of the illness.

Conclusion: -

In our study, viral pathogens were isolated in 4.5% of cases. Knowing the pathogens causing fever, helps in narrowing the diagnosis and administration of specific treatment.

Protective Effect of Metformin Against Tuberculosis in Diabetic Patients: A Multicentric Observational Study in South-Indian Tertiary Healthcare Facilities

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Introduction: Diabetes mellitus (DM) significantly increases risk for tuberculosis (TB), associated with a higher mortality rate. Metformin, most widely prescribed, first line anti-diabetic, showed encouraging results in DM patients with TB.

Objective: To determine the protective effect of metformin against TB disease in DM patients.

Method: Multicenter retrospective cohort study was carried out using patient databases from two hospitals by employing a common protocol. The study population were patients of either sex, aged ≥ 20 years, without having been previously diagnosed or treated for TB during the calendar year 2013, and newly prescribed metformin or other antidiabetics, diagnosed with DM in medicine departments of Kasturba Medical College & Hospital, Manipal or Kasturba Medical College Hospital, Attavar, Mangalore. The above population were followed up by tracing the medical records up until end of 2017.

Results: Among 1204 patients exposed to metformin, only 30 patients (2.5%) infected TB, whereas, 859 non-metformin patients, 36 patients (4.2%) infected TB. Metformin use was associated with decreased incidence of TB disease ($Chi^2 = 4.674$; $p= 0.031$). Female gender was associated with lower incidence of TB disease ($Chi^2 =5.932$; $p=0.015$). Higher dose of metformin use has more than two times protective effect compared to low dose metformin use (1/OR=2.30). Higher duration of metformin use (>2 years) shows slightly higher (1/OR=1.20) protective effect compared to lower duration of the use. Calculated number needed to treat was found to be 59.

Conclusion: The study found that lower incidence of TB disease among metformin exposed group compared to non-metformin groups. Patients who received metformin had almost two times protection against TB disease. Higher dose of metformin use had more than two times protective effect compared to low dose metformin use. Higher duration of metformin use showed slightly higher protective effect compared to lower duration of the use. The study concludes that metformin has protective effect (which is dose and duration dependent) in diabetic patients against TB disease.

Background:

This study examines the clinical utility of lactate/albumin (l/a) ratio in predicting the mortality in sepsis.

Objective :

The objective of our study is to compare the efficacy of l/a ratio with acute physiology and chronic health evaluation II (APACHE II) score assessment score in predicting prognosis, mortality in sepsis and is to obtain an optimal cutoff of l/a ratio.

Methods:

This prospective cross-sectional study was performed in the period between August 2017 to June 2019 in Kasturba Hospital, Manipal in patients who were 18 years of age or older who had a suspected or confirmed severe sepsis. Patients with elevated lactate and hypoalbuminemia, such as chronic liver disease, chronic kidney disease, seizure, trauma, and myocardial infarction, are excluded. The mortality is predicted and APACHE II score by using the data. Statistical analysis was done using the Mann-Whitney test, multiple logistic regression, plotting the receiver operating characteristic curve, and the Spearman test.

Results:

We enrolled 109 patients with severe sepsis. The l/a ratio in sepsis was higher in non-survivors than survivors with sepsis on day 1(71.9% vs. 28.1%; p<0.001).The area under the receiver operating characteristic curve (AUC) value of the lactate/albumin (l/a) ratio (0.65, 95% confidence interval [ci] 0.64-0.73, p< 0.001), with cut off of 6.2. AUC value for APACHE II score is maximum when cut off is 16, and it was higher in non-survivors than survivors (65.6% vs. 34.4%; p<0.03 sig.). There is a weak positive correlation between the l/a ratio and APACHE II score (r=0.249 and p< 0.009). In the multivariate analysis heart rate, hematocrit, pao2/fio2 were found significant in non-survivors.

Conclusion: l/a ratio can be a useful prognostic factor in sepsis. It may constitute an independent risk parameter, with additive value to established and combined scores for risk stratification.

Study of Risk Factors Associated with Nephrotoxicity in Colistin Therapy: Retrospective study

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Abstract

Parenteral use of polymyxins was stopped in most of the countries, because of serious neuro and nephrotoxicity The Increase of multidrug resistant gram-negative bacteria and lack of antibiotics to use against them led to the revival of polymyxins' use. The objective to analyze possible risk factors associated with nephrotoxicity in patients prescribed with colistin in Kasturba Hospital, Manipal. Retrospective observational study by case record review. Data on demographics, lab values, drug use and detailed colistin use related data were documented. Data was split into patients with stable and declining renal function and univariate analysis was performed to identify the risk factors associated with renal function decline. A total of 600 case records were screened and 280 records were included and 236 cases had complete information. Study cases were divided into two groups namely: cases where renal function was stable post colistin therapy and cases where renal function declined post colistin use. After initial descriptive analysis, univariate and multivariate logistic regression was conducted to identify the risk factors that are associated with decline in renal function. Age greater than 65 years, sepsis, CKD and MODS were the risk factors associated with decline in renal function post colistin in the reviewed cases. A total of 145 patients had stable renal function with colistin use, whereas 91 patients had decline in renal function with colistin use. Final multivariate logistic regression model could identify some risk factors which is associated with decline in renal function. Age (OR-1.03**), presence of sepsis (OR-2.17** OR), MODS (OR-2.7***), CKD (OR -0.01**OR) were the significant risk factors identified. In conclusion colistin alone did not result in nephrotoxicity. In the presence of certain risk factors renal function declined. These risk factors should be considered before initiating colistin therapy in patients.

Expression Analysis of Virulence Genes in Biofilm forming *Pseudomonas aeruginosa* isolated from Diabetic Foot Ulcers

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Abstract

Introduction: *P. aeruginosa* is a Gram-negative opportunistic pathogen and is considered a model organism in biofilm studies. It also causes chronic wound infections in diabetic foot ulcers which is worsened by biofilm formation. An array of virulence factors is secreted by *P. aeruginosa* that contributes to wound chronicity. In our study we have studied the virulence potential of *P. aeruginosa* in biofilm communities aimed towards better therapy and wound care management.

Methods: Foot ulcer samples from diabetic patients were collected and *P. aeruginosa* strains were isolated and characterized. Strains were tested for their ability to form biofilm by microtiter plate method and were classified as high or low biofilm formers (HBF and LBF respectively). The presence of major virulence genes such as *lasB, toxA, algD* and *pelA* were detected by conventional PCR. RNA was isolated from the candidate strains and the expression of virulence genes was analyzed by qRT-PCR using SYBR Green.

Results and Discussion: Strains of *P. aeruginosa* were found to be capable of forming high biofilms (absorbance greater than 0.5 at 600nm). The expression of the *lasB* gene was found to be more in HBF *P. aeruginosa* than in LBF *P. aeruginosa* suggesting its enhanced role in virulence in chronic infections.

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Abstract:

Molecular Epidemiology of Hepatitis E Virus in India

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Introduction: Hepatitis E virus (HEV) is the major cause of Acute Viral Hepatitis worldwide mainly affecting adults with higher morbidity and mortality among pregnant women. In India, HEV is predominantly transmitted by means of contaminated food and water. This hepatotropic virus is emerging as the main cause of hepatitis outbreaks in India surpassing hepatitis A cases. HEV genotypes 1 and 4 are mainly reported among humans and swines respectively.

Objective: A retrospective cross-sectional study spanning over three years from March 2016 to September 2018 was carried out at Manipal Institute of Virology for molecular characterisation of Hepatitis E virus using the serum samples archived as a part of Acute Febrile Illness study.

Methods: The archived serum samples screened positive for Anti HEV IgM ELISA (MP Diagnostics, Germany) were tested by reverse transcriptase real-time PCR and conventional PCR targeting the RdRp gene in ORF1 region. Using the Big Dye Terminator Kit (Applied Biosystems, USA), the purified PCR products were sequenced as per the manufacturer's instructions in a 3500 XL genetic analyzer (Applied Biosystems, USA). The sequences were compared with reference sequences in GenBank BLAST from NCBI after editing in MEGA 7 (MEGA version 7.0).

Results: Out of the seventy viral hepatitis E cases enrolled from the states of Karnataka, Kerala, Goa, Gujarat, Maharastra, Assam, Tamil Nadu and Jharkhand there were fifty-three, thirteen and four acute hepatitis, hepatitis with severe liver impairment and acute fulminant hepatic failure cases respectively. The mean age of the study participants was 30.3 years (SD= 12.5). Eleven samples from study sites of Assam, Goa, Gujarat, Karnataka, and Kerala states were typed as genotype 1a.

Conclusion: Study concludes that HEV genotype 1a was in circulation in different parts of India.

Effect of Carica Papaya Leaf Extract (CPLE) on Thrombocytopenia among Dengue patients in a Tertiary care Hospital, Chitradurga

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Introduction: Dengue is a global public health problem and thrombocytopenia associated with it is a serious complication for which there is no specific treatment available. This study was done to assess the effect of *Carica papaya* Leaf Extract (CPLE) on thrombocytopenia associated with Dengue and to study other clinical parameters of dengue.

Methods: A longitudinal study conducted in Department of General Medicine, BMCH, Chitradurga, from September 2017 to March 2018. All the participants were randomized into two groups by simple randomization by lot method. Study group was given *Carica papaya* Leaf Extract (CPLE) and routine supportive treatment for other group. The patients were followed from the day of admission till their discharge from hospital. The platelet counts and other baseline hematological investigations, duration of hospital stay in both the groups were compared statistically by unpaired t-test.

Results: There were total 127 males and 73 females. Age groups were comparable in both the groups. Most common presenting complaints were fever (100%) followed by headache (85%), myalgia (81.4%), fatigue (75%), arthralgia (65%). On admission baseline investigations were done and mean levels of both groups were compared. It was found that there was only significant difference of mean RBC levels (p=0.045). When followed up with daily platelet counts of both the groups, it was seen that there was increase in platelet counts in study group compared to placebo group and on third day there was significant difference between both (p=0.002). It was also found that discharge rate is earlier in study group than placebo group.

Conclusions: *Carica papaya* leaf extract accelerates the increase in platelet count and reduces the hospital stay. So, it can be used as supplementary drug to reduce complications.

Limonene- A Potential Quorum Sensing Inhibitor Attenuates Virulence in *Pseudomonas aeruginosa*

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Introduction: Conventional antibiotic treatment for infectious diseases is based on compounds that inhibit the bacterial growth, resulting in development of antibiotic resistance. Recent research on bacterial cell-to-cell signalling (quorum sensing) mechanisms responsible for regulation of virulence is a novel alternative to target infectious bacteria without interfering with growth. *P. aeruginosa* has been the subject of intensive investigations and become one of the model organisms in QS research. The research progress in the last two decades have revealed hierarchy QS network in this pathogen, including the role of *las, pqs* and *rhl* genes. We studied on a naturally derived compound, Limonene act as a potent antagonist against bacterial quorum sensing against *P. aeruginosa*, an opportunistic human pathogen.

Objective: To investigate the ability of Limonene to inhibit quorum sensing mediated virulence factors

Methods: Anti-quorum sensing activity of limonene was assessed by biosensor bioassay using disc diffusion method in *P. aeruginosa*. AHLs were extracted after incubation and AHL mediated quorum sensing activity in biosensor strain was estimated. Extracellular virulence factors such as pyocyanin, elastase, protease and rhamnolipid produced were quantified from the cultures treated with limonene. For studying the expression of quorum sensing mediated genes, cultures were treated with limonene and total RNA was extracted by TriZol method. Further, qRT-PCR was performed using cDNA to evaluate the expression of *lasI*, *lasR*, *rhlI* and *rhlR* genes.

Results: The natural compound Limonene showed anti-quorum sensing activity in biosensor bioassay. It showed significant reduction ($p<0.001$) in quorum sensing regulated production of extracellular virulence factors in *P. aeruginosa.* Significant reduction ($p<0.001$) in pyocyanin (80%), elastase (70%), rhamnolipids (63%) and protease (60%) production in the presence of limonene compared to control was observed. The qRT-PCR of limonene treated *P. aeruginosa* showed down regulation of autoinducer synthase (*lasI* and *rhlI*) and their cognate receptor (*lasR* and *rhlR*) genes.

Conclusion: This study clearly demonstrates the potential of limonene to inhibit QS at very low concentrations. Our findings provide a comprehensive overview of the inhibition of *P. aeruginosa* associated virulence factors by a natural compound, limonene which can be used as an alternative for antibiotic therapy against *P. aeruginosa* infections

Seasonal Variation in Malaria in the Endemic City of Mangalore

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Background: In the year 2017 India has contributed to 4% of global malaria cases and Mangalore is endemic to malaria. Malaria transmission also depends on the season of the year, i.e. the wet or dry season. Regardless of huge endemicity and massive health burden, at present limited data has been documented on malaria prevalence and factors contributing to prevalence of malaria and its association with seasonal factors in Mangalore region.
Objective: To study the seasonal variations in malaria burden and species prevalence in Mangalore.
Methods: This is a cross-sectional study conducted at the District hospital. Patients with microscopically confirmed malaria attending the District hospital were included in the study. Demographic details were collected from participants. Descriptive statistics was used.
Results: In this region malaria is present all around the year and *Plasmodium vivax* is more predominant than *Plasmodium falciparum*. The number of cases peaks during the rainy season suggesting that high rains provide an ideal environment for malaria transmission.
Conclusions: A complex relationship exists between rainfall, temperature, occupation and malaria. Implementing malaria elimination interventions such as preventing water clogging, cleaning the water bodies and increasing awareness for use of prevention practices might help in reducing malaria burden in Mangalore.

Multilocus Sequence Typing of *Blastocystis* Subtype 3 from Puducherry, India – A Pilot Study to Unveil Intra-subtype Genetic Variation among Symptomatic and Asymptomatic Isolates

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Introduction: *Blastocystis*, an obligate anaerobic stramenopile, dwells in the large intestine of probably at least one billion people across the world. The pathogenicity of *Blastocystis* in humans is controversial and may be strain-dependent. Based on 18S rRNA gene analysis, 17 different *Blastocystis* subtypes have been identified. However, *Blastocystis* shows extensive intra-subtype genetic diversity. We performed MLST for *Blastocystis* Subtype 3 (ST3) to explore the degree of genetic diversity within this common subtype and potential differences between ST3 strains with regard to links to clinical conditions.

Objectives: To find out intra-subtype genetic variations among ST3 isolates of *Blastocystis* and to associate a particular sequence type with symptomatic and/or asymptomatic individuals.

Methods: A total of 25 unique human stool samples from individuals with (symptomatic; n=15) and without (asymptomatic; n=10) intestinal manifestations positive for *Blastocystis* ST3 according to PCR and sequencing were included in the study. DNA was submitted to an MLST protocol for ST3, and after bidirectional sequencing, sequences were assigned to allele and sequence types.

Results: Out of the 25 samples included, only 22 were successfully sequenced across all five loci (symptomatic; n=14 and asymptomatic; n=8). We observed huge intra-subtype genetic variations among ST3 of *Blastocystis* and identified 14 new sequence types (ST3.68- ST3.81) along with previously detected sequence types.

Conclusion: This is the first MLST study from the Indian subcontinent to shed light on the intra-subtype genetic variations of *Blastocystis* ST3 and substantial genetic diversity was detected. Sequence type 74 was found to be more common in asymptomatic individuals. Accumulating molecular epidemiological data from different geographical regions assist in understanding the clinical significance of a particular sequence type and in turn it would help in designing future experiment to unravel *Blastocystis* pathogenicity.

Development and Preclinical Evaluation of Anti-HIV FDC Nanosuspension

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The purpose of the study was to prepare an acceptable fixed-dose combination (FDC) nanosuspension of Darunavir and Ritonavir for administering pediatric and geriatric population. Darunavir has poor oral bioavailability (37%) which leads to its low permeability and the susceptible substrate to poly-glycoprotein (P-GP) and CYP3A metabolism. Co-administration of Darunavir with Ritonavir boosts the oral bioavailability of darunavir from 37 to 82 % and inhibits the enzymatic degradation as well as the activity of P-GP. However, ritonavir belongs to BCS class II drug. FDC nanosuspension of these drugs is beneficial in improving bioavailability. Nanosuspension was prepared by using high-speed homogenization (HSH) followed by probe sonication. Computation simulation was done to study the mechanism of nanoparticle formation. The particle size, polydispersity index and zeta potential of the optimized formulation were found to be 389.45 ± 4.59 nm, 0.431 ± 0.009 and -26.825 ± 0.17 mV, respectively. The solid-state characterization studies demonstrated that both the drugs remain in the amorphous form, though there was a lack of evidence demonstrating the intermolecular interactions. The computational modeling tools were utilized to understand the mechanism of the nanosized particle formation, drug ionization, interaction energy, and precipitation mechanism of the drug, which correlated well with the experimental properties. The preclinical pharmacokinetic study indicated a significant improvement in the oral bioavailability of DRV/RTV nanosuspension compared to the pure drug combination. Thus, the studies demonstrated that the developed FDC nanosuspension could be a useful alternative dosage form for treating human immunodeficiency virus (HIV) infected patients.

Title: Determinants of Antimicrobial Stewardship Program: Perspective from a Multinational Cross-Sectional Survey.

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Abstract:

Introduction:

Although factors affecting antimicrobial prescribing, by prescribers, have earlier been reported previously, consensus from other stakeholders remains vital for implementing an antimicrobial stewardship program (ASP).

Objectives:

To estimate consensus on defined ASP determinants by employing an e-survey, engaging professionals associated with antimicrobials, ranging from prescribers to researchers.

Methods:

Responses on a 5-point Likert scale were captured (during 2016 through 2017) for 27 questions. Mutual agreement/ disagreement between responders when sub-categorized under multiple domains (attributes like country category, in addition to qualification, experience along with department of respondents) was calculated and compared in terms of median scores.

Results:

A total of 121 experts participated, of whom 96 completed this e-survey. There was agreement on 16 questions, neutral scores for 6, and disagreement on 3. Respondents strongly agreed only on 2 questions.

There was consensus on 15 questions, 12 questions lacked consensus ($p<0.05$) in at least one epidemiological category.

Respondents opined that body weight is not the only factor that determines the dosing of antimicrobials. Institutional guidelines, opinion of colleagues and lessons from continuing medical education programmes were reported to influence prescription of antimicrobials. Respondents disagreed that pharmaceutical companies influence the prescription of antimicrobials.
There was lack of consensus on antimicrobials used to cure or treat symptoms, prescribing older narrow spectrum antimicrobials, and association between antimicrobial use and development of resistance. Respondents from OECD and non-OECD countries differed on the quantum of influence of antimicrobial prescription upon patient's insurance status, and prescription behaviour of senior/ junior physicians.

Conclusions: Among the 96 who responded to questions on various antimicrobial stewardship determinants, there was consensus on 15 items and disagreement on 12 questions. Responses to the e-survey helped identify factors that influence anti-microbial resistance and prescribing behaviour. Results also provide a perspective on how geographical and professional diversity of respondent's influence consensus/disagreement on antimicrobial prescribing styles.

Key words: Antimicrobial prescribing, consensus, stewardship, e-program, determinant, prescribers, non-prescribers, country, qualification**.**

Adaptive resistance in Pseudomonas aeruginosa; Reflecting factor for antibiotic treatment failure?

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Introduction: *Pseudomonas aeruginosa* causes severe life-threatening infections and are difficult to treat. The lack of *in vivo* response to susceptible antibiotic in *P. aeruginosa* is due to adaptive resistance, which prevents the entry of antibiotic into cytosol. Among all groups of antibiotics, Aminoglycosides shows superior response and used as parental antibiotic for treatment.

Objective: The study aims to determining the kinetics of adaptive resistance development and gene expression changes in *P. aeruginosa* post exposed to Amikacin, Gentamycin and Tobramycin. This will emphasize the *in vivo* response of respective antibiotics.

Methods: *In vitro* antibiotic exposure to *Pseudomonas aeruginosa* was performed and the growth pattern plotted against graph, represents the kinetics of adaptive resistance built up to respective antibiotics. The gene expression profile of *P. aeruginosa* PA14 to post exposed antibiotic was taken from Gene Expression Omnibus (GEO), NCBI. The gene expressions of 4 samples was analysed by case - control study.

Results: Tobramycin exposed *P. aeruginosa* failed to develop adaptive resistance in 0.5ug/ml, 1ug/ml and 1.5ug/ml of its MIC. This depicts the superior *in vitro* response of Tobramycin. Also, the Tobramycin treated *P. aeruginosa* microarray analysis result shows log Fc -2.21809 and P-value 0.524 of PA2577 suggesting low expression of gene coding for PA2577, a major homolog of Type 2 Secretory Protein.

Discussion: The study suggests, use of Tobramycin as parental antibiotic with its synergic combination, would combat *P. aeruginosa* with increased *in vivo* response to antimicrobial therapy. The downregulation of PA2577 protein would result in reduced functioning of Type 2 Regulation System in *P. aeruginosa.*

Clinical and Epidemiological profile of patients confirmed with Kyasanur Forest disease

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Introduction:
Kyasanur Forest Disease (KFD) is a zoonotic disease which has traditionally been endemic to five districts of Karnataka. KFD has a shown case fatality rate of 2-10 percent.

Objectives:
To study the clinical and epidemiological profile of patients confirmed with Kyasanur Forest disease.

Methodology:
A cross sectional study was done by assessing the details regarding socio demographic, clinical characteristics, vaccination details, comorbidities, environmental exposure, outcome of treatment of all confirmed cases with KFD admitted to a tertiary care hospital of coastal Karnataka between October 01, 2018 to June 30, 2019.

Results:
Out of the total 151 cases, 58.9% are males. Fever (100%) was the most common symptom among the study subjects, followed by chills (74.2%), myalgia (62.9%), headache (47%). Hepatitis (35.8%) and hypotension (4.6%) were the two main complications observed. Six percent of the patients reported to have suffered from KFD in the past. A case fatality rate of 5.96% was observed among the study population. More than half of the patients (56.7%) has received vaccination in the past. Majority of the study participants reported to have had monkey deaths in the area they lived. Less than quarter (21.8%) of the participants reported to have a tick bite.

Conclusion:
The two third of the study participants were males. More than half of the study participants had received at least one dose of KFD vaccine. Almost all the cases reported to have an exposure to monkey death or tick bite. There is need to educate individuals to use appropriate personal protective measures to reduce the exposure in high risk areas. Findings of the study also call for effective implementation of vaccination strategy for preventing KFD in the affected areas.

Carbapenem resistance in various gram negative bacteria: A wide spread global threat in infection control

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Introduction

Carbapenem resistance remained a major on-going public health problem globally during the last decade because of significantly compromising the efficacy of carbapenem agents, currently an important focus of infection control. It occurs mainly among Gram-negative pathogens such as *Pseudomonas aeruginosa*, *Acinetobacter* baumannii, Enterobacteriacae family.

Objective

To evaluate total carbapenem resistance amongst gram negative bacteria using phenotypic methods.

Methods

This study was held from August 2018 to January 2019 on clinical samples received from the patient admitted at the Tertiary Care Hospital during this period. Total of 6000 Isolates isolated from the clinical samples were looked for antibiotic sensitivity testing according to CLSI guideline – 2018 as a routine procedure. From which CR gram negative bacteria were separately evaluated with mCIM & eCIM for carbapenamase activity of the strain.

Result

In this study , total 60 isolates were having carbapenem resistance with meropenem (10µg). When tested further with mCIM method 34 (57%) isolates were producing carabapenamase, while other 26 (43%) isolates remained negative for the same. On the other hand, Out of 34 isolates which were mCIM positive, 28 isolates were from enetrobacteriacae family , tested further for eCIM . Out of 28 isolates 25 (89%) were Metallo β-lactamase producer, while 3 (11%) were serine carbapenamase producer.

Conclusion

The Carbapenems were considered as a resort drug to Multidrug-resistant Gram-negative bacteria. Despite efforts to control carbapenem resistance, a definite solution to the problem is still far from achievement. It is therefore mandatory to maintain the clinical efficacy of carbapenems by early detection of various enzymes There is the need for active surveillance of carbapenemase-encoding genes as major step to controlling the menance.

Adherence to Isoniazid Preventive Therapy and its Determinants among People with HIV

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Kasturba medical college, Mangalore, India

Aims/Objectives:

To determine adherence levels to Isoniazid preventive therapy (IPT) and the factors influencing it in people with HIV

Materials & Methods:

An institution based descriptive longitudinal study was conducted from September 2017 to June 2019 to assess the level of adherence to IPT and its determinants among HIV patients. A total of 320 participants were included from the associated teaching hospitals. Adherence was defined as completion of the 6-month course of treatment with 80% of pills taken and was measured by self-report of intake of tablets. Proforma and a semi-structured questionnaire was used to collect all the relevant information. Questionnaire covered aspects on TB treatment and care, HIV related stigma, medical provider relations, social support and socioeconomic status. Data was analyzed using SPSS version 11.5.

Results/Discussion:

Mean adherence index was 91.7%. Of 320 patients, 264 (82.5%) were adherent. Isoniazid related side effects were reported by 55 (17.18%), gastritis and vomiting being the commonest; 29 (9.06%) of whom were withdrawn. Prior history of TB was noted in 87 (27.18%). Patients cited counselling and physician's advice on IPT intake as one of the main reasons for good adherence. Forgetfulness (13.75%, n=44) was the most common reason for missed pills. HIV related stigma was high but did not have significant impact on adherence.

Conclusion:

The level of adherence to IPT was high. Assessing adherence to IPT and its predictors is essential for its successful outcome in effectively mitigating the threat of TB coinfection. Counseling and patient education should be more strengthened through the entirety of regimen for consistent results. Comprehensive care and support, sustainable drug supply, evaluation of side effects and frequent reminders to take tablets is necessitated.

Mitochondrial proteomics provides evidenceof mitochondrial changes in rabies infected human brains

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Introduction

Rabies is fatal viral encephalitis caused by Rabies Lyssavirus. The basic mechanisms involved in the pathogenesis of the disease are still unknown. This study aimed to elucidate the molecular mechanisms of rabies pathogenesis by proteomic analysis of mitochondrial extracts from post-mortem human brain samples obtained from rabies infected cases.

Methods

Post-mortem brain tissues from laboratory confirmed cases of human rabies, and age-matched non-infected controlswere sourced from the Human Brain Tissue Repository, Department of Neuropathology, NIMHANS. Total mitochondrial fraction was isolated from control and rabies infected brain tissues (n=10 each) of two anatomical regions of human brain (frontal cortex and cerebellum). Protein samples were reduced, cysteine-blocked, anddigested with trypsin. iTRAQlabelling of peptides was carried out according to standard protocol, followed by LCMS/MS analysis on LTQ-Orbitrap Velos mass spectrometer. Validation of the mass spectrometry data was carried out by mitochondrial enzyme assays. The differentially expressed proteins of ≥1.3 foldfor over expression and ≤0.6 foldfor down regulation were examined.

Results

Proteomic analysis identified 3583 proteins in which 678 were mitochondrial proteins. Among the mitochondrial proteins, 127 and 47 proteins each were upregulated and only 7 and 2 proteins each were down regulated in frontal cortex and cerebellum. String analysis revealed that the upregulated proteins were associated with the mitochondrial respiratory complexes I, III, IV and ATP synthase. Data analysis also revealed 65 and 62 upregulated and 82 and 5 down regulated synaptic proteins in frontal cortex and cerebellum respectively. These proteins were mainly involved in Ca channel homeostasis and synaptic transport. Validation experiments by enzyme assays revealed elevated complex I and IV activities in the tissue samples examined.

Conclusion

This is the first proteomic study on human brain mitochondria isolated from rabies infected human brain tissues, which suggests mitochondrial respiratory chain dysfunction, impaired axonal transport and synaptic activity in rabies infection.

Clinical profile and outcomes of hospitalised patients with pandemic 2009 H1N1 infection.

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Introduction: H1N1 started in India in the month of August 2009 and the index cases were reported from Pune. In recent years, India has reported a rising incidence of swine flu (influenza A H1N1). We are seeing a rise in the number of swine flu cases among young adults and in patients with no co-morbid conditions in clinical practice.Yet, only a handful of studies have been conducted with regards to the epidemiology of swine flu in the Indian scenario.

Aim/Objective: This study aims to study the clinical profile of hospitalised H1N1 positive patients and determine the outcome of these patients.

Materials and Methods: An institution based observational, descriptive study was conducted in hospitals affiliated with Kasturba Medical College, Mangalore. The sample size consisted of 116 patients admitted with confirmed H1N1 detected by RT-PCR between Jan 2017 to Dec 2018. Demographics, clinical presentation, treatment details and patient outcomes were assessed. Data was analysed using SPSS version 11.5 software.

Results: Out of 116 cases majority were female (53.44%). Most commonly affected age group was 30 to 60 years (47.41%). About 49.13% cases reported no co morbid illness. Fever was the major presenting symptom (88.79%) followed by cough (80.17) and shortness of breath (22.41%). 41(35.34%) patients required admission into critical care unit, 32.75% had bilateral pneumonia and among these patients 10.34% required invasive ventilation. 4(3.44%) succumbed to death.

Conclusion: It is important to attain a better understanding of the constantly changing clinical presentation of swine flu. Enhanced surveillance methods and better preventative strategies may help reduce morbidity and mortality associated with swine flu in the Indian clinical setting.

Keywords: Swine flu, Influenza A virus, H1N1 subtype, Swine flu clinical profile, Mangalore

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Abstract for 3rd Manipal International Infectious Diseases Conference

Name of the presenter: Mr. Manish Katiyar

Department: Microbiology, JIPMER, Puducherry-605006

Designation: Ph.D. Scholar

Abstract

Title: Development of new multiplex PCR assay for detection of *Cryptosporidium*, *Cystoisospora* and *Cyclospora* parasites in clinical isolates.

Authors: Manish Katiyar, Rakesh Singh, Subhash Chandra Parija, Dept. of Microbiology, JIPMER

Introduction: Waterborne protozoa, such as *Cryptosporidium, Cystoisospora*, and *Cyclospora*, have become a challenge to human health worldwide. Rapid, simple, and economical detection methods for these major waterborne protozoa in clinical samples are necessary to control infection and improve public health. In the present study, we developed a multiplex PCR test that is able to detect all these 3 major waterborne protozoa at the same time. **Objective:** To detect as a feasible technique in the routine diagnosis of *Cryptosporidium*, *Cystoisospora* and *Cyclospora* in human stool sample.

Material & Methods: A total of 452 stool samples were collected from immunocompromised patients in various Departments of JIPMER. Modified Ziehl-Neelsen staining was performed, DNA was extracted by QIAGEN stool extraction kit as per manufactures instruction, cryptosporidium spp. (n=31), Cystoisospora (n=24) and Cyclospora (n=3) clinical isolates used for validation of multiplex PCR.

Results: The specificity of the multiplex PCR was evaluated by using a range of controls: purified and sequence-confirmed genomic DNA from *C. hominis, C. parvum, C. parvum, C. meleagridis, C. felis, Cystoisospora* and *Cyclospora*. No cross reactivity was observed.

Discussion and Conclusion: There are various detection methods currently available for diagnosis of *Cryptosporidium*,*Cyclospora*, and *Cyclospora* . Current diagnostic test have their limitations like cost, performance, turnaround time, differention of clinical significance. The major issue with diagnosis is lack of indigenous diagnostic materials for routine use in the country. For which novel diagnostic targets evaluated for identification of 3 major coccidian parasites mPCR in this study. Simple, rapid, and cost-effective multiplex PCR method will be useful for diagnosis, outbreaks or sporadic cases in clinical sample.

Hydrocortisone, Ascorbic Acid and Thiamine in Infections

Dr.Roshni Sharma, Dr.Murugabharathy K, **Dr.Vignesh Kumar Chandiraseharan**, Dr.L.Jeyaseelan, Ms.Malavika Babu, Dr.Tina George, Dr.Turaka Vijay Prakash, Dr.Jonathan Arul Jeevan, Mr.Bijesh Yadav, Dr.Thambu David Sudarsanam

Christian Medical College, Vellore

Introduction:

Sepsis is a major cause of mortality in low income countries. A previous study had shown a significant mortality benefit with Hydrocortisone, Ascorbic acid and Thiamine (HAT) in patients with severe sepsis.

Objective:

The aim of this study was to compare the benefits and adverse hospital outcomes of those who received HAT therapy with those who did not in patients with infections.

Methods:

This is a retrospective cohort study done in a semi urban, tertiary care center in South India. A change in department policy suggested that patients with suspected infections admitted in our unit receive early HAT therapy for sepsis. Those who received HAT therapy were called exposed , while those with infection who did not receive HAT were the non-exposed group in our cohort. The primary outcome was defined as poor hospital outcome. This was either in-hospital death, discharge against medical advice (DAMA) and discharge at request. Multivariate analysis was done to find independent predictors of poor hospital outcomes.

Results:

We had 199 exposed and 199 non-exposed patients with infection during the study period. Poor hospital outcome was seen in 71 (35·7%) in the HAT therapy group and 48 (24·1%) in the control group. In multivariable analysis, APACHE II score categories (10-19 and 20-29), (odds ratio 2·3(1·2-4·6), 3·0 (1·3-7·1), higher Charlson comorbidity score($\geq$ 5) (odds ratio 2·5 (1·3-4·7) and ICU admission (odds ratio 3·5 (1·9-6·3) predicted poor outcomes, whereas HAT therapy had no effect, adjusted Odds ratio 1·2 (95% CI 0·7, 2·1).

Conclusion:

While Hydrocortisone, Ascorbic acid and Thiamine (HAT) therapy in addition to routine care does not decrease poor hospital outcomes higher APACHE II scores, more co-morbidities and need for ICU care do. These findings are at odds with other cohorts. Future randomised controlled trials are needed to confirm or refute the findings.

Abstract

Title: Infection Control Practices by the Health Care Workers (HCWs) and Facilities in the Labor Theatre (LT) of a Selected Tertiary Referral Hospital, Karnataka.

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Introduction:

Hospital Acquired Infections are acquired by over 1.4 million people across the globe, World Health Organization (WHO, 2015).

Objective:

Observe the infection control practices during the procedures by Health Care Workers (HCWs) & facilities available in the LT.

Methods:

Survey design was adopted in the study. The study was conducted in the Labor theatre of a selected private tertiary referral hospital in 2017. The infection control practices were assessed using observation checklist drafted by the researchers based on the hospital infection control manual and WHO guidelines and the facilities were observed based on standardized tools (Infection Control Assessment Tool Observational Checklists by Strengthening Pharmaceutical Systems (ICAT by SPS) and Assessment tool for the quality of hospital care for mothers and newborn babies by World Health Organization (WHO)). The number of procedures included in the study were, invasive: Per Vaginal (PV) examination (117), labor process (72), amniotomy (64), immediate newborn care (72), injection administration (vitamin K) (110) and non – invasive: Non Stress Test (NST) (131), Assisting in PV (117), disinfection following amniotomy (64), disinfection after newborn care (72), disinfection of the labor theatre floor (143), disinfection of high touch areas (120). The HCWs performed these procedures were Doctors, Post graduates, Nurses, Class-four workers and Interns.

Results:

Descriptive statistics was used to analyse the results. All the steps to be followed during the procedures were observed. The hand washing steps were practiced by the HCWs during the labor process was 76.4% which was considerably high when the practices were observed during disinfection of the LT floor (25.2%). The other aspect observed was waste management, it was observed that during the Per vaginal examination the gloves were discarded in appropriate bin 88% of times and waste produced after administrating IM injection to the newborn was discarded appropriately 100% of times. The facilities observed were satisfactory and in good condition according to the ICAT tool and WHO tool for quality of hospital care for mothers and new-borns.

Conclusion:

The infection control practices and the facilities should be adhered in accordance with the hospital policies and protocols for the better quality care.

Prokaryotic expression, *in vitro* biological analysis and *in silico* structural confirmation of guinea pig IL-4

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Interleukin-4 is a signature cytokine produced by T-helper type 2 (Th2) cells which plays a major role in shaping immune responses. The role of IL-4 protein has not been studied in the guinea pig, a highly relevant animal model for tuberculosis (TB) and other infectious diseases. In the present study, the guinea pig IL-4 gene was cloned and expressed using a prokaryotic expression vector (pET30) which resulted in the generation of a recombinant guinea pig (rgp) protein of 19kDa which was confirmed by mass spectrometry analysis. Polyclonal anti-IL4 antiserum was raised in rabbits using the recombinant protein generated in this study. The rabbit antiserum reacted strongly and specifically with the rgpIL-4 protein. The rgpIL-4 was able to suppress LPS-induced nitric oxide (NO) production in RAW264.7 cells which clearly demonstrated its biological activity. The homology modeling result showed that the structure of guinea pig IL-4 resembles that of human IL-4. Interestingly, we have identified splice variants for the gene which is also playing a role in vaccine induced resistance to infection. Taken together our study indicates that the newly expressed, biologically active rgpIL-4 protein could provide a deeper understanding of the role it plays in the immune responses of the guinea pig to TB and other diseases.

Keywords: Th2; IL-4; Guinea pig; Protein.

ABSTRACT

TITLE: Case study of Mycobacterium avium intracellulare complex infection in immunocompetent individual

Author(s): **DR. PRAKASH MAHADEVAPPA**

Co-Authors : Dr Vishak Acharya , Dr Srikala Baliga , Leesha sharon

INTRODUCTION :

Nontuberculous mycobacteria species are mycobacterial species other than those belonging to the Mycobacterium tuberculosis complex (eg,Mycobacterium bovis, Mycobacterium africanum, Mycobacterium microti and Mycobacterium leprae*).* Mycobacterium avium presents as pulmonary and disseminated forms.

OBJECTIVE:

To report a case of Mycobacterium avium pulmonary disease in immunocompetent individual.

METHODS:

A 70 year old male presented in march 2018 with complaints of Cough with whitish sputum since 1 year with h/o dyspnoea on exertion grade 3 MMRC. No significant past history. He was previously treated on OPD basis for Moraxella with Augmentin.

Sputum for AFB was negative.

Bronchoscopy guided lavage (BAL) was done.

BAL for AFB was positive for AFB stain.

Gene Xpert was negative.

BAL for culture & sensitivity revealed klebsiella pneumonia.

BAL negative for malignant cells.

He was started on AKT since BAL was AFB positive and antibiotics for Klebsiella was advised.

He presented with similar complaints on june 3rd2019-AKT was started again.

Patient complained of Cough fever,easy fatiguability, loss of appetite on June 22nd 2019. Sputum for AFB was positive but Gene Xpert was negative. Hence non-tubercular mycobacteria was suspected.

RESULTS:

Sputum smears were tested by Flourescent Insitu Hybridization (Genus/Mycobacterium /MTBC kit) showed presence of 1+ non tuberculous mycobacteria.

Culture was done on Lowenstein Jensen medium –showed buff coloured small colonies after 2 and a half weeks with no pigmentation.

Biochemical reactions: Tween hydrolysis test was negative, Hence could be Mycobacterium avium intracellulare complex, Mycobacterium haemophilum or mycobacterium xenopi.

Heat stable catalase test was positive and hence mycobacterium haemophilum was ruled out.

Aryl sulfatase test was done which showed negative result and further ruled out. Mycobacterium xenopi and hence the isolate was confirmed to be Mycobacterium avium intracellular complex.

Conclusion:

Whenever AFB is positive and Gene Xpert is negative, atypical mycobacteria should be considered.

Colistin Resistance among Uropathogens

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Introduction: Urinary tract infections (UTI) are the most common type of healthcare-associated infection, accounting for more than 30% of infections reported by acute care hospitals. A plenty of research is carried out on testing the sensitivity of antimicrobial agents on uropathogens whereas there is paucity of data for demonstrating the effect of colistin by broth microdilution method. Here we used MICROLATEST® MIC COLISTIN kit which is based on broth microdilution method to evaluate the colistin susceptibility towards MDR uropathogens.

Objective of the study:

To determine the MIC (minimum inhibitory concentration) of colistin in MDR strains.

Methodology:

The MIC of colistin was determined by using MIKROLATEST® MIC Colistin kit (Erba Lachema). Isolates resistant to 3 or more group of antibiotics were considered to be MDR. Test was done as per kit literature. Results were interpreted by visual reading of plate. MIC test was done for 20 MDR strains, that comprises fourteen *E. coli* and six *K. pneumoniae* strains. The reference strain *E. coli ATCC 25922* was also included in the study as a control.

Results:

Nineteen out of 20 strains were sensitive to colistin showing MIC range 0.25-0.5 ((mg/l). One strain of *K. pneumoniae* was found to be resistant to colistin with MIC 4 (mg/l) but was shown sensitive by VITEK-2 automated system.

Conclusion:

Broth microdilution is considered to be gold standard method of colistin susceptibility as compared to VITEK-2 system.

Its need of the hour to develop better susceptibility test to avoid therapeutic failures.

Strangulated Umbilical Hernia Leading to Intra-abdominal Sepsis and Septic Shock: A Case Report

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Introduction: Strangulated umbilical hernia is one of the common surgical emergencies. Abdominal wall defect is commonly seen among the patients with chronic liver disease. Intra-abdominal sepsis is defined as inflammation of the peritoneum caused by pathogenic micro-organisms and their products .I present a case of 53 year old gentlemen known case of chronic liver disease and umbilical hernia presented to intensive care unit of our institution with strangulated umbilical hernia which lead to intra-abdominal sepsis and septic shock which was timely managed.

Case-report: 53 years old gentleman known case of chronic liver disease and umbilical hernia since 7 years presented with complaints of high grade fever, vomiting and altered sensorium since 3-4 days. On examination he was having tachycardia of 120/min, BP of 80/50mm Hg, Spo2 88% on room air, GCS E3V3M5. Per abdomen examination suggested irreducible umbilical swelling. According to surviving sepsis 1 hour bundle, IV crystalloids resuscitation started, empirical antibiotics started. In view of persistent hypotension and low GCS, patient was intubated and started on mechanical ventilation and vasopressors. Plain CT abdomen suggested incarcerated umbilical hernia with 2.9cm defect. Bedside mini-laparotomy was done with resection of gangrenous segment of small bowel, double barrel stoma creation and abdominal drain placement. Antibiotics were hiked up in view of persistent shock. Culture from wound was growing E.Coli. After adequate surgical resection, antibiotics and supportive care, gradually vasopressors were stopped followed by extubation. Stoma was functioning well so started on Ryles tube feeding and later on started oral diet. Patient was discharged and planned for definitive surgery with reversal of stoma 2 weeks later.

Conclusion: Management of a patient with intra-abdominal sepsis with septic shock requires a multi-disciplinary team approach: surgeon, intensivist, microbiologist, pharmacologist, radiologist and a dedicated team of nurses to maximize the chances of success.

Lemierre Disease- Does It Ring a Bell!

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INTRODUCTION

Lemierre disease is a rare and potentially life-threatening complication of bacterial infections. It involves thrombosis of the internal jugular vein (IJV) or its tributaries with subsequent distant septic emboli.

OBJECTIVE

We present two cases of Lemierre disease. The first patient presented with meningitis. Second patient presented with multiple organ dysfunction syndrome secondary to prevertebral abscess.

CASE REPORT 1

21-year-old lady had a fall followed by CSF rhinorrhea. She developed meningitis and tender swelling on the right side of neck 10 days after the incident. Lumbar puncture and blood culture grew *Streptococcus pneumoniae*. Ultrasound neck revealed thrombus in right IJV. Patient was treated with ceftriaxone and showed dramatic improvement.

CASE REPORT 2

53-year-old lady presented with fever, sore throat and diffuse swelling of neck. She was diagnosed to have prevertebral abscess from clivus to C3 with septic shock, acute kidney injury and ventilator associated pneumonia. Ultrasound revealed thrombosis of IJV. She was treated with Meropenem and clindamycin for 10 days and was continued on piperacillin-tazobactam for a duration of 28 days.

DISCUSSION

Lemierre disease usually presents with sore throat and swelling in the neck. Diagnosis should be considered in patients with head and neck infections. Though most common organism is *Fusobacterium necrophorum*, other organisms such as *Staphylococcus aureus*, *Streptococcus pneumoniae*, *Klebsiella pneumoniae*, *Bacteroides* and *Epstein barr virus* are also implicated. Complications may arise due to metastasis of the thrombus into different organs. Treatment usually consists of beta lactam antibiotic for 4-6 weeks. If antibiotic

therapy fails surgical incision and removal of abscess may be done. Role of anticoagulants is controversial.

Enteric Fever and Macrophage Activation Syndrome- A Case Report

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Introduction

Macrophage activation syndrome (MAS) is a uncommon entity resulting from increased activation of the immune system, and can be secondary to an infectious cause. However, its association with enteric fever is rare. We report a case which presented to us in April 2019.

Case summary

A 20 year gentleman from Shimoga, student, presented with 5 days history of high-grade fever, vomiting, diarrhoea, and abdominal pain. Patient had tachycardia, tachypnoea, subconjunctival haemorrhage, a blanching rash over the trunk, and hepato-splenomegaly. Initial investigations showed severe thrombocytopenia (9,000/µL), AKI (Creatinine-1.27 mg/dl), mild pancreatitis, rhabdomyolysis and hyperbilirubinaemia (T.bilirubin-4.44 mg/dl). Patient was started on IV Ceftriaxone and Azithromycin.

Pancytopenia persisted; additional tests revealed elevated Serum LDH (1802 IU/L), Sr.Triglycerides (409 mg/dl) and Sr.Ferritin (>2000 ng/ml), suggestive of Macrophage activation syndrome. Patient developed hypoxia and respiratory distress. CXR showed pulmonary oedema, secondary to myocarditis, and the patient was intubated and kept on ventilatory support. He subsequently improved and was extuabted. Tropical fever evaluation revealed positive titres for Salmonella typhi infection (S.typhi O-1:160, H-1:320), and blood culture did not isolate any organism.

Patient developed malena with haemoglobin drop, and was stabilised with transfusions. Colonoscopy was done which showed multiple terminal ileal and caecal ulcers, histopathological examination showed active ileitis. Patient’s haemoglobin stabilised, his platelet count improved, and he made a complete recovery after receiving IV Ceftriaxone for 2 weeks.

Conclusion

In the setting of infection and persistent pancytopenia, a high index of MAS should be kept. Early recognition and treatment of MAS can be life-saving.

Title:

Phage Lysins as Non-traditional Antibiotics for Treating Drug-resistant Bacterial Infections

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Abstract:

Traditional antibiotics are naturally occurring small-molecule chemical entities with a molecular weight of < 1000 Daltons that targets intracellular bacterial pathways causing either a bacteriostatic or bactericidal effect. Non-Traditional Antibiotics (NTA) are large-molecule biological entities such as phages, phage lysins and monoclonal antibodies that kill bacteria directly or indirectly. Mechanisms of action of NTAs are completely different from that of the traditional antibiotics. Since the time of therapeutic use of penicillin and other traditional antibiotics, bacteria that have evolved to refract these agents were found both in the lab and clinics. Emergence of pathogenic bacteria that are resistant to all classes of traditional antibiotics combined with the very limited number of novel antibiotics that are in the development pipeline exacerbates the situation. It is thus time to revisit the alternative, Non-Traditional Antibiotic discovery that can augment our search for newer and potent antibacterials. Lysins derived from phages are enzymes that rapidly kill bacteria by degrading peptidoglycan, an important component for its cell wall. GangaGen is developing “ectolysins” against both Gram-positive and Gram-negative pathogens listed in the ESKAPE category of pathogens. The presentation will cover details of our lead molecule P128, an engineered chimeric phage tail-derived ectolysin that rapidly kills Staphylococcus sp. by specifically degrading the peptidoglycan layer of the cell wall. P128 was highly active against all *S. aureus* tested, including MDR strains. P128 eradicated *S. aureus* biofilms and synergized with standard-of-care antibiotics. Utility of P128 for therapy was demonstrated in relevant *S. aureus* infection animal models and safety studies in rodents. The unique mode of action of P128 and its rapid bactericidal activity make it distinctly different from traditional antibiotics. Based on the unique properties of P128, the molecule is in early clinical development for treating *S. aureus* bacteremia.

Hypocalcemia in KFD: An Innocent By-stander? Or a Useful Biomarker?

New In-roads into Understanding its Severity

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1-Junior Resident, 2- Professor and Unit Chief – Department of General Medicine

Introduction:

Kyasanur Forest Disease is an arthropod-borne viral fever, endemic in parts of Karnataka, Kerala and Tamil Nadu, caused by a member of the Flaviviridae family. It has a wide spectrum of presentation, from a self-limiting undifferentiated fever to a severe systemic infection with multi-organ dysfunction. KFD being a relatively lesser-studied viral illness, the various electrolyte disturbances and spectrum of organ involvement are still coming to light.

Methodology:

The following is an observation in all patients with KFD, admitted in 2 medical units in Kasturba Hospitals, Manipal, in the months of March and April 2019, for whom serum calcium reports were available. Their basic clinical and laboratorial parameters were analysed.

Results:

Ten patients presented in the 1st febrile phase. Seven patients were male. The average age was 42 years. All patients in the first febrile phase had hypocalcemia (Median corrected calcium at admission was 7.4mg/dL). Also, patients who had hypotension or who required ICU care had lower levels of calcium (median 5.8mg/dL). Despite such marked hypocalcemia, patients did not have any symptoms of the same. Thrombocytopenia with leukopenia, transaminitis (with AST being higher), and isolated aPTT prolongation was present in most of the patients. Only 1 patient (who was also in bacteremic sepsis), had elevated creatinine. Sodium (130–141mEq/L range) and Potassium (3.4-5.4mEq/L range) were predominantly in normal limits / mildly deranged. One patient expired, while 1 required a prolonged ICU stay (10 days).

Conclusion:

There are anecdotal reports of presence of hypocalcemia in severe Dengue, Malaria and Leptospirosis. The association of Hypocalcemia in KFD patients is a previously unreported finding. The cause of the same, which might be due to rhabdomyolysis, renal dysfunction, pancreatitis or other unknown mechanisms, is yet to be identified. It is be explored further through systematic studies.

A Case of Recurrent Meliodosis with shifting lung Shadow

Introduction : Meliodosis is an Anthropozoonosis caused by Burkholderia Pseudomallei endemic in Southeast Asia and Northern Australia having varied clinical presentation including Asymptomatic infection , Pneumonia , Multiple abscesses and Disseminated Disease - Pneumonia being the commonest . Risk factors for Meliodosis Pneumonia are DM , COPD , CCF and Smoking. Melioidosis pneumonia can present as acute, fulminant sepsis with multifocal lung infiltrates or chronic infection mimicing tuberculosis . It can be the primary presenting feature or secondary to illness distant site or bacteremia without an initial evident focus.We report a case of Recurrent Meliodosis with Shifting Lung Shadow.

Clinical Course : A78 Y female with T2 DM , HTN and Bronchial Asthma presented with c/o fever and cough with expectoration since 1 month. Examination revealed fine left basal crepitations .CXR showed left lower zone haziness . She has Leucocytosis and elevated CRP. She started on Piperacillin-Tazobactam and Azithromycin. Blood culture was sterile ,Sputum culture and AFB was negative.Pt kept having fever spikes with persistent shadow on CXR. Bronchial washing AFB , Gene Xpert and Culture were negative.

In view of Previous history of Culture confirmed Meliodosis , Recurrence was suspected . Meliodosis Blood PCR and Urinary Antigen was Positive.Pt was started on Ceftazidime and Cotrimoxoazole . Pt showed improvement clinically however CXR showed a new shadow in the right hilum. However as Patient was improving , same treatment was continued for 14 days (Intensive Phase) and then she was put on the continuation phase (cotrimoxazole) for 4 months .Repeat CXR after One month showed resolution of the Hilar shadow.

Conclusion : Meliodosis is a common cause of Pneumonia and Septicemia in endemic regions and should always be considered as a Differential especially in patients with formentioned risk factors .

A 71 years old male a manual labourer with history of COPD on bronchodilators presented with complaints of productive cough and fever since 1 week. He has a history of recurrent infectious exacerbations of COPD presenting as bilateral lower lobe bronchopneumonia caused by *Klebsiella pneumoniae*, which was treated with appropriate antibiotics based on culture sensitivity pattern. Inspite of antibiotic treatment patient continued to have purulent sputum and dyspnoea. Not on long term steroids. No comorbidities and a non smoker. No history of underlying immunosuppressive condition.On examination he was conscious, oriented,vitals stable, bilateral crepitations were heard in all lung fields. Lab data showed hemoglobin of 9.1 gm/dL, erythrocyte sedimentation rate of 56 mm/hour, total counts of 9,200 cells/cumm, neutrophils 87.7% and lymphocytes 4.0%. Peripheral smear reported mild microcytic hypochromic anemia with neutrophilia with toxic granules and thrombocytosis suggestive of bacterial infection.Testing for human immunodeficiency virus was negative. On chest radiography bilateral lung fields showed heterogeneously increased densities throughout, increased bronchovascular pattern, large irregular opacity in the right lower lobe and blunting of the right cardiophrenic and costophrenic angles.Patient was empirically started on antibiotics - I.V. cefoperazone + sulbactum and antifungals - oral fluconazole. Sputum culture for acid-fast bacilli and fungal growth was inconclusive. On gram staining, long filamentous gram positive branching bacilli morphologically resembling *Nocardia* species were seen. Confirmed by Modified Kinyoun staining. Dry yellow colored colonies were seen on Lowenstein-Jensen medium. Biochemical reactions showed that citrate and mannitol fermentation test was negative, thus, confirming that organism growing was *Nocardia asteroides*. The patient was then started on I.V amikacin, I.V cefotaxime + sulbactum and oral trimethoprim + sulfamethoxazole and oral Fluconazole. One week after the treatment patient had clinical improvement of symptoms and sputum was mucoid.

H1N1 infection and rare cardiac manifestations

Authors : Shipra Rai, T. Pragadeesh, Cynthia Amrutha, Kavitha Saravu Department of Medicine, Kasturba Medical College, Manipal, MAHE, India

Introduction

H1N1 is a common respiratory infection worldwide ranging in severity from asymptomatic infection to fatal disease. Illness tends to be most severe in the elderly, in infants and young children, and in immunocompromised hosts. Cardiovascular involvement in acute influenza infection can occur through direct effects of the virus on the myocardium or through exacerbation of existing cardiovascular disease.

Methods

Here we present two cases of H1N1 infection who presented with cardiovascular manifestations severe enough to warrant pacemaker insertion.

Case report

Case 1 : A 64 year old lady presented with fever, cough and breathlessness since 4 days. A throat swab for H1N1 was sent and empiric treatment with oseltamivir was started. Throat swab report tested positive for H1N1. During the course of the disease she developed bradycardia and ECG showed Complete heart block. The patient improved following single chamber pacemaker placement.

Case 2 : A 64 year old lady with history of hypertension presented with fever, cough and breathlessness since 3 days. On examination she was tachypneic. She was empirically started on oseltamivir. Her throat swab was positive for H1N1. In view of her ECG showing irregular heart rate and prolonged pauses Holter monitoring was done which showed Sick sinus syndrome and she was adviced pacemaker insertion. Due to financial constraints patients' family refused further treatment and the patient was subsequently discharged.

Discussion

A spectrum of cardiovascular complications have been reported in association with influenza infection. In our patients, since their presenting ECG s were normal, we consider the development of new conduction abnormality as the indirect effect of the influenza infection. These cases highlight the importance of intensive cardiac monitoring in patients with H1N1 infection and also the importance of yearly vaccination in patients at high risk of cardiac complications.

Mycobacterium abscessus Infection of Laparoscopic Port Wound.

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BACKGROUND:

Mycobacterium abscessus is a rapidly growing *Mycobacterium*, found in the environment, usually contaminating water. These infections, though uncommon are considered to be a cause of significant morbidity for patients recovering from laparoscopic surgeries. In this paper we aim to document one such rare case of post laparoscopic port site infection with nearly three month history of non-healing wound, to highlight an atypical cause of post-surgical infection, which often eludes diagnosis.

CASE SUMMARY :

A 22 year old woman with no known comorbidities, underwent a laparoscopic appendicectomy for acute suppurative appendicitis. She presented with abscess and sinus formation at one of the port site, two months after the procedure. The abscess was drained, E.fecalis was isolated from the pus and treatment was given according to sensitivity. But the infection continued to persist and involved other port sites. She presented with non-healing port site wounds with discharge, despite multiple courses of antibiotics. There was no identifiable organism in subsequent pus cultures but a positive AFB smear with GeneXpert not detecting MTB complex, raised suspicion of NTM infection. She was empirically treated with a combination of fluoroquinolone and a macrolide while awaiting NTM culture and speciation, which eventually grew *Mycobacterium* abscessus. Her treatment regimen was adjusted for the same and the discharge from wound began to subside.

CONCLUSION

When evaluating a non-healing surgical wound with serial negative pus cultures, NTM should be considered as a differential early on, to prevent delay in treatment which is both challenging and a long term therapy.

Keywords: NTM, post laparoscopic infection, Mycobacterium abscessus, port site infection.

Title: Bone Marrow Tuberculosis in Renal Allograft Recipient

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Institution: 1. Department of Pathology and 2. Nephrology, Kasturba Medical Collge, Manipal, Manipal Academy of Higher Education

Introduction:

The risk of TB after kidney transplantation is estimated to be 50-100 times higher than general population. A global review on TB estimated the median time for onset at 9 months post transplantation. They present with extra-pulmonary TB (51.8%) mainly due to reactivation of an old TB. However, involvement of bone marrow as initial presentation of TB is extremely rare. 'Typical' caseating granulomas are not seen in these patients. A high degree of suspicion of bone marrow infection based on clinical features and cytopenias resulting in bone marrow biopsy is the key for early diagnosis. We present a renal transplant recipient presenting with bone marrow granuloma within 3 months of transplant and immunosuppresion.

Case report:

A 30 year old male renal transplant recipient (3 months) presented with fever and dysuria. Peripheral blood leucopenia, neutropenia and mild renal dysfunction were present. MMF dosage was reduced in view of leucopenia. Blood and urine cultures were sterile. Chest Xray was normal. CMV PCR was negative. However, he continued to have fever. Cardiac evaluation and ECHO ruled out IE. HRCT thorax showed a few nodules and a right paratracheal lymph node. BAL fluid culture and TB PCR were negative. He was treated for atypical mycobacteria without clinical improvement. Hence, bone marrow examination was done which showed a non caseating epitheloid granuloma, but AFB and mycobacterial culture for were negative. ATT (HRZE) was started. After 5 days, he was better and fever subsided. Tacrolimus dosage was adjusted under close monitoring. He is under regular followup after completion for ATT regimen.

Conlcusion:

TB in a renal transplant recipient develops mainly because of the reactivation of an old, preexisting focus. Disseminated nature of TB in transplant recipients might be the result of the delay in diagnosis due to an atypical presentation or the result of excessive immune-suppression.

Tenofovir Induced Pancreatitis – A Possible ADR

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Abstract:

A 39-year-old HIV-positive man since five months (CD4 count-52/µL), started on tenofovir (300mg,OD), lamivudine (300mg,OD) and efavirenz (600mg,OD) six weeks ago. Four weeks later, patient complained of 7kg weight loss over 2 months and fever since one month. Physical examination revealed hypotension, lymphadenopathy and hepatomegaly. Cervical lymph node biopsy was positive for AFB and diagnosed with disseminated tuberculosis. Patient admitted to the hospital and started on ATT along with cotrimaxazole DS (BID), azithromycin (500mg,OD, once in two days), fluconazole (200mg, once a week), pyridoxine (100mg,OD), isoniazid (75mg), ethambutol (275mg), rifampicin (150mg), pyrazinamide (400mg) 3 tablets/day, prednisolone (100mg,OD) and thiamine (100mg,OD). At the time of admission serum creatinine was 1.2mg/dl. After three days, antiretroviral drugs were stopped due to rising serum creatinine (2.1mg/dl). On day 8, ultrasonography revealed diffuse decreased echotexture of liver, extensive abdominal, retroperitoneal and pelvic lymphadenopathy, bilateral grade I renal parenchymal changes, mild splenomegaly, mild ascites and right minimal pleural effusion with basal consolidation. On day 10, ultrasonography was repeated and showed altered echotexture of liver, bulky pancreas, mild ascites and mild right pleural effusion. Laboratory investigations on day 10 revealed aspartate aminotransferase (AST) 884U/L, alanine aminotransferase (ALT) 252U/L, alkaline phosphatase (ALP) 729U/L, INR 2.64, serum cortisol 158µg/dl and serum amylase 948U/L. In view of suspected drug-induced hepatitis, ATT was withheld on day 10 except ethambutol and ofloxacin (200mg BID) was started. Within three weeks' patients condition improved and on day 21, he was switched over to abacavir (300mg), lamivudine (300mg) and efavirenz (600mg) regimen. Since, serum amylase levels were high tenofovir was withdrawn from the regimen suspecting tenofovir induced pancreatitis. The causality assessment done using Naranjo's algorithm which showed "Possible" relationship of drug with the adverse effect (score:3).

DUODENAL MAC IN A CASE OF RETROVIRAL DISEASE – A RARE PRESENTATION

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COAUTHORS: DR SUDHA VIDYASAGAR , DR MURALIDHAR VARMA , DR NANDAKRISHNA

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INTRODUCTION: Mycobacterium Avium Intracellulare infection is usually seen in HIV patients with CD4 count less than 50cells/mm3. The commonly affected organs are lungs and lymph nodes . Here we report a case of a middle aged Retropositive female with a rare presentation of MAC .

CLINICAL COURSE : 40 yr old female diagnosed to have HIV in November,2018 on Antiretroviral therapy but non compliant -presented to Kasturba Hospital in January 2019 - with complaints of fever , loose stools and vomiting since the last 3 months. Her CD4 count was 38/mm3. Oral Azithromycin started for MAC prophylaxis and Oral Fluconazole given for treatment of oral candidiasis . Esophageal candidiasis was suspected due to complaints of dysphagia but UGI scopy was deferred in view of financial constraints . On follow up after 1 month , complaints of vomiting persisted with worsening dysphagia . Hence a UGI scopy was done – however there was no evidence of esophageal candidiasis , instead there was an incidental finding of scalloping in the second part of the duodenum from which biopsy was taken . Histology revealed mucosal infiltration with foamy histiocytes and inflammatory cells which were AFB and PAS positive – diagnosed as Mycobacterium Avium Intracellulare complex infection . Azithromycin was increased to therapeutic dose and Ethambutol was added . Inspite

of necessary medical measures, she had worsening sepsis with shock and subsequently succumbed to a cardiac arrest .

DISCUSSION:Duodenal involvement in MAC infection is rare - often missed premortem and picked up as an incidental postmortem finding. Clinical presentation may be nonspecific and misleading , hence making it a diagnostic challenge .

CONCLUSION: In immunocompromised individuals predisposed to MAC infections , index of suspicion for infection at rare sites should be high , in order to make a timely diagnosis and prevent untoward complications .

ACUTE DEMYELINATING ENCEPHALOMYELITIS IN DENGUE

Dr G Shrunal[1], Dr Shubha seshadri[2], Dr Sharath M[3], Dr Nithin Naik[4]

INTRODUCTION

Acute demyelinating encephalomyelitis or post-infectious encephalomyelitis is an autoimmune demyelinating disease of Central nervous system, usually due to viral illness. Here we are reporting a rare presentation of ADEM in dengue fever.

CASE SUMMARY

A 20 year old boy with history of fever with chills and rigors for 1 day which subsided in 2 days, 7 days following that patient relatives noticed altered behavior with vomiting. On arrival to our hospital GCS was E2V1M2 with decerebrate posturing and Cheyne stokes breathing, was moving all 4 limbs plantar reflex showed flexor response. MRI brain was done showed bilateral subcortical and deep white matter confluent T2 and FLAIR hyper intensities showing diffusion restriction suggestive of acute demyelinating encephalomyelitis.

During the hospital stay patient's condition worsened, requiring ventilator support started on iv steroids. Due to progression of the disease patient expired.

CONCLUSION

Even though dengue is one of the most common and benign acute febrile illness in tropical countries, rarely serious complications like acute demyelinating encephalomyelitis must be considered in endemic region.

Abstract for poster presentation

Title- Epidural abscess in MRSA bacteremia with skin and superficial tissue infections

Dr Vipul Agarwal[1] Dr. Chakrapani M[1]

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Background- 62 year old male presented with fever and right lower limb pain of 3 days duration.

Case report - Elderly male, diabetic presented with right lower limb cellulitis. Blood culture grew methicillin resistant staphylococcus aureus. During the hospital stay, patient complaint of severe upper backache with no focal neurological deficits. MRI spine revealed epidural abscess. Epidural abscess was drained and culture grew MRSA

Discussion -. Patients with systemic infections often complaints of backache which is often ignored in bed ridden patients in routine clinical practice. In this case of an elderly patient with lower limb cellulitis with MRSA bacteremia, upper backache was secondary to MRSA epidural abscess.

Conclusion - In patients with skin and superficial tissue infections or other systemic infections, backache should not be ignored, it needs a thorough evaluation.

UNUSUAL PRESENTATION OF POST STREPTOCOCCAL GLOMERULONEPHRITIS : A CASE REPORT

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Introduction :

Posterior reversible encephalopathy syndrome is clinical radiographic syndrome of heterogenous etiologies described in conditions like hypertensive encephalopathy, eclampsia and use of cytotoxic drugs and immunosuppresents. Post streptococcal glomerulonephritis presenting as PRES is rarely reported.

Case description:

19 year old male nil premorbid presented with headache, blurring of vision, facial puffiness for 4 days, vomiting for 2 days and had 1 episode of generalized tonic clonic seizures. Also gave history of fever 1 week back with decreased urine output for 2 days which subsided.

On examination pulse- 70/min, BP-170/120mmhg, temp-96F, RR-14/min. systemic examination being normal. Fundus examination showed no evidence of papilledema

Lab reports showed Hemoglobin 13.1, total count 18,400, platelets-326000 urea 36, creatinine-1 sodium- 137, potassium-7.02, chloride- 106. Urine routine: PH 6, blood +++, protein +++, RBC 25-30. Urine spot protein creatinine ratio- 3.77. ASO titre 476.94 (positive), complement c3- 8mg/dl (decreased)

MRI brain: non enhancing patchy asymmetrical areas of T2/ flair hyperintensities in bilateral temporal, occipital, parietal and frontal cortex and subcortical white matter likely PRES.

Neurology opinion sought and hypertension was managed aggressively. Patient’s headache subsided, no further episode of seizures and discharged

Discussion :

Post streptococcal glomerulonephritis is one of the important causes of glomerulonephritis, hypertension being present in 50-90% of patients. Patient presented with hypertensive encephalopathy, hypertension secondary to post streptococcal glomerulonephritis. PSGN Rarely present with hypertensive emergency leading to hypertensive encephalopathy/ PRES, possible mechanisms being hypertension, endothelial dysfunction, vasogenic edema.

KYASANUR FOREST DISEASE: A CASE SERIES

INTRODUCTION

Kyasanur Forest disease(KFD) is caused by Kyasanur forest disease virus(KFDV) which belongs to the Flaviviridae family and is a arthropod-borne viral fever transmitted by hard ticks (Hemaphysalis spinigera). KFD has been limited to western and central districts of Karnataka and neighboring border of tamil Nadu and Kerala state. Symptomology of KFD can vary from a self limiting fever to severe systemic infection involving multi-organ dysfunction.

OBJECTIVE

KFD is a relatively lesser studied disease and the spectrum of various organ involvement and symptoms are still to be known. This study is an observational study in 10 patients diagnosed with KFD in Kasturba Hospital, Manipal and the various symptoms with which the patient presented and the complications arising of the disease have been studied.

RESULTS

Fever was found to be the major presenting symptom which was present in all the patients. The next most common presentation being myalgia(60%) and headache(50%). Of the total patients two patients presented with pain abdomen and of which one patient was diagnosed as acute pancreatitis. Only one patient presented with bleeding manifestation which included epistaxis and menorrhagia. Chest pain was a presenting symptom in one patient and ECG revealed T-wave inversion and patient was diagnosed as myocarditis.

Investigations revealed thrombocytopenia in all the 10patients and leucopenia was observed in 7 patients. Of the 6 patients who presented with myalgia 66.6% of the patients were found to have high creatinine kinase levels. Liver function tests revealed high transaminase levels in 60% of the patients.

CONCLUSION

Being an endemic disease KFD has not been studied widely and an early recognition of symptoms will help in reducing the mortality and morbidity from the illness.

Title of the article: Troublesome Worms

Authors:

Dr.V.N.Vignesh Shantham

Dr.S.R.Ramakrishnan

Dr.Mohini Singh

Dr.Priyadharshini.V

Dr.V.Santhosh Kumar

Abstract:

Strongyloidiasis is a worm infection affecting the intestines and causing symptoms like loose stools abdominal pain,vomiting,wheeze,duodenal infestation,hyperinfection in case of immunocompromised individuals.Strongyloidiasis hyperinfection has a very high mortality rate.The coexistence of Inflammatory bowel disease is rare.A 52 year old male presented with fever on and off for 2 weeks,bleeding per rectum for the past 3 months,cough without expectoration for the past 3 days,and epigastric pain for the past 3 days.UGI scopy incidentally picked up the rhabditiform larva or strongyloides.In view of bleeding per rectum colonoscopy was done which showed pancolitis,inflammatory bowel disease grade 2.Strongyloidiasis can mimic inflammatory bowel disease and the treatment is very challenging.

Introduction:

Strongyloidiasis is a worm infection which is shown to mimic inflammatory bowel disease or to disseminate when a patient with IBD is treated with corticosteroids.In this article we discuss a case of strongyloidosis with IBD treated with mesalamine and ivermectin.Very few cases have been reported in literature with both the diseases co existing

Case report:

A 52 year old male ,farmer by occupation, non alcoholic, non smoker came with complaints of fever for 2 weeks,dry cough for 3 days,abdominal pain,intermittent and epigastric for the past 3 days,no complaints of vomiting or loose stools.History of generalised fatigue,nausea present.history of recent weight of 3 kgs in 2 months was present.On examination pallor present.wheeze was present bilaterally,abdominal examination revealed epigastric tenderness.Per rectal examination showed healed anterior fissure,no sphincter spasm,rectum-stools present,non blood stained.Routine investigations were sent and they showed hb-9.3,tc-9800,platelets-2.2 lakhs,mcv-75.8,random blood sugars were normal.LFT,RFT,Electrolytes were normal.ECG was normal.Chest Xray was normal.ECG was normal.Peripheral smear showed microcytic hypochromic anemia.Patiemt was started on iron supplements and nebulisations for wheeze.upper GI endoscopy showed erythematous gastritis,duodenal lymphangiectasia, duodenum showed speckled appearance of mucosa and biopsy was taken.USG abdomen was normal.Patients wheeze didn't settle and hence was started on hydrocortisone 50 mg stat.Viral markers were negative.Colonoscopy was done and it showed mucosal erythema with edema and loss of vascularity was noted multiple aphthous ulcers with left sided involvement more than the right side was involved and biopsies taken.It showed Mayo grade 2 Pancolitis suggestive of IBD.Biopsy of the colon showed inflammatory exudate suggestive of Inflammatory bowel disease.Duodenal biopsy showed strongyloides larvae and the patient was

started on Ivermectin 1.2 gm for 3 days.Wheeze settled and then Patient was started on mesalamine for IBD. Patient improved and is on regular follow up now.