subjects and Immunoglobulin (Ig) G and IgM antibodies against rubella virus infection was checked using enzyme immune assay (EIA) test at Amhara Regional Health Research Laboratory Center, Bahir Dar. The collected data was analyzed using SPSS version 21 and frequencies, chi-square tests and Odds Ratio was computed and p value < 0.05 was taken as a level of significance.

Result: A total of 401 pregnant mothers were screened for rubella virus infection. The mean age of the study participants was 26.39 year (SD = 5.39) and the overall sero-prevalence of rubella anti-IgG was 46.4%. In connection, the sero-prevalence of anti-IgM among anti-IgG sero-positive cases was 3.2%. Pregnant women at first trimester (OR = 2.49, 95% CI = 1.14–5.42) and HIV sero-status (OR = 0.33, 95% CI = 0.15–0.76) were factors found to be significantly associated with rubella anti-IgG sero-prevalence (p < 0.05).

Conclusion: The sero-prevalence of rubella virus infection among the pregnant women was considered to be low showing the high risk of a new infection. Despite adopting a comprehensive approach to surveillance and effort to determine rubella susceptibility profile among school-aged girls and women of childbearing age, it is also important to consider rubella vaccine in a national vaccination program.

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Phenotypic and genotypic characterization of carbapenem- resistant Enterobacteriaceae from Saudi Arabia and Bahrain

S. Al-Musawi [1,*], J. Ur Rahman [1], L. AlShammari [1], K. Alkharsah [1], B. Abdalhamid [2], R. AlJindan [1]

[1] *Imam Abdulrahman Bin Faisal University*
[2] *King Fahad Specialist Hospital*

Background and Purpose: Carbapenem resistant Enterobacteriaceae (CRE) is a worldwide emerging public health threat. These gram-negative rods are predominantly associated with nosocomial and systemic infections which are difficult to treat and control since they are resistant to numerous antibiotic agents. Carbapenemase production is presently the most important mechanism of carbapenem resistance in Enterobacteriaceae and believed to be primarily responsible for the increasing spread of CRE. Different genotypic and phenotypic methods exist for the detection of carbapenemases; however, each has a limitation. Recently, the CLSI guidelines suggest utilizing mCIM assay. We aim to evaluate the performance of mCIM test in detection of carbapenemase activity in Enterobacteriaceae in reference to molecular methods and to determine the common carbapenemase genes at King Fahad Specialist hospital (Saudi Arabia) and Salmaniya medical complex (Bahrain).

Methodology: A total of 110 non-duplicate clinical isolates of Enterobacteriaceae, were tested by the mCIM assay and the performance was compared with multiplex PCR designed to detect the five common carbapenemase genes (KPC, VIM, IMP, NDM and OXA-48).

Results: All of the isolates had one of the common carbapenemase genes. The sensitivity of the mCIM is 97.3% with 95% CI of (0.916–0.992). Only 3 of the isolates were mCIM false negative. The results indicate that in Bahrain and Saudi Arabia, OXA-48 is the dominant carbapenemases among Enterobacteriaceae followed by NDM, with low prevalence of VIM.

Conclusions: Carbapenem–resistant Enterobacteriaceae are important pathogens in GCC region and worldwide potential threat. Klebsiella pneumonia OXA-48-type carbapenemase-producing Enterobacteriaceae is the most common member in Enterobacteriaceae which usually resistance to carbapenems and many other antimicrobial agents. Our results confirm that the mCIM test is a simple tool for the reliable confirmation of carbapenemase activity in Enterobacteriaceae, especially in clinical microbiological laboratories with limited resources.

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Detection of β-Lactamase Enzymes using conventional and Molecular Methods

H. Hamed *, E. Elsawy, A. Gaber

Urology And Nephrology Center

Resistance to antimicrobials is a serious clinical problem, with more than 70% of the bacteria that cause hospital-acquired infections resistant to at least one of the drugs that are currently used for the treatment of infections. β-Lactam antibiotics remain the most commonly used antibacterial agents in the present chemotherapeutic armamentarium, and β-lactamases, the enzymes that hydrolyze β-lactam antibiotics are the major cause of bacterial resistance to these compounds. Many different detection methods for β-lactamases can be used; nitrocefin test, Phenol red method, Iodometric method, and Double-Disc Test. 97 beta-lactam resistant bacterial strains 50 E.coli and 47 as Klebsiella pneumoniae were studied. The Combined disc method, Etest ESBL strips, Phenol red method, Iodometric method, and nitrocefin tests were performed for the confirmation of the presence of beta-lactamase genes. DNA extraction of the resistant strains was performed, followed by polymerase chain reaction test (PCR) for detection the presence of TEM and SHV β-lactamase genes. Eighty strains gave positive results for Etest ESBL strips, combined disc method, Phenol red test, Iodometric test, and nitrocefin tests, while 17 strains gave negative results. 8 strains (4 E.coli & 4 Klebsiella pneumoniae) were positive for TEM gene and SHV gene; 27 strains (14 E.coli & 13 Klebsiella pneumoniae) were positive for TEM gene only; 28 (15 E.coli & 13 Klebsiella pneumoniae) strains were positive for SHV gene only; while 34 strains (17 E.coli & 17 Klebsiella pneumoniae) were negative for the two genes.

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Sensitive and less invasive confirmatory diagnosis of visceral leishmaniasis in Sudan using loop-mediated isothermal amplification (LAMP)

M. Mukhtar, S. Ali *

Institute Of Endemic Diseases /university Of Khartoum

Background: Confirmatory diagnosis of visceral leishmaniasis (VL), as well as diagnosis of relapses and test of cure, usually requires examination by microscopy of samples collected by invasive means, such as splenic, bone marrow or lymph node aspirates. This causes discomfort to patients, with risks of bleeding and iatrogenic infections, and requires technical expertise. Molecular tests have great potential for diagnosis of VL using peripheral blood, but are expensive, require well-equipped facilities and trained personnel. More user-friendly, and field-amenable options are therefore needed. One method that could meet these requirements is loop-mediated isothermal amplification (LAMP) using the Loopamp™ Leishmania Detection Kit, which comes as dried down reagents that can be stored at room temperature, and allows simple visualization of results.

Methodology/Findings: The Loopamp™ Leishmania Detection Kit (Eiken Chemical Co., Japan), was evaluated in the diagno-

sis of VL in Sudan. A total of 198 VL suspects were tested by microscopy of lymph node aspirates (the reference test), direct agglutination test-DAT (in house production) and rK28 antigen-based rapid diagnostic test (OnSite Leishmania rK39-Plus, CTK Biotech, USA). LAMP was performed on peripheral blood (whole blood and buffy coat) previously processed by: i) a direct boil and spin method, and ii) the QIAamp DNA Mini Kit (QIAgen). Ninety seven of the VL suspects were confirmed as cases by microscopy of lymph node aspirates. The sensitivity and specificity for each of the tests were: rK28 RDT 98.81% and 100%; DAT 88.10% and 78.22%; LAMP-boil and spin 97.65% and 99.01%; LAMP-QIAgen 100% and 99.01%.

Conclusions/Significance: The excellent performance of LAMP using peripheral blood indicates that it can be included in the algorithm for diagnosis of VL, avoiding the need for invasive lymph node aspiration. The simplicity of the test makes it a promising candidate for confirmatory diagnosis in settings that are lower than the reference laboratory.

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Prediction and validation of the structural features of Ov58GPCR, an immunogenic antigen of Onchocerca volvulus: implications in onchocerciasis control efforts

R. Shey[1,2,*], F. Njume[1,2], S. Ghogomu[2], L. Tchouate Gainkam[1], J. Souopgui[1]

[1] *Universite Libre de Bruxelles*
[2] *University of Buea*

Onchocerciasis is a severely debilitating yet neglected tropical disease (NTD) that creates social stigma, generates and perpetuates poverty, and leads ultimately to irreversible unilateral or bilateral blindness if untreated. Consequently, the disease is a major impediment to socioeconomic development. Many control programs have been launched for the disease with moderate successes achieved. This mitigated hit is partially due to the lingering need for reliable, non-invasive and easily-applicable tools for mapping endemic regions and post-elimination surveillance. In this work, bioinformatics analyses combined with immunological assays were applied in a bid to develop potential tools for diagnosis and assessing the success of drug treatment programs. Comparisons of more than two groups in case of paired data were made using repeated measures ANOVA on ranks. The diagnostic performance of the total IgG was assessed for each study peptide using receiver operating curve (ROC) analyses. We report that (i) the O. volvulus antigen, Ov58GPCR is a G-protein coupled receptor (GPCR) conserved in related nematodes, (ii) synthetic peptides predicted to be in the extracellular domain (ECD) of Ov58GPCR are indeed immunogenic epitopes in patients, (iii) synthetic peptide cocktails discriminate between untreated patients, treated patients and healthy African controls, (iv) polyclonal antibodies against one of the peptides or against the bacterially-expressed ECD reacted specifically with the native antigen in of O. volvulus total and surface extracts, (v) Ov58GPCR is transcribed in both the larvae and adult parasite stages, (vi) IgG and IgE responses to recombinant the ECD decline with Ivermectin treatment compliance. All these findings suggest that the extracellular domain and synthetic peptides of Ov58GPCR and the specific immune response it generated could be harnessed for use in the context of diagnosis and surveillance for the disease.

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Under your skin: An Atypical Mycobacterium Infection

J. Ogden

Mayo Clinic

Introduction: A 47 year old male from Dubai with a PMH of ESRD on dialysis presented to the Emergency Department with left eye blindness and diffuse, tender subcutaneous nodules one month after being appropriately treated for a dialysis-line associated blood stream infection.

Methods: Upon gathering further history, he worked as an administrator at a Seaport in Dubai. He had no recent travel history. He was in a monogamous relationship with his wife of 20 years. He did not use IV drugs. Initial concern was for recurrence of his dialysis line-associated blood stream infection with subsequent endocarditis. Blood cultures were drawn, broad spectrum antibiotics were started, and a trans-esophageal echocardiogram were obtained in addition to basic blood work. His CBC showed no signs of infection with a normal white blood cell count. Trans-esophageal echocardiogram showed no evidence of thrombus, and blood cultures remained negative. HIV, hepatitis B and C, and tuberculosis testing were all negative as well. Leukemia and lymphoma phenotyping showed no evidence of a hematologic malignancy. A skin biopsy was ultimately done, revealing an infection with mycobacterium abscessus.

Conclusions: Mycobacterium abscessus is a rare, rapidly growing mycobacterial infection. It most commonly causes pulmonary infections, but can also manifest as a skin infection, particularly in disseminated disease. It typically is found in immunocompromised individuals. Our patient was started on broad coverage with amikacin, cefoxitin, and clarithromycin. Over the next several weeks, he had gradual improvement in the skin disease. Further workup showed a lymphopenia with a CD4 count of 198. No clear cause has yet been identified for his lymphopenia, but further investigations are still ongoing.

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Serious infections by the intracellular bacterial pathogens Legionella, Listeria, and Salmonella in patients receiving anti-TNF therapy

L. Bicheiro

FMUP

Anti-TNF agents are widely used in inflammatory diseases and have been associated with serious intracellular infections. This study is aimed at characterising the clinical presentation, analysing the treatment options, and assessing the different outcomes of infections by the intracellular bacteria Legionella, Listeria, and Salmonella in patients treated with anti-TNFs.

PubMed was used to search for peer-reviewed papers of relevance. This study found 70 papers which fulfilled the criteria, in which 31 cases of serious infection by Legionella, 57 cases of serious infection by Listeria, and 16 cases of serious infection by Salmonella were described.

The overwhelming majority of the patients taking anti-TNFs with serious infection were also receiving concomitant immunosuppressive drugs, especially steroids. The typical patient is a male in his 50s, suffering from RA, and taking Infliximab. All of the patients infected with Legionella had pneumonia and were treated with either a quinolone, or a macrolide, or a combination involving at least one of them. The majority of patients infected with Listeria had bacteremia and/ or meningitis and/ or CNS involvement; they were mainly treated with ampicillin +/-