



6th Euro-Global Conference on

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Posters

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Prevalence, risk factors and antimicrobial resistance of *Salmonella* diarrhoeal infection among children in Thi-Qar Governorate, Iraq

Ali Harb^{1,2}, Mark O'Dea², Zaman K Hanan³, Sam Abraham² and Ihab Habib²¹Thi-Qar Public Health Division - Ministry of Health, Iraq²Murdoch University, Australia³Thi-Qar University, Iraq

Statement of the Problem: Salmonellosis is one of the most common bacterial diarrheal illnesses among children and poses a significant public health burden worldwide; despite this fact, data on non-typhoidal *Salmonella* spp. in Iraq are limited. The current study therefore aimed to determine the prevalence, clinical presentation, serotype and antimicrobial resistance profiles, and risk factors associated with *Salmonella* infection in children in Thi-Qar province, south-eastern Iraq.

Methodology & Theoretical Orientation: This hospital-based cross-sectional study was conducted among children aged less than 5 years presenting with diarrhoea at paediatrics hospitals. Stool samples were identified using conventional and molecular methods. Antimicrobial susceptibility testing was performed using disk diffusion method. The associations between stool-culture positivity for *Salmonella* spp. and risk factors were assessed by Odds Ratio (OR), and 95% Confidence Intervals (CIs) was considered significant at P-value ≤ 0.05 .

Findings: From 320 diarrhea cases enrolled between March and August 2016, 33 (10.3%) diarrhea cases were stool culture-positive for non-typhoidal *Salmonella*. Resistance was most commonly detected against tetracycline (78.8%), azithromycin (66.7%), and ciprofloxacin (60.6%). The multivariable logistic regression analysis indicated that higher odd of *Salmonella* infection in children from household associated with untreated water (pipe water) (OR=4.7 (95% CI: 1.6, 13.9), exposure to domestic animals (OR=10.5; 95% CI: 3.8, 28.4) and low education level of the caregiver (OR=3.9; 95% CI: 1.0, 6.4). Lower odd of *Salmonella* infection were associated with children exclusively breastfed (OR=0.4; 95% CI: 0.1, 0.9) and caregiver those always washing hands after cleaning child defecation (95% CI: 0.1, 0.7).

Conclusion & Significance: Our findings indicate that *Salmonella* is an important cause of children diarrhea in this setting. This work provides local, specific epidemiological data which are crucial to understand and combat pediatric diarrhea in Iraq.

Biography

Ali Harb has worked as a Head of the Investigation Team for Communicable Diseases in Thi-Qar Public Health Division, Ministry of Health, Iraq. He was graduated with a Bachelor's in Veterinary Medicine in 2003 and an MSc in Zoonotic Disease in 2010 from Baghdad University, Iraq. Currently, he is a PhD student in Epidemiology and Infectious Diseases. His PhD research is about investigating the transmission routes of community-acquired *Salmonella* infection in Iraq. He collected human and food samples from Iraq. He also conducted two surveys to determine the risk factors of diarrhea illness and *Salmonella* infection among children under five years. His research will provide a better understanding of the mode of transmission of *Salmonella* spp. from food sources to cause infections in humans.

a.harb@murdoch.edu.au
aliharb8@yahoo.com

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Chitosan and silver nanoparticles: Promising antitoxoplasma agents

Maha Gaafar, Mady R F, Diab RG and Shalaby Th I
Alexandria University, Egypt

Toxoplasmosis is a worldwide infection caused by obligate intracellular protozoan parasite which is *Toxoplasma gondii*. Chitosan and silver nanoparticles were synthesized to be evaluated singly or combined for their antitoxoplasma effects as prophylaxis and as treatment in the experimental animals. Results were assessed through studying the parasite density, studying the ultrastructural parasite changes and estimation of serum gamma interferon. Weight of tissue silver was assessed in different organs. Results showed that silver nanoparticles used singly or combined with chitosan have promising antitoxoplasma potentials. The animals that received these compounds showed statistically significant decrease in the mean number of the parasite count in the liver and the spleen, when compared to the corresponding control group. Light microscopic examination of the peritoneal exudates of animals receiving these compounds showed stoppage of movement and deformity in shape of the tachyzoites, whereas, by Scanning Electron Microscope, the organisms were mutilated. Moreover, gamma interferon was increased in the serum of animals receiving these compounds. All values of silver detected in different tissues were within the safe range. Thus, these nanoparticles proved their effectiveness against the experimental *Toxoplasma* infection.

Biography

Gaafar M R has her expertise in diagnosis of different parasitic infections in various samples; blood, stool, urine and aspirates using novel and rapid techniques as enzymatic assays and real-time PCR. Her trials in treatment of the most common infectious diseases based on the use of new and safe lines of treatment as herbal treatment as well as the use of nanoparticles either natural or metal as anti-parasitic agents.

drmahagaafar@yahoo.com

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Diabetes mellitus-related comorbidities among patients attending two major HIV clinics in Botswana: A 12-year retrospective cohort study

Goabaone Rankgoane-Pono¹, Jose Gaby Tshikuka^{1,2}, Mgaywa Gilbert Mjunga Damas Magafu^{1,3}, Tiny Masupe¹, Mooketsi Molefi¹, Shimeles Genna Hamda¹, Vincent Setlhare¹, Roy Tapera¹ and Bontle Mbongwe¹

¹University of Botswana, Botswana

²National Pedagogic University, DRC

³University of Washington, USA

Background: An association between combination antiretroviral therapy (cART) and diabetes-related comorbidities (DRCs) has been found in some countries. However, data on the incidence of DRCs among cART recipients in Botswana are not available. The objectives of this study were to estimate the incidence of DRCs among cART recipients, assess the time-to-event in the presence of censored cases and identify cART regimens most associated with DRCs.

Methods: 531 patients who were on cART at Princess Marina Hospital (PMH) HIV clinic and Bontleng HIV clinic were identified and retrospectively followed for 12 years. Each of the 531 patients was on one of the three standard first-, second- or third-line cART regimens. Person-years (PY) were used to compute the incidence of DRCs. Kaplan-Meier survival analysis was performed to compare survival of first-line cART patients to that of second-line/third-line cART patients. Cox regression was used to investigate associations with DRCs.

Results: The incidence of DRCs was found to be 26.8/1000 PY, with total time of exposure of 3316 PY. The average duration to event for all the 3 regimens was 11.72±0.20 years. The first-line cART regimen had a shorter mean ± SE duration of 10.59±0.26 years to the event compared to 12.69±0.24 years for the second-line/third-line regimen. Both the first-line cART and second-line/third-line cART were associated with DRCs but recipients on the first-line cART had a significantly shorter survival than recipients on second-line/third-line cART (Log-rank $X^2=8.98$, $p<0.003$).

Conclusion: Both the first-line cART and second-line/third-line cART were associated with DRCs but the risk of developing DRCs per year of exposure was significantly greater for patients who were on first-line cART compared to those who were on second-line/third-line cART. Close monitoring of current cART treatment in patients and possible development of DRCs and other chronic non-communicable diseases is recommended in an effort to improve longevity and quality of life in people living with HIV/AIDS.

Biography

Jose Gaby Tshikuka Mulumba, Department of Public Health Medicine, Faculty of Medicine, University of Botswana, Botswana. Her research is mainly focused on Epidemiology, public health and Infectious Diseases.

jtshikuka@hotmail.com

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Expression of Beclin-1, Bcl-2, Bcl-xL, Bad, and Bax in HCV patients in relation to grade of hepatic fibrosis

Tarek K Motawi¹, Eman A Amer² and Mustafa A Elshobaky²¹Cairo University, Egypt²Ahram Canadian University, Egypt

Autophagy plays an important role in the pathogenesis of many diseases. However, its role is still unclear. We investigate the mRNA expression of Beclin-1 (major autophagic agent), pro-apoptotic agents (Bad, Bax), and anti-apoptotic agents (Bcl-2, Bcl-xL) in blood samples withdrawn from Genotype 4 HCV-infected patients with different stages of hepatic fibrosis. The study was a retrospective one that included 30 healthy people (Control Group), 64 chronic hepatitis C patients with early hepatic fibrosis stages [grade 0 and 1 fibrosis] (F0-1 Group), and 36 chronic hepatitis C patients with Late hepatic fibrosis stages [grade 2 and 3 fibrosis] (F2-3 Group). qPCR was used to measure mRNA expression in the samples. Beclin-1, Bad, and Bax mRNA expression in F0-1 Group were significantly higher than both F2-3 Group and Control Group ($P < 0.001$). While Bcl-2, and Bcl-xL mRNA expression in F0-1 Group were significantly lower than both F2-3 Group and Control Group ($P < 0.001$). Beclin-1, Bad, and Bax mRNA expression were increased at the early stages of hepatic fibrosis in HCV patients, and were declined as the fibrosis progressed to more advanced stages, while Bcl-2, and Bcl-xL mRNA expression were increased as fibrosis progresses. This shows that autophagy has an important role in the early stages of hepatic fibrosis in Genotype 4 HCV patients. These findings provide an insight into the pathogenesis of chronic HCV infection, and the effect of autophagy on liver fibrosis. This may be used to provide possible biomarkers and contribute to a new therapeutic approach.

Biography

Tarek K Motawi is a Professor of Biochemistry, Faculty of Pharmacy, Cairo University, Egypt. He obtained PhD in Pharmaceutical Sciences in 1984, MSc in Pharmaceutical Sciences in 1979 and BSc in Pharmaceutical Sciences from Faculty of Pharmacy, Cairo University in 1976. He worked as an Instructor in 1976 and became Assistant Lecturer in 1980, Lecturer in 1984 and Assistant Professor in 1989. He was promoted to the position of Professor in 1994 and worked as Head of the Department of Biochemistry, Faculty of Pharmacy, Cairo from 2008 to 2014.

tmotawi@gmail.com

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Molecular characterization of extended spectrum beta-lactamases producing *Enterobacteriaceae* causing lower urinary tract infection in pediatric population

Eltai N Omer

Qatar University, Qatar

Urinary Tract Infections (UTIs) continue to be the one of the most common cause of infections in pediatric patients in the community. It is important to identify significant trend on anti-microbial resistance that may influence empirical treatment & antibiotic stewardship. This study was designed with an objective of determining the prevalence of resistance mechanisms in ESBL producing *Enterobacteriaceae* isolated from pediatric patients attending Pediatrics Clinic (PEC) Al Saad, Qatar. The isolates were identified by MALDI-TOF and phenotypic antimicrobial susceptibility testing was performed by BD Phoenix and confirmed by double disk synergetic test (DDST). PCR and multiplex PCR-were performed for molecular characterization of different groups of ESBL. Out of a total of 566 positive urine cultures, *E. coli* (84%) was the most predominant uropathogen followed by *K. pneumoniae* (11%) and 197 (34.8%) were found to be ESBL producing *Enterobacteriaceae* isolates. Male to female ratio was 1: 4.7. Of these positive ESBL isolates, 119 were included in our study with *E. coli* being the pre major dominant isolate 104 (87.4%), followed by *K. pneumoniae* 13 (11%) then *E. cloacae* 1(0.8%) and *C. koseri* 1 (0.8%). *TXM* was found to be the gene responsible for 63% of ESBL, followed by *TEM 23.5* then a combination of *TEM* and *SHV* 9.2% and 4.2% were due to *SHV*. In conclusion, to our knowledge, there are no published data on UTI etiological agents and their analogues genotypic characteristics of resistant species of bacteria among children in Qatar. Our findings generate crucial information about the molecular epidemiology of resistant Gram-negative bacteria in pediatric population in Qatar. Accordingly, it will help in understanding the ESBLs dynamic and associated risk factors. More importantly it will help in establishing the anti-microbial stewardship program in Qatar and limiting the spread of antibiotic resistant bacteria in the community by implementing the evidence based infection control measures.

Biography

Eltai N Omer has completed her PhD from Humboldt University, Berlin, Germany and Postdoctoral studies from University of the West of England, UK. She is Research Associate at Biomedical Research Centre, Qatar University. She has published many papers in the field of Antibiotic Resistance. Her research interests are multidisciplinary with emphasis on molecular diagnostic approaches, antimicrobial susceptibility & resistance, test of new natural antimicrobial agents. She is adopting the one health system approach by studying antimicrobial resistance in agriculture, environment and human in Qatar.

nahla.eltai@qu.edu.qa

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Frequency of rrs and rpsL mutations in streptomycin-resistant isolates of *Mycobacterium tuberculosis* from Iranian patients

Azar Dokht Khoravi, Nayereh Etemad, Mohammad Hashemzadeh, Solmaz Khandan Dezfuli and Hamed Goodarzi
Ahvaz Jundishapur University of Medical Sciences, Iran

Streptomycin (SM) is one of the most effective drugs for the treatment of multidrug resistant (MDR) TB. However, resistance to SM is increasingly reported mainly due to mutations in rpsL and rrs genes. The present study was designed with the aim to determine the nature of SM resistance and the type and frequency of rpsL and rrs mutations among SM resistant *Mycobacterium tuberculosis* (MTB) isolates from Iran. One hundred clinical mono and multidrug-resistant MTB isolates were subjected to drug susceptibility testing (DST) for SM. SM resistant isolates were genotyped by using MIRU-VNTR typing. Fragments of the rpsL and rrs genes were amplified to investigate the most common mutations with subsequent sequence analysis. By DST, 32 (32%) isolates were identified as SM resistant, of which, 43.7% (14/32) were MDR. By MIRU-VNTR typing, the SM resistant isolates were classified into 20 different MIRU types and 8 clusters, with Beijing (39.13%) as the most prevalent genotype. Mutations in the rrs and rpsL genes were identified in 14 (43%) and 10 (31%) of the SM resistant isolates respectively. The most common mutations were at codon 128 (AAG→AGG, Lys43Arg), found in 7 (21%) isolates, and at codon 263 (A→G, Lys88Arg) in 3 (9%) isolates. The results suggest an association between the rpsL mutation and SM resistant strains of the Beijing genotype. The existence of 25% SM resistance in the isolates without mutation in rrs and rpsL genes, suggests the occurrence of further mechanisms associated with SM resistance in the isolates.

Biography

Azar Dokht Khoravi has her expertise in Mycobacteria genotyping and drug resistance. Her work in this field was started from her PhD course in University College London, where she had the opportunity to work with known scientists in this field Professors John Stanford and Graham Rook as her supervisors. Since Iran is an endemic country for tuberculosis, she and his colleagues and graduate students have recently established a research area in southwestern Iran linked with the public health tuberculosis reference laboratory which is under the WHO supervision, focusing on the drug resistance in *M. tuberculosis*. This is a promising area with the aim to minimize the rate of MDR tuberculosis in collaboration with health sectors for an improved treatment management of tuberculosis.

azarkhosravi69@gmail.com

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Intranasal delivery of influenza virosomes for enhances of adaptive immunity genes expression

Aizhan S Turmagambetova, Pavel G Alexyuk, Madina S Alexyuk, Ergali S Moldakhanov, Elmira I Anarkulova, Angelika S Babenko, Andrey P Bogoyavlenskiy and Vladimir E Berezin

Institute of Microbiology and Virology, Kazakhstan

Ease of the intranasal immunization makes it an attractive target for the administration of different forms of supramolecular organizations of influenza virus antigens. This is efficient way to deliver antigens to regional lymph nodes for specific T-cell activation. The controlled in vitro assembly of virus-like particles from purified components is the basic concept of virosomes. The first generation of influenza virosomes developed two decades ago is successfully applied in licensed vaccines, providing a solid clinical safety and efficacy track record for the technology. The main disadvantage of these vaccines was a more traumatic route of administration: intramuscular or subcutaneous. Intranasal immunization with virosomes may represent a novel effective strategy to directly modulation of adaptive immune responses in to the respiratory tract. Virosomes may not only serve as antigen carriers but are also endowed with intrinsic immune-stimulatory properties. Virosomes themselves are able to activate APCs and enhance antigen uptake and processing. Influenza virosomes were designed on the base of lipid microspheres with glycoprotein antigens for the investigation of adaptive immunity genes expression. The level of expression of adaptive immune response genes was determined in to the naïve BALB/c mouse peritoneal macrophages 24 hours after intranasal immunization. The genes expression of adaptive immunity was analyzed by Real-time PCR assay. The intranasal immunization with influenza virosomes induced a much higher expression of cytokine genes compared with micelles of influenza surface glycoproteins. Therefore intranasal administration of viral antigen by virosomes effectively induced adaptive immune responses and may be utilized in novel preventive or therapeutic approaches for vaccination.

Biography

Aizhan Turmagambetova has her expertise in investigation of antiviral and immunostimulating activity of plant preparations isolated from plants of the flora of Kazakhstan. From various plants indigenous to Kazakhstan have been isolated numbers of perspective substances with broad spectrum of antiviral activity and high immunostimulatory capacity. Study of antigenic and immunogenic properties of viral antigens and dependence of their biological activity on supramolecular organization. It was shown that change of supramolecular organization of viral antigens may significantly influence on their immunostimulation activity. This is important for construction of highly immunogenic vaccine preparations. Earlier she was the manager of 2 national scientific projects (2012-2015) supported Kazakh National Scientific Funds.

aichyck@mail.ru

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Resistant Microbial Keratitis in South Nile Delta, Egypt: Influence of Regional Risk Factors

Hatem M. Marey, Sameh S. Mandour and Hassan G. Farahat
Menoufia University, Egypt

Purpose: This study was conducted in an attempt to identify the regional, geographic, climatic, socioeconomic, and other risk factors for microbial keratitis in south Nile Delta, Egypt.

Methods: This is a prospective crosssectional study that was carried out on 340 eyes of 340 patients with microbial keratitis attending at the outpatient clinic of Ophthalmology Department of Menoufia University Hospital during a period of three years between March 2010 and March 2013.

Results: Epidemiological factors, lines of management, and follow-up results were recorded and statistically analyzed and there were regional variations in the prevalence, risk factors, and outcome in resistant corneal ulcers.

Conclusion: Higher incidence of affections and complications has appeared in farmers, rural area residents, and illiterates which are considered the main predisposing factors for ulcer resistance. According to culture results, bacterial organisms (especially Staphylococcus aureus) were the main cause of resistant corneal ulcers.

Biography

Hatem Marey and his coworkers has conducted this study to evaluate the the regional, geographic, climatic, socioeconomic, and other risk factors for microbial keratitis in south Nile Delta, Egypt. The study that was carried out on 340 eyes of 340 patients with microbial keratitis in an attempt to evaluate the risk factors on microbial keratitis. They found a higher incidence of affections and complications in farmers, rural area residents, and illiterates.

hatemmarey@yahoo.com

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Prevalence of Aerobic Gram-Negative Bacilli in Lower Respiratory Tract Infections in Menoufia Governorate, Egypt

Rabab A. Elwahsh, Shymaa A. El Askary, Amal F. Makled, Gehan A. Abdel Aal and Reda A. Ibrahim
Menoufia University, Egypt

Background: Lower Respiratory Tract Infections (LRTIs) are among the most common infectious diseases affecting humans worldwide and are considered as an important cause of morbidity and mortality for all age groups. Almost three quarters of all antibiotic consumptions are for respiratory tract infections.

Methods: Two hundred and twenty two gram negative bacteria (GNB) were isolated from 763 LRTIs specimens in the period from February 2015 to January 2016 by conventional microbiological methods. Multidrug-resistance (MDR), extensively drug-resistance (XDR) and pan drug resistance (PDR) for GNB were examined by disc diffusion method. ES β L and M β L GNB suspected strains were studied by screening and confirmatory tests.

Results: The prevalence of culture positive specimens was (65.9%) of the studied specimens, 44.1% of them were aerobic GNB which was distributed as 35.8% of the ward isolates and 60.7% of ICUs isolates. Klebsiella spp. (44.6%) was the most common GNB isolated from LRTIs patients followed by E coli (20.3%), Pseudomonas spp. (18%), Acinetobacter spp. (10.8%), Enterobacter (4.5%) and Citrobacter (1.8%). Total MDR, XDR and PDR GNB were 45.5%, 47.8% and 5.0% respectively. There was statistically significant difference between the studied fermentative GNB and non-fermentative GNB (60.1% Vs. 42%) for ES β L production by Cephalosporin/clavulanate combination disks test (confirmatory test). The highest percentage of M β L production by confirmatory IPM/EDTA was for Acinetobacter spp. (62.5%) followed by Pseudomonas spp. (60%), Klebsiella spp. (52.5%) and E coli (40%). The mortality rate was 7.4% and 10.9% in patients who had ES β L or M β L producing isolates respectively.

Conclusions: Multidrug-resistant (MDR) gram-negative bacilli (GNB) are now widespread especially in patients with LRTIs and present a major challenge to modern medical practice. Longer hospital stay, ICU admission, invasive procedures, associated comorbid conditions and empirical antibiotic usage were significantly high risk factors for acquisition of ES β L and M β L.

Biography

Rabab El wahsh and her coworkers has conducted this study to determine the prevalence of aerobic gram negative bacteria among LRTIs patients and associated risk factors in addition to its effect on patient outcome with declaration of MDR aerobic Gram-negative bacilli (GNB) causing LRTIs, with a special reference to extended-spectrum beta-lactamase(ES β L) and metallo-beta-lactamase (M β L) producing bacterial strains and to study their relation with patient's mortality and morbidity. They found Multidrug-resistant (MDR) gram-negative bacilli (GNB) are now widespread especially in patients with LRTIs and present a major challenge to modern medical practice.

rababwahsh@yahoo.com

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Some notes about Emerging infectious disease combating

Samer M Al-Hulu

Al-Qasim Green University, Iraq

Emerging Infectious Disease, It's a diseases which generated from changes in or evolution of existing organisms; known diseases may spread to new geographic areas or human populations; or previously unrecognized infections may appear in persons living or working in areas undergoing ecologic changes. Five major infectious agents have been determined, includes, bacteria, viruses, fungi, protozoa, and helminthes. Specific processes (genetic variation) such as gene mutation, genetic recombination, or reassortment, and it due to developing of antimicrobial resistance as well as factors that compel microbial agents to change reservoir hosts play a major causes of Infectious Disease Emergence. Combating of infectious diseases achieved by Epidemic preparedness and rapid response: Surveillance in its simplest way for collection of information for action. The goals achieved by strengthening of routine in-country surveillance for emerging infectious diseases; enhance detection of outbreaks by the development of early warning systems and forging strong surveillance networks, Public health infrastructure: Public health infrastructure is fundamental for any efficient public health activity. It consists of people working in health field, the combating done by providing public health laboratories for identification and molecular characterization of causative agents, development, appropriate use, and availability of diagnostic tests and reagents; cooperation from informed communities, use of modern communication and information technology. Risk communication: The purpose for risk communication determination includes for easing public concern by informing them about the risk, the treatment, the transmission dynamics and clinical features of disease outbreak and secondly, to making the public aware of actions that need to be initiated by people themselves for their benefit as well as for cutting short the transmission of infection. Research and its utilization: Research is playing an important role during an outbreak, aetiological agent identifying, developing diagnostic tools, case management modules and preventive strategies. Advocacy for political commitment and partnership building: The aim can be achieved by strong infrastructure, competent and skilled human resources and an efficient inter-sectoral partnership.

Biography

Samer M. Al-Hulu, Assistant Professor of Microbiology, has completed his PhD from Babylon University/College of Science-Iraq. He has published more than 14 papers in microbiology field. Al-Hulu, has training at Ministry of Health at Laboratory of Babylon Maternity and Children Hospital. Now working at Al-Qasim Green University/College of Food Science-Iraq.

alhusamer@ymail.com

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Streptococcus suis: Bacteremia presenting with Fever, Rashes, Arthritis and Neurologic Deficits

Ahmad M. Domado and **Jill Itable**

Southern Philippines Medical Center, Philippines

Streptococcus suis (*S. suis*) is a gram positive cocci acquired through exposure to infected swine. The most common clinical manifestation is meningitis often accompanied by bacteremia. *S. suis* is an emerging pathogen with significant complications, but remains to be underreported. Only 1,584 cases of *S. suis* infection have been reported worldwide with most of the cases concentrated in Southeast Asia where swine quantity is high. Despite a booming hog industry in the Philippines and increasing prevalence in its neighboring countries, *S. suis* infection remain unreported in our country due to either lack of available diagnostics or misdiagnoses. We report a case of a 52-year-old male who came in due to fever, generalized violaceous purpuric rash, headache, and nuchal rigidity. Patient was diagnosed with meningitis clinically. Patient consumed a diseased swine 5 days prior to admission. Blood culture was positive for *Streptococcus suis* II and clinical improvement was achieved with antibiotic treatment. Our patient is the second Filipino and the first documented case to be diagnosed in the Philippines. Patient is also the first documented case of a Filipino with *Streptococcus* bacteremia presenting with meningitis, hearing loss, skin lesions and arthritis. In *S. suis* infection, antibiotic treatment should be started without delay because a high mortality rate of up to 68% is observed in patients with septicemia and septic shock. With increased awareness and available diagnostics, a future outbreak, can be prevented.

ahmaddomado@yahoo

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Fever with rash

Ashok Kapse

Mahavir superspeciality Hospital, SURAT INDIA

Child presenting with rash is common occurrence in pediatrics. Rash presenting with fever provides you material for microbiological evaluation, offers you unique opportunity to make clinical diagnosis, and gives clinician vital leads towards severity markers. A case could be approached in different ways however rash based approach is the easiest way for clinical evaluation. Classification and evaluation of rash as erythematous, maculopapular, papulovesicular, petechial, blisterous and so on leads clinician to correct diagnosis and proper management. Correct typing of rash directs clinician towards a careful wait and watch approach in certain clinical situation while dictates him to act emergently in others. I intend to provide an easy clinico-pictorial approach for a case presenting with rash in day to day practice.

ashok.kapse@gmail.com

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Status of Xpert MTB/RIF Assay Implementation in Ethiopia

Ayinalem Alemu^{*}, Ephrem Tesfaye¹, Zelalem Yaregal¹, Misikir Amare¹, Zekarias Dagne¹, Desalegn Addise¹, Mengistu Tadesse¹, Waganeh Sinshaw¹, Bazezew Yenew¹, Helina Mollalign¹, Getu Diriba¹, Muluwork Getahun¹ and Abebaw Kebede¹

¹National Tuberculosis Reference Laboratory, Ethiopian Public Health Institute

Background: In 2010, WHO has endorsed Xpert MTB/RIF Assay for the diagnosis of tuberculosis (TB) and rifampicin resistance tuberculosis (RR-TB). Following this recommendation, Xpert MTB/RIF Assay has been implemented in Ethiopia since 2012. Monitoring and evaluation of Xpert MTB/RIF Assay implementation is necessary to ensure the effective and efficient use of resources and to guide the future scale-up.

Objective: To assess the implementation Xpert MTB/RIF for the diagnosis of TB and RR-TB in Ethiopia.

Methodology: Data was collected and analyzed from 87 GeneXpert sites from May to June 2016. A structured questionnaire was used to collect information on staff profile and trainings taken. Data was extracted from GeneXpert machine since the date of installation from 70 GeneXpert sites. Records were reviewed from laboratory register book and from archived laboratory request formats by using a comprehensive assessment tool to evaluate the laboratory personnel competency and clinician's adherence to the national algorithm.

Result: A total of 80,683 specimens were examined by using Xpert MTB/RIF Assay starting from the date of installation up to June 2016 in 70 GeneXpert sites. Mycobacterium tuberculosis was detected in 12,422 (15.4%) of specimens. From all TB detected results 83.75% (10,403), 12.68% (1,591) and 3.45% (428) were susceptible, resistance and indeterminate to Rifampicin respectively. The error rate was 14.1%. There were 285 Xpert MTB/RIF Assay trained laboratory professionals at 87 GeneXpert sites. An average of 3 trained laboratory professionals were working in each facility. At least one trained laboratory professional was found in each facility, but untrained laboratory professionals were performing Xpert MTB/RIF Assay in 67 facilities. National Tuberculosis Program approved Xpert MTB/RIF Assay testing algorithm was not followed in 36% of sites. Most of the clinicians did not properly fill request papers. Standardized request formats and laboratory log books were not available in 15% and 8% of facilities, respectively. Xpert MTB/RIF Assay results were correctly recorded on the laboratory log book in 87% of sites. Critical result (RR-TB) communication was not appropriate in 25.6% of facilities. Xpert MTB/RIF Assay test results were not archived regularly in 47% of laboratories.

Conclusion: Detection rate of TB with the Xpert MTB/RIF Assay was low. This may be due to inappropriate eligibility screening of the patients. Xpert MTB/RIF Assay showed an advantage for detecting RR-TB cases in peripheral laboratory level, which is important for early detection of drug resistant cases as well as early treatment initiation. Error rate was high in comparing with the expected standard ($\leq 3\%$). There was 100% Xpert MTB/RIF Assay training coverage; however, in majority of the sites untrained laboratory professionals were performing Xpert MTB/RIF testing. This may probably have negative impact on test results.

ayinalemal@gmail.com

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Success in obtaining sputum samples in TB suspect patients with no sputum

B Hawramy, L Carmichael and Z Hall Bradford Royal Infirmary
Bradford Teaching Hospital Foundation Trust- Bradford(united kingdom)

Introduction: Alternative method of obtaining sputum specimens e.g. bronchoscopy is frequently needed in patients with suspected TB who report no sputum. In our TB service in Bradford Royal Infirmary, UK, we provided 3 sputum pots to this group of patients to encourage them to produce sputum before proceeding to Bronchoscopy.

Aim: To evaluate the success in obtaining sputum sample in this group of patients before proceeding to an invasive approach in diagnosing pulmonary TB (PTB).

Method: A retrospective case review was carried out on patients with confirmed PTB on our TB registry from January 2016 to December 2016. Medical records, radiology reports, sputum and bronchoscopy results were reviewed electronically.

Result: 44 patients were diagnosed with PTB during this period. Of those, 10 (22.7%) patients reported dry cough or no cough, among these 9 (90%) patients (median age 48 {23-73}, all male, 7 South Asian and 2 Eastern European) were able to produce sputum when offered 3 sputum pots. Sputum smear and culture were positive for AAFB in 7 and all 9 patients respectively. Only 2 of patients underwent bronchoscopy; one for clinical urgency and the other one for smear negative (later culture positive). In 7 patients diagnosis was made without bronchoscopy.

Conclusion: we avoided bronchoscopy in 7 patients who reported no sputum by offering them sputum pots. This study highlights the importance of attempting to obtain sputum samples in suspected PTB patients who report no sputum before proceeding to invasive sampling. Further studies are needed to determine why some patients are not declaring sputum production in spite of its presence.

Bana@doctors.org.uk

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Toxic shock syndrome due to *streptococcus pyogenes* in an 80-year old post-knee arthroplasty patient: A case report

Jenny Mae A Quinivista-Yoon and Ryan M Llorin
St. Luke's Medical Center-Global City, Philippines

Prosthetic joint infection (PJI) is one of the leading causes of arthroplasty failure. A high incidence of PJI follows *Staphylococcus aureus* and coagulase-negative staphylococci. On the other hand, *Streptococcus pyogenes* PJI is extremely rare with only a very few case reports in the literature. Toxic shock syndrome resulting from *Streptococcus pyogenes* infection, however, has a reported mortality rate as high as 30-70%, hence early recognition of this potentially fatal infection is crucial to the successful management of patients. In this article, we report a case of an 80 year old male who developed streptococcal toxic shock syndrome in association with a severe group-A streptococcal infection of the knee after a total knee arthroplasty done two years prior.

yoon_jenny@yahoo.com

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How effective is malaria eradication strategies in africa?

Elizabeth Demilade S-Koiki

The Manchester Metropolitan University, United Kingdom School of Science & Engineering

Background: In Africa, malaria has continued to be a big dilemma and a primary cause of mortality and morbidity especially among children under the age of 5, pregnant women and immunocompromised people for example people infected with HIV/AIDS. Despite global efforts in the management and eradication towards malaria, African countries have fallen behind due to many factors. However, the availability of preventative method such as long-lasting insecticide treated bed nets (LLIN), insecticide treated nets (ITN), and indoor residual spraying (IRS) has been instrumental towards eradicating malaria in Africa. While other countries in the world have managed to eradicate malaria, doubts arise in Africa due to the effectiveness of present measures. Consequently, this study evaluates malaria eradication strategies in Africa, the main objective of this study is to detect if eradication strategies such as ITN and LLIN methods are reducing the rate of malaria.

Method: A literature search was conducted on scientific databases such as NCBI, Google scholar, PubMed etc. Strict inclusion exclusion criteria were applied in the filtration process of publication and this was done in order to have the best studies to conduct this project. Outcomes of the search were use of ITN/LLIN vs non-use.

Results: Seven papers were identified and analysed. Three groups were identified (Control, LLIN and ITN). The mean value for the control group is 49.69%. The participant in the LLIN group had a mean infection rate of 47.97% and the ITN group had an infection rate of 23.12% during the duration of the study these two groups were using the preventative method. This showed that LLIN and ITN use reduces malaria infection, however according to results obtained ITN reduced malaria infection more than LLIN.

Conclusion: Preventative method to reduce malaria infection is important, the use of LLIN and ITN shows that if used it can prevent people being infected with malaria.

missdemi95@hotmail.com

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Cytomegalovirus-Varicella zoster meningoencephalitis and ischemic stroke in an HIV-AIDS patient: A case report

Monica Pia P Reyes and Ryan M Llorin

St. Luke's Medical Center-Global City, Philippines

Along with the increasing number of newly diagnosed human immunodeficiency virus (HIV) patients per day in Philippines (26 new cases/day) is an increasing number of HIV patients diagnosed with central nervous system infection (CNSI) and stroke. A study shows that the risk of ischemic stroke was higher among those with HIV infection compared with uninfected people (hazard ratio 1.17). Mechanisms of ischemic stroke include HIV-associated vasculopathy, opportunistic infections or neoplasia, cardio-embolism and coagulopathy. This case report aims to present a CNS co-infection of the three most documented viruses that causes stroke: *Cytomegalovirus* (CMV), Varicella zoster Virus (VZV) and HIV. The inflammatory cascade in these infections promotes atherosclerosis, plaque rupture and thrombosis, leading to ischemic stroke. A 35-year-old male with HIV who was non-compliant with anti-retroviral therapy and who had recent untreated shingles was brought in with decreased sensorium, signs of meningeal irritation and right-sided neurologic deficit. Computed tomography scan revealed acute to sub-acute infarct, left middle cerebral artery territory (Figure 1). He was admitted and started empirically on vancomycin, ampicillin, cefepime and ganciclovir for central nervous system infection. HIV work-up revealed a CD4 of 11 cells/mm³ and HIV-1 RNA of 1, 124, 215 copies/mL. CMV IgG is positive at 65 U/mL. Lumbar tap done had an elevated opening pressure with elevated cerebrospinal fluid (CSF) protein, low-normal CSF glucose and pleocytosis with lymphocytic predominance. Viral panel showed CMV viral load of 634,000 copies/mL and VZV IgG 44.4 mIU/L clinching the diagnosis of concomitant CMV-VZV meningoencephalitis in this HIV patient. Magnetic resonance imaging and angiogram is compatible with viral vasculopathy (Figure 2). The pathogenic mechanisms of VZV reactivation in the CNS include neuronal and glial direct infection and immune-mediated lesions including vasculitis and demyelination while CMV infection of vascular smooth muscle cells induces production of powerful pro-inflammatory cytokines which accelerate atherosclerosis development. This might be the first reported case of co-infection of the CMV- VZV-HIV meningoencephalitis and ischemic stroke.

monicapiareyes@yahoo.com

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The impact of opt-out hiv testing among hospitalized patients on number of cases detected and linkage to care: a systematic review

Isabelle Dominique Tomacruz, Carlo Miguel Berba, Lance Isidore Catedral and Regina Berba
University of the Philippines, Philippine

Background: The WHO released a policy statement emphasizing the importance of increasing knowledge of HIV status in expanding treatment and care. Routine opt-out screening is one approach meant to remove barriers to HIV testing by informing all patients that an HIV test will be performed unless they decline testing.

Objective: This study aims to describe the implementation of an opt-out HIV testing strategy in hospitals and report outcomes in terms of number of new HIV cases identified and linked to care.

Methods: A systematic search through PubMed/MEDLINE, EMBASE, CENTRAL, Science Direct, JSTOR, and SCOPUS was done. Studies were included if they involved a routine opt-out HIV screening program that elaborated on the process of its implementation at a hospital, the number of HIV cases identified and linked to care. Studies and data involving pediatric populations, health care personnel alone, out-patient department setting, or known HIV status, were excluded.

Results: Database search identified 564 studies and 16 studies met our inclusion criteria. Thirteen were situated in acute care units, two in the medical or surgical wards, and one in both acute care and general in patient units. Seven studies integrated their testing protocol to existing hospital pathways, and did not require more staff. Across all studies, the most common reason for eligible patients to decline testing was the perception that they were not at risk for HIV infection. The opt-out HIV testing strategy had an average acceptance rate of 60.5%, average new cases detected of 0.8%, 81.4% of which were linked to care.

Conclusions: Opt-out HIV testing in the context of in-hospital care is found to be acceptable and feasible by several institutions worldwide. This strategy may result in a greater number of cases detected and earlier linkage to care. Further studies must be done, focusing on cost-effectiveness, and application in third-world or resource-limited contexts.

idvtomacruz@gmail.com

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Delay in Diagnosis of Pulmonary Tuberculosis in Low- and Middle- Income Settings: Systematic Review and Meta-Analysis

Fentabil Getnet Yimer, Yemane Berhane, Nega Assefa, Bizatu Mengistie and Alemayehu Worku
College of Medical and Health Sciences, Jigjiga University, Ethiopia

Assessment of time delays in diagnosis of tuberculosis is essential to evaluate effectiveness of control programs, and identify programmatic impediments. Thus, we have reviewed recent studies to summarize patient, health system and total delays in diagnosis of pulmonary tuberculosis and associated factors with it in low- and middle- income countries. The review was done following standard procedures of the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) statement and checklist. Web-based databases were searched to retrieve relevant studies from 2007 to 2015 including Springer link, Pubmed, Hinari and Google scholar. Searching terms were *pulmonary tuberculosis, diagnostic delay, patient delay, health system delay, provider delay, doctor delay, health care seeking and health care seeking behavior*. Retrieved studies were summarized by systematic review and meta-analysis using comprehensive meta-analysis software. Forty studies involving 18,975 patients qualified for systematic review and 14 of them for meta-analysis. The reported median total delay ranges from 30 to 366.5 days; with a relatively more for patient delay (4 to 199 days) compared to health system delay (2 to 128.5 days). The key determinants of patient delay were poor literacy, long distance to the nearest health facilities, evil/bad luck perception as cause, poor knowledge, first care seeking from informal providers, self-medication, pulmonary co-morbidity and mild severity of illness among others. Likewise, good functional status, unusual symptoms, first care seeking at private and low level facilities, normal chest X-ray and smear negative results were key determinants of health system delay. The meta-analysis showed 42% of pulmonary tuberculosis patients delayed seeking care by a month or more; uneducated patients [pooled OR=1.5, 95%CI=1.1-1.9] and those who sought initial care from informal providers [pooled OR=3, 95%CI=2.3-3.9] had higher odds of patient delay.

Conclusion: Delay in diagnosis is still a major challenge of tuberculosis control and prevention programs in low- and middle-income settings. Efforts to develop new strategies for better case-finding and improving patients' care seeking behavior need to be intensified.

b.infen4ever@gmail.com

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Correlation of Lyme disease with Immune Dysfunction

Harpal S. Mangat¹, Harman Sawhney², Harminder Kaur¹, Pallavi Billa³ and Colleen Seipp³¹Howard College of Medicine, Washington DC²St. George's University School of Medicine, Grenada³Medical Health Center, Maryland, US

Background: Lyme disease is caused by the bacterium *Borrelia burgdorferi*, transmitted to humans through the bite of infected blacklegged ticks. CD4/CD8 ratios in healthy adults vary across populations; in the US, a CD4/CD8 ratio ranging from 0.9 to 1.9 is considered to be normal in non-immunocompromised individuals. Lyme disease is diagnosed based on symptoms, physical findings (eg. Rash) and the possibility of exposure to infected ticks. Laboratory testing is helpful if used correctly and performed with validated methods. The US Center for Disease Control (CDC) diagnostic criteria requires the identification of five Western blot IgG bands for a positive diagnosis¹, although patients with less than five positive bands have been subsequently diagnosed with Lyme Disease through urine PCR in Nanotrap testing². Material/methods: 183 patients at two medical centers were evaluated in Lyme endemic communities in Maryland, US. Further investigation of 148 of these patients correlated their CD4/CD8 ratio with their IgG41 band, using one and two tail testing. Results: The mean CD4/CD8 ratio in the 148 patients was 2.41 with a variance of 1.05 and a standard deviation of 1.025. Assuming a normal CD4/CD8 ratio of less than 2, with a 5% confidence interval, the p value on both a one tailed and two tailed test was shown to be 0.00001. Two patients with an initial CD4/CD8 ratio of 2.7 and 2.8 who were IgG 41 positive were subsequently tested with the Nanotrap Urine PCR and found to be positive for Lyme. Conclusions: Increased CD4/CD8 ratio with a positive IgG 41 band appears to be a strong predictor of a subsequent diagnosis of Lyme disease despite current diagnostic guidelines. Further research should not only be directed towards investigating how *Borrelia Burgdorferi* disrupts immune function, but also towards improving diagnostic guidelines in light of validated diagnostic methods.

harpal.mangat@howard.edu

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What is the prevalence of upper respiratory tract pneumococcal carriage in chronically malnourished children aged from birth to five years?

Holly Smith

Liverpool School of Tropical Medicine and the University of Liverpool, UK

Background and Objectives: Respiratory-tract infections and invasive disease caused by *Streptococcus pneumoniae* (Spn) are a major cause of childhood deaths worldwide. Colonisation of Spn is a prerequisite to pneumococcal disease and carriage is high in children under 5 years. Chronic malnutrition impairs immune responses, rendering children more susceptible to infection. This is reflected by higher incidence of disease. As studies have suggested the paradigm of chronic malnutrition leading to increased rates of Spn carriage, the aim of this systematic review is to determine the prevalence rate of pneumococcal carriage in the upper respiratory tract of chronically malnourished children under the age of 5 years.

Methods: A systematic search of the existing literature reporting upper respiratory tract prevalence rate of Spn colonisation in malnourished children under the age of five, using Medline, PubMed, Web of Science and Scopus, was carried out. An eligibility criteria was used to include relevant papers.

Findings: The prevalence rate of Spn colonisation in malnourished children under the age of 5 was high. Prevalence at birth ranged from 1.0-2.0% and this greatly increases at 2 months to 53.9-80.0%. Carriage remains high from 3 months to 60 months at 64.1-88.0%. Meta-analysis showed a pooled prevalence of 67.2% in 0-3 months infants (95% CI, 55.6-78.7%), 77.9% in 3-6 months infants (95% CI, 68.1-87.7%) and 77.8% in 6-60 months infants (95% CI, 73.9-81.6%).

Conclusion: In chronically malnourished children, pneumococcal carriage is frequent. However, as data is limited, further research is needed to investigate the aetiology and the strength of this association.

h.smith4@liv.ac.uk

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An epidemiological (field study) on Mansoura University Medical Students Determining Knowledge of Ebola virus outbreak.

Mahmoud Magdi,
Mansoura University of Medicine, Egypt

Background: Ebola is a haemorrhagic disease of humans caused by Ebola viruses ongoing in several West African countries.

Objective: To evaluate the current level of knowledge of Ebola virus and to raise community awareness of the risk factors for Ebola infection among medical and para-medical students given that healthcare workers have been especially vulnerable.

Method: This was a field study carried in the campus of University of Mansoura, Egypt. A stand has been divided into 3 stations: a pre-survey, an awareness station and a post-survey. The questionnaire addressed basic facts about Ebola virus and how to prevent it, its route of transmission, risk of morbidity and mortality, treatments available and countries afflicted.

Results: Out of the 1515 peoples participating in the survey there were 703 females and 812 males. A total of 1336 were medical students. 754 said they had heard about Ebola. The internet was the most common source of knowledge about Ebola, as 1273 students stated it as first choice with TV coming in second, with 242 students. Most were met with the answer 'I don't know' in the pre-survey. In the post-survey after a 10 minutes general awareness session about the Ebola virus, 1470 surveyors agreed that Ebola has currently no effective treatment and leads to death. Moreover, after the quick awareness 1491 surveyors answered positively to the question 'Is Ebola preventable?'

Conclusion: Involving community-especially medical students and healthcare workers- in treatment and prevention of Ebola through providing adequate means of awareness; assessment is crucial to containing the outbreak and limiting its consequences.

mahmozmagdi@gmail.com

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Tuberculosis in HIV/AIDS patients

Matilda Gjergji

AMAVITA Hospital, Tirana-Albania

Introduction: In Albania the incidence of people with both TB and HIV is small, however, it is a category that should not be neglected.

Aim of the study: The main aim is to assess the characteristics of TB in the HIV/AIDS patients.

Materials and methods: During 2004-2015 years are consulted 24 cases of TB in the HIV/AIDS patients, from them 23(85.2%) cases as pulmonary tuberculosis and 4(14.2%) cases as generalized tuberculosis. The mean age of the subjects with pulmonary TB was 48.1±9.8, males – 22(95.7%), smokers -21(91.3%), from urban areas 16(69.6%), unemployed –9(39.1%). Data are elaborated by SPSS17.

Results: Period of knowing HIV infection was 6.2±2.2 years, period of ART treatment - 5.3±2.8. According to the count of CD4+ cellules, 6(26.1%) patients resulted with 200-999 cell/ml, 8(34.8%) - with 100-199 cell/ml, and 9(39.1%) <100cell/ml. Beginning of TB was acute in 39.1%, sub acute in 52.2% and chronic in 8.7%. Clinical manifestation of pulmonary TB were: cough – 73.9%, expectoration- 43.5%, dyspnoea – 34.8%, chest pain – 26.1%, haemoptysis – 26.1%, weight loss – 65.2%, fatigue – 87%, fever – 78.3%, anorexia- 78.3%. Radiographically is displayed adenopathy in 5 (21.7%) cases and with CT in 7 (30.4%) cases. Lesions are on the right lung in 21.7%, on the left- 34.8%, and bilateral - 43.5%. Upper zone localization in 56.5%, middle zone -30.4%, and lower zone- 13%. Exitus laetalis resulted in 4(17.4%) patients, 3 patients with 100-199 CD4 cell/ml and one patient with < 100 CD4 cell/ml.

Conclusions: TB is a common respiratory complications and with high mortality rate in HIV/AIDS patients. The level of CD4+ count is predictive factor for clinical manifestation and prognosis.

gjergjid2000@yahoo.com

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Recurrent cholangitis associated with biliary sludge and Phrygian cap anomaly diagnosed by magnetic resonance imaging and magnetic resonance cholangiopancreatography despite normal ultrasound and computed tomography.

Basaranoglu Metin

Bezmailem Vakif University Faculty Hospital, Istanbul, Turkey

A 31-year-old woman presented with a one and half years' history of intermittent right upper quadrant (RUQ) pain, high fever and severely painful, warm and reddish swollen skin lesions on the fingers. Acute attack resolution occurred within 2 weeks after treatment with non-specific antibiotics. Low-grade fever (around 37.5 degrees C) and less painful swellings continued for 6 months after each attack. Abdominal ultrasound and computed tomography (CT) scans did not show any abnormality during the attacks. Biopsy of the skin lesions after the second attack revealed lymphocytic vasculitis. All laboratory studies including rheumatologic serology panel were normal. One month after the complete resolution of the second attack, the patient was observed to have high fever, the same skin lesions on the fingers as at the initial stage, nausea and marked abdominal pain in the RUQ. Routine laboratory studies including complete blood count, liver function tests and serum amylase and lipase levels were normal. An abdominal CT scan revealed a slight thickening of the gallbladder wall (3.9 mm). Two weeks later, abdominal magnetic resonance imaging (MRI) and magnetic resonance cholangiopancreatography (MRCP) were performed because of persistent abdominal pain. They revealed both biliary tract and pancreatic gland alterations consistent with past cholangitis and pancreatitis with coexisting Phrygian cap anomaly and biliary sludge on the neck of the gallbladder.

metin_basaranoglu@yahoo.com

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In vitro evaluation of the impact of APNTP pre-exposure on antibiotics susceptibility of *Pseudomonas aeruginosa* biofilms.

Nid'a H. Alshraideh¹, Sean P. Gorman², William G. Graham² and Brendan F. Gilmore²¹Jordan University of science and technology, Jordan.²Queen's university Belfast, UK

Statement of the Problem: Biofilms are the predominant mode of bacterial growth in the environment. They are implicated in approximately 80 % of chronic human infections (Kalmokoff 2006; Francolini 2010). Its formation is associated with high tolerance to conventional biocides and antimicrobial agents (Nandakumar 2004; Kamgang 2007). Tolerance could be attributed to impaired diffusion, neutralising mechanisms, presence of persister cells, acquiring resistant genes and other factors that could work synergistically to develop resistance (Costerton 1999; Parsek 2004).

Findings: A preliminary study was conducted to assess the potential use of in-house designed kilohertz (kHz)-driven atmospheric pressure non-thermal plasma (APNTP) as adjuvant therapy with other available antimicrobial agents that are commonly used for the control of *Pseudomonas aeruginosa* infections, and whose activity are known to be attenuated in the presence of biofilm matrix components. Synergy between APNTP pre-exposure and the antibiofilm activity of three antimicrobial agents (ciprofloxacin, tobramycin and chlorhexidine) was demonstrated. Pre-exposure of a 48 hour biofilm to APNTP increased the sensitivity of *Pseudomonas aeruginosa* biofilm to the tested antimicrobial agents. Further studies have been conducted to understand the factors that increase the sensitivity of APNTP treated biofilm to tobramycin. Effect of initial bacterial titers on sensitivity to tobramycin was negligible. The protective effect of EPS was also studied and found that Pre-exposure of exogenous DNA and alginate to APNTP did not appear to restore the sensitivity of *Pseudomonas aeruginosa* to antimicrobial agents.

Conclusion & Significance: This study showed a promising results for possibility of use sub-optimal exposures of APNTP as adjuvant topical therapy with conventional antimicrobials agents. Further studies are required to explain the mechanism underlying this synergy in order to provide important information for the design and optimization of non-thermal plasma sources for infection control.

nhalshraideh@just.edu.jo

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Incidence and preparedness for treatment of diarrhoea in epidemic prone flood areas of Chiga Kisumu County.

Redemptah Yeda Kenya

Department of Emerging Infectious Diseases-Global Emerging Infections Surveillance and Response System (DEID-GEIS) Program, United States Army Medical Research Unit-Kenya (USAMRU-K), Nairobi, Kenya

Statement of the Problem: Diarrhea is preventable and treatable by early recognition of dehydration, increased fluids, breastfeeding and timely treatment. Despite the advances to understand management and pathogenesis, globally it's estimated that diarrhea accounts for 1.5 million deaths annually. 800,000 children die annually in sub-Saharan Africa. In Kenya, infectious diseases are on the rise due to poverty, illiteracy, inadequate safe drinking water and poor sanitation Flood prone areas have high incidence of diarrhea. However, there is no active surveillance to monitor the incidence and also understand the effect of seasons on the incidence. No study has been carried out on the preparedness of the health facilities for the treatment of Diarrhea. The purpose of this study: To investigate the incidence and preparedness for treatment of diarrhea in epidemic prone floods areas in Kisumu County. Methodology & Theoretical Orientation: This was a retrospective study come across sectional study. A key informative interview tool was used to collect data among community health workers and the hospital leads. A conceptual frame work was used to focus on the interaction between incidence and mortality with relation to environment. Findings: Diarrhea is common among the adults compared to other age categories. Conclusion & Significance: Despite the challenges in controlling diarrhea, adults experience more cases. Over the last 20 years diarrhea studies have mainly on the under five However, there is limited information on the epidemiology of diarrhea among adults in sub-Saharan Africa. Recommendations Research is required to establish scientific models to predict diarrhea outbreaks.

redemptah.yeda@usamru-k.org

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HCV between developed and underdeveloped countries Incidence and preparedness for treatment of diarrhoea in epidermic prone flood areas of Chiga Kisumu County.

Refat sadeq

Port said University, Egypt

Hepatitis C is an infectious disease affecting primarily the liver, caused by the hepatitis C virus (HCV).[1] HCV infection is a major problem in Egypt. Egypt has the highest prevalence of the Hepatitis C virus (HCV) in the world, with 14 percent of the population infected and 11.8 million patients, according to the World Health Organisation. Every year there are 170,000-200,000 new HVC cases in Egypt. It was discovered in 1989. The hepatitis C virus (HCV) is a small, enveloped, single-stranded, positive-sense RNA virus.[7] It is a member of the Hepacivirus genus in the family Flaviviridae.[2] There are seven major genotypes of HCV, which are known as genotypes one to seven.[43] It is transmitted by injection which means spread primarily by blood-to-blood contact associated with intravenous drug use, poorly sterilized medical equipment, and transfusions. Because Egypt is also endemic with Schistosomiasis, it was thought that treatment with tartar emetic was the principal cause of wide spread infection with HCV as sharing of syringes was done in a wide scale. Since start of HCV discovery there are terror of it not only for its effect on the liver as it causes chronic active hepatitis, cirrhosis will go on to develop liver failure, liver cancer but because of its effect on refusal of immigration between countries of Middle East with huge economic burden resulted from that. So HCV cases tried any treatment prescribed by doctors or others to get rid off it without any scientific basis, like probiotic, milk and urine of camels, black pills, milk thistle, ginseng, and colloidal silver.[3] Also Ozone was tried. But all proved to be ineffective. Alpha-interferon given every other day proved also to be ineffective because the preparation of alpha interferon was against HCV genotype I while that found in Egypt is genotype IV. So it is supplemented by ribavirin as an antiviral working against mRNA, but percentage of cure was limited and a high rate of recurrence occurred. Then treatment consists of a combination of pegylated interferon alpha and the antiviral drug ribavirin for a period of 24 or 48 weeks, appear to be effective with more than 70% cure but still there are a rate of recurrence[4]. Recently a new drug appeared and thought to have high rate of cure. The new Hepatitis C drug called Sofosbuvir. Sofosbuvir – commercial name Sovaldi – was approved in the United States in December 2013 and entered Egypt on 16 October 2014. Government took the chance to offer it to HCV cases because of thought of its magic role in elimination of HCV. But discovered it must be taken in combination either as dual treatment (Sovaldi + Ribavirin) or triple treatment (Sovaldi + alpha interferon + Ribavirin). So still the major problem which is high cost of treatment. Government tried to produce locally but failed to reduce the cost. Because the new drug still recent the fear of recurrence make it hard to judge the effectiveness of the new drug.

egyrefat@gmail.com

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Complication of burn infection

Shintaro Asai

Nagoya kyoritsu hospital, nagoya japan

Background and Aims: Although there are some cases complicated by toxic shock syndrome (TSS) from wound infections in extensive severe burns patients, they are rare case causing TSS in small range burn in adults. For the patients suffering from small burn injuries, an intensive care is not usually needed for the primary care, as they admit in the general ward on admission day. However in rare cases these patients' condition could get worse while having a treatment in the general ward, and they can be forced to move to the ICU until the vital sign gets stable. In this time, it was examined the TSS complicated by small range burn patients in adults. I report these rare cases with some our considerations.

Methods: I have experienced 5 cases were complicated by TSS at some reason in inpatient treatment in burns to five years from January 2010 to December 2015, two cases are males and three cases are females, 24 years of age to 75 years (average 48.2 years). Of each case TBSA, PBI, sudden change time, outcome were examined .

Results: TBSA is 3-32 (average 11.2). PBI is 26-76 (average 53.8), sudden change timing injury 4th to 14th or postoperative 1st to 13th, outcome 1 cases in five cases have been died

Conclusions: Burn patients have low TBSA and PBI, there is a possibility that even easily getting worse. Particularly when complicated by infection, was easily considered caution because they may follow irreversible course when complicated by TSS. We suggest not to hesitate to move the patients to the ICU as soon and suggest that the teamwork and cooperation of the plastic surgery department and the ICU department are required.

asai1913@gctv.ne.jp

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Structure -based discovery of potential small-molecule inhibitors targeting Zika virus NS3 helicase

Siyu Zhu¹, Ziwei Huang¹ and Robert Schooley²¹Tsinghua University, CHN²University of California, San Diego, USA

Zika virus (ZIKV) is a mosquito borne pathogen that has been rapidly a rapidly expanding epidemic across Central and South America since 2015. It belongs to flavivirus family and is closely related to Dengue virus and West Nile virus. ZIKV was first isolated in 1947 from a rhesus monkey around the Zika forest of Uganda. ZIKV has been realized as a major health risk, making it a compelling target for viral therapeutics. Its infection causes not only mild symptoms such as fever, headache, arthralgia and conjunctivitis, but frightening neural diseases including Guillain–Barré syndrome, congenital microcephaly, as well as macular atrophy. There's an urgent need to discover and develop direct-acting antiviral agents (DAAs) in view of the current lack of effective medicine for ZIKV. Nonstructural protein 3 (NS3) helicase of ZIKV is considered to be essential for viral replication and have become an attractive target for the development of DAAs. Recent years, in silico virtual screening has been generally accepted as a rapid, efficient, economical approach with low time and labor cost for screening a large set of compounds. Here, an in-silico screening analysis of NCI diversity dataset with ZIKV NS3 protein targets has been carried out using a structure-based molecular docking approach. A total of 1974 compounds with structural simplicity and diversity have been docked. Top-ranked 5% of compounds with drug-like properties were selected for antiviral evaluation by cell-based ZIKV infection assays. Three hits were identified to specifically inhibit the viral infection with EC50 values at a micro-molar level. Different series of potential derivatives with expected better antiviral activities were presented based on similarity search and target-ligand binding modes. Overall, the discovery of these NS3-targeting compounds may serve as novel leads for further optimization and development of clinical ZIKV inhibitors.

siz091@ucsd.edu

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Antibiotic-impregnated central venous catheters for the prevention of catheter-related bloodstream infection in children: A meta-analysis

Vaneza Leah A. Espino, Melissa A. Dator, Maria Liza and Antoinette M. Gonzales
UP-Philippine General Hospital, Philippines

Background: Use of central venous catheters (CVCs) ensure stable access in critically ill patients but is associated with increased infection rates. CVCs with antimicrobials has been recommended for infection reduction in adults. A review of antibiotic-impregnated CVCs' usefulness in children is needed.

Objectives: To determine the effectiveness of antibiotic-impregnated CVCs in reducing infection in children

Search methods: Extensive search of MEDLINE, Cochrane Database of Systematic Reviews and Cochrane Register of Controlled Trials, Clinicaltrials.gov, Google scholar was done for trials published until June 2016. Reference lists from retrieved journals were checked for relevant articles.

Selection criteria: RCTs evaluating antibiotic-impregnated compared with standard CVCs for reducing infection in children. Data collection and analysis: Two authors assessed trial quality and extracted data. Statistical analysis was done using Review Manager with fixed or random effects model. Outcomes: bloodstream infection, hypersensitivity, thrombosis, mortality, site infection, length of ICU and hospital stay. Dichotomous data were presented as risk ratios (RR), continuous data as mean differences with 95% confidence intervals (CIs).

Main results: Two low quality trials (n=1773) were analyzed showing nonsignificant reduction of bloodstream infection in the antibiotic-impregnated group compared to standard catheters (RR 0.49; 95% CI 0.23-1.02, I²=0%) with no increased risk of thrombosis (RR 1.04 95% CI 0.84-1.28, I²=0%). No statistical difference was seen in the duration of ICU and hospital stay.

Conclusions: The use of antibiotic-impregnated CVCs cannot be recommended at this time. Decision of its use will depend on the clinical judgment after consideration of the costs and benefits. More RCTs are needed to reinforce the evidence.

vielespino@gmail.com