

1768th Conference

INFECTION CONTROL & MICROBIAL PATHOGENESIS 2018



3rd International Conference on
Infection, Disease Control and Prevention
&
2nd International Conference on
Microbial Pathogenesis & Infectious Diseases
June 25-26, 2018 | Vancouver, Canada

Keynote Forum

Day 1

3rd International Conference on
Infection, Disease Control and Prevention
&
2nd International Conference on
Microbial Pathogenesis & Infectious Diseases
June 25-26, 2018 | Vancouver, Canada



Anil Kaul

Oklahoma State University, USA

***Trichomonas vaginalis* and *Chlamydia trachomatis* co-infections**

Trichomonas vaginalis (TV) is a common sexually transmitted protozoal infection associated with adverse health outcomes such as preterm birth and symptomatic vaginitis. TV has infected 3.7 million individuals in the United States with new infections expected to increase globally. While wet mount is the least sensitive test for TV, it is still the most common testing method used, despite other methods, including molecular assays being more effective. *Chlamydia trachomatis* (CT) is a sexually transmitted disease (STI) with a prevalence of more than 645 cases per 100,000 females in 2015. CT can cause infertility, pelvic inflammatory disease (PID), pregnancy complications, and increased risk of other STIs. Unlike TV, CT is tested through nucleic acid amplification test (NAAT), DNA probe tests, enzyme linked immunosorbent assay (ELISA), and direct fluorescent antibody test (DFA). By understanding the co-infection rate between TV and CT, better diagnostic protocols can be used for TV diagnosis based on other diagnosis of other common STIs. Therefore, in this study, we investigated the co-infection rates of CT and TV and collected CT positive patient samples from our clinics. We also collected their de-identified demographic information and performed NAAT based molecular test (Aptima TV assay) using Panther Platform (Hologic Inc. Marlborough, MA) on these patient samples. We determined incidence rate for the overall population and in various demographic sub-groups. Our results indicate an overall CT/TV co-infection rate of around 22%. The highest co-infection rate was amongst black women in the 18 to 24-year age group. Overall, the co-infection rate in the white population was one-third of the rate in the black population. Because of the high co-infection rates in black women, specifically in the 18-24 age group, interventions are necessary in this demographic group. Sexual education is critical in preventing future high STI rates. Educating schoolchildren would be ideal, but due to stigma surrounding STIs and sex education, this may not be very effective. Therefore, other methods such as online videos, informational websites, interactive games, social media, and smart phone applications must be explored.

Biography

Anil Kaul was graduated from Madras Medical College in Medicine, King Georges' Medical College in Dentistry and in Public Health from University of Minnesota. He currently serves as the Director of High-Complexity Clinical Laboratories and a Faculty at Oklahoma State University-Center for Health Sciences. He has been awarded 6 patents and has published more than 50 scientific papers. He has served as Senior Health Advisor to the US Department of State and received "Expeditionary Service Award". In 2014, he also received "Lifetime Achievement Award" at Global Health Summit and in 2008 he was named as Sony's "Scientist of the Year Award".

anil.kaul@okstate.edu

Notes:

3rd International Conference on
Infection, Disease Control and Prevention
&
2nd International Conference on
Microbial Pathogenesis & Infectious Diseases
June 25-26, 2018 | Vancouver, Canada



Benfang Lei

Montana State University, USA

Molecular mechanisms of hypervirulent Group A *Streptococcus* to evade innate immune responses and to invade the vascular system in mouse model of pulmonary infection

Group A *Streptococcus* (GAS) causes common pharyngitis and occasional severe invasive infections. There is a significant knowledge gap on why noninvasive upper respiratory GAS infections usually do not result in lower respiratory infections while certain GAS strains can cause pneumonia and how invasive GAS disseminates systemically. A pulmonary murine infection model is used to address these questions. Paryngeal GAS isolates induced robust neutrophil recruitment and was effectively cleared in a NADPH Oxidase-dependent mechanism by neutrophils. In contrast, invasive isolates with mutations in virulence regulators CovRS and/or RopB inhibited neutrophil recruitment and caused pulmonary infections. Natural GAS RopB mutants caused infection only in the alveolar region whereas natural CovS and RopB double GAS mutants invade the perivascular interstitium, disrupts smooth muscle and endothelial layers of the blood vessels, and penetrates into the lumen of endothelial layer and the systemic circulation. Correction of the CovS mutation abolished the capacity of GAS to invade the vascular system. To identify virulence factors that are critical for GAS innate immune evasion and vascular invasion, we tested single and double deletion mutants of CovRS-controlled virulence genes of hypervirulent GAS. Only a surface protein was found to be critical for the vascular invasion, and the inhibition of neutrophil recruitment requires both streptolysin S and the platelet-activating factor acetyl hydrolase Sse. Thus, Streptolysin S- and Sse-dependent evasion of neutrophil response is critical for the capacity of GAS to cause pulmonary infection, and GAS invasion of the vascular system requires the surface protein

Biography

Benfang Lei has completed his PhD from University of Houston, Texas and postdoctoral study at the Rocky Mountain Laboratories, NIAID, NIH at Hamilton, Montana. He is an Associate Professor at Department of Microbiology and Immunology, Montana State University. He has published 70 primary research papers and has been serving as an academic editor of PLoS One and an editorial board member of Infection and Immunity.

blei@montana.edu

Notes:

3rd International Conference on
Infection, Disease Control and Prevention
&
2nd International Conference on
Microbial Pathogenesis & Infectious Diseases
June 25-26, 2018 | Vancouver, Canada



K C Santosh

University of South Dakota, USA

Artificial intelligence and machine learning in medical imaging science/radiography

Artificial intelligence and machine-learning techniques can definitely advance the medical imaging science, since one can work on pixel-level (with no loss of information), which is completely different from how experts' eyes do. Further, one can handle large volume of data at once, which is the real need as we are required to deal with them and check the consistency in parallel. Machine, once trained with a large data can produce consistent results until we do not change the set up. Besides, for a resource-constrained areas/regions, use of the AI and machine-learning tool is the must. In my talk, I will focus on the need for screening HIV+ populations in resource-constrained regions for exposure to Tuberculosis (TB), using chest radiographs (CXR). The primary focus of the talk will be how important/essential data can be extracted from images in a way that one radiologist does as his/her routine work; and how such a data can be used for detecting abnormalities, i.e. pathologies by using machine learning algorithms. In the latter part of the talk, a real-world project will be demonstrated with satisfactory receiver operating characteristic curves.

Biography

K C Santosh worked as a research fellow at the U.S. National Library of Medicine (NLM), National Institutes of Health (NIH). He worked as a postdoctoral research scientist at the LORIA research centre, Universite de Lorraine in direct collaboration with industrial partner ITESOFT, France, for 2 years. He also worked as a research scientist at the INRIA Nancy Grand Est research centre for 3 years, until 2011. K C Santosh has demonstrated expertise in pattern recognition, image processing, computer vision and machine learning with various applications in handwriting recognition, graphics recognition, document information content exploitation, medical image analysis and biometrics. He published more than 60 research articles, including a book section in encyclopedia of electrical and electronics engineering.

santosh.kc@usd.edu

Notes:

1768th Conference

INFECTION CONTROL & MICROBIAL PATHOGENESIS 2018



3rd International Conference on
Infection, Disease Control and Prevention
&
2nd International Conference on
Microbial Pathogenesis & Infectious Diseases
June 25-26, 2018 | Vancouver, Canada

Keynote Forum

Day 2

3rd International Conference on
Infection, Disease Control and Prevention
&
2nd International Conference on
Microbial Pathogenesis & Infectious Diseases
June 25-26, 2018 | Vancouver, Canada



Zelenkova Hana

DOST Svidník, Slovakia

The importance of establishing a differential diagnosis in vesicular diseases (HSV infections, dyshidrosis, impetigo)

Differential diagnosis is one of the basic pieces of knowledge of every physician, including a dermatologist. Failure in this extraordinarily important area leads to prolongation of problems in an affected patient, their social isolation, higher expenses, or, unfortunately, also to fatal outcomes. It is true that some dermatoses, especially those with vesicular or bullous manifestations, may lead also an experienced dermatologist to erroneous conclusions, which complicates the course of disease and causes even more severe secondary diseases - as shown in the presented case reports. Impetigo and impetiginisation of other dermatoses may be hard to diagnose and treat, especially when the course is bizarre and complicated. This seemingly banal disease must not be underestimated and we must master the bottlenecks of differential diagnostics.

Biography

Hana Zelenková has been active in the field of Dermatovenerology since 1973. Since 2000 she has been directing her own Private Clinic of Dermatovenerology. Professional orientation: aesthetic dermatology, acne and facial dermatoses, medicinal mycology (nail diseases), wound management, psoriasis, employment of Ichthyol and carboxytherapy in dermatology. She is a coordinator of many international multicentre trials. More than 555 expert lectures in the Slovak Republic as well as abroad, 440 scientific publications. Co-author of the dermatocosmetic formulae containing Ichthamol and glycyrrhizinic acid. Author of the book "Carboxytherapy" (2015), translated into 4 languages. Regularly invited to deliver lectures at international congresses. Founder and President of the Slovak Society for Aesthetic and Cosmetic Dermatology (SSEDK), organizer and President of the traditional international DERMAPARTY congress. Since 2006 Vice-President European Society of Aesthetic and Cosmetic Dermatology, since 2007 President of the European Society of Aesthetic and Cosmetic Dermatology.

zelenkova@vl.sk

Notes:

3rd International Conference on
Infection, Disease Control and Prevention
&
2nd International Conference on
Microbial Pathogenesis & Infectious Diseases
June 25-26, 2018 | Vancouver, Canada



Sara Dann

University of Texas Medical Branch, USA

Polymicrobial bacterial infection increases host susceptibility to intestinal inflammation

Disease induced by *Clostridium difficile* infection (CDI) is generally viewed as "monomicrobial" being dominated by the virulence factors of CDI alone. However, co-infections may occur but their significance in CDI is unknown. Fecal specimens from pediatric patients (2-18 years) were screened using BioFire FilmArray GI Panel which detects 22 enteric pathogens. Of 357 patients, 88% had antibiotic-associated diarrhea. Based on toxin PCR, 50% were diagnosed with non-recurrent CDI (nCDI), 8% with recurrent CDI (rCDI), and 30% were *C. difficile* toxin negative (AAD). Patients without GI symptoms served as controls. FilmArray identified additional pathogens in 31.1% of patients with primary CDI; 64.5% with rCDI; 49.5% with AAD; and 11.9% controls. Enteropathogenic *E. coli* (EPEC) and rotavirus were significant co-infections in rCDI compared with nCDI ($p < 0.05$). In a murine co-infection model, rotavirus improved clinical symptoms; whereas, co-infection with *Citrobacter rodentium*, a model of EPEC, resulted in greater disease and mortality than singly infected mice ($p < 0.05$). Four weeks post-infection, co-infected mice showed significant intestinal inflammation that was not present in singly infected mice ($p < 0.05$), which correlated with prolonged bacterial shedding and toxin production. Mortality in co-infected mice was associated with reductions in early response chemokines involved in the recruitment of protective innate immune cells. Administration of innate cytokine IL-22 protected co-infected mice from death compared to controls ($p < 0.05$). Taken together, co-infections can exert differential clinical outcomes in CDI. Notably, co-infection with EPEC may place CDI patients at greater risk of disease recurrence because of pathogen-induced impairment in protective innate immunity against *C. Difficile*.

Biography

Sara Dann research focuses on understanding the interaction of enteric pathogens with the host mucosal immune system. Her goals are aimed at defining the role of common parasites, such as *Giardia* and *Cryptosporidium*, in intestinal inflammation and the involvement of innate immunity in this process. She is currently studying how dendritic cells and other innate cells initiate immune responses while maintaining intestinal tolerance. Understanding these processes will allow her to dissect the mechanisms involved in microbial-triggered colitis in genetically-susceptible hosts. Her findings might have very direct implications for the design of improved therapeutic and preventive strategies for the treatment of IBD.

smdann@utmb.edu

Notes:

3rd International Conference on
Infection, Disease Control and Prevention
&
2nd International Conference on
Microbial Pathogenesis & Infectious Diseases
June 25-26, 2018 | Vancouver, Canada



Esther Paul

King Khalid University, Saudi Arabia

Perspectives of healthcare workers on healthcare-associated infections and infection control in a tertiary care hospital in Abha, Saudi Arabia

The goal of the current study was to understand the perspectives of the healthcare workers on the current protocol and guidelines for HAI; infections control measures in the hospital and the effectiveness of the current protocols for HAI and infection control measures and ways of reducing the incidence of HAI. A qualitative research design was used to collect the data from twenty-five healthcare workers consisting of doctors and nurses, recruited by Snowball strategy via semi-structured interviews which were audio-recorded and transcribed verbatim immediately. An interview guide consisting of open-ended questions about the awareness of HAI and the existing HAI and infection control practices in the healthcare facility. The transcribed data were analyzed using the thematic analysis method. Four themes were identified:

1. Knowledge of HAI and infection control
2. Infection control measures in practice
3. The gap in infection control measures and HAI
4. Required Implementations.

Most of the participants were aware of HAI, its significance and the dangers posed by HAI in a healthcare facility. However few residents had no idea of the types of HAI. There were some lacunae regarding the knowledge of the Personal Protective Equipment practices, communication among the healthcare personnel and the hospital administrations and the means of waste disposal. The current qualitative study concluded that there is a need for better educational programs and hands-on training for all the healthcare personnel including the paramedical staff as well. The residents should have adequate knowledge of infection control practices to guide the nurses and should share the responsibility with the nurses in the practice of effective infection control measures.

Biography

Esther Paul has completed her M.B.B.S from the Christian Medical College Ludhiana, Baba Farid University, India and M.D Microbiology from Madras University, India. She has completed her Masters in Public health from the University of Liverpool. Currently she is working as an Assistant professor in the Department of Microbiology King Khalid University, Abha Saudi Arabia. She has published a few papers on Brucella and Burkholderia. She recently presented a paper on Rota virus vaccine at the Vaccine congress, San Diego on September 2017. She is in the process of publishing papers on healthcare associated infections and infection control.

dr.estherpaul@outlook.com

Notes: