Fighting Back Against Infectious Diseases

ABSTRACTS

5th - 7th September 2017
Location: Online

EuroSciCon

Discussing advances in rapid disease diagnosis, infection control, and treatment for infectious diseases in the developing world.

This event has CPD accreditation

www.lifescienceevents.com/pregnancy2016

#InfectiousESC

This abstract book will be finalised two weeks before the event

Table of Contents

Invited Speakers Abstracts

Parasitic agents of infectious diarrhoea: A comparative analysis between rural and urban communities in South Africa.

Professor Samie Amidou, University of Venda, Thohoyandou, South Africa

Diarrheal diseases constitute an important cause of morbidity and mortality among children throughout the world and particularly in developing countries. Globally it is estimated that about 4 million children aged less than 5 years old die every year due to diarrhoea and its complications including dehydration and malnutrition. In the Northern part of South Africa, diarrhoea still remains the main cause of death among children less than 5 years of age although in other parts of the country, HIV and lower respiratory infections come before diarrhoea. Among the infectious causes of diarrhoea, E. histolytica, Giardia and Cryptosporidium spp are the most common parasitic aetiology and have been found to be very common in our communities. The prevalence of E. histolytica varies between 8% and 38% in the stool while the seroprevalence varies between 30% and 86%. Although Entamoeba spp is very common in many rural areas, E. histolytica seems to be a common cause of diarrhoea in urban areas like those around Pretoria. Giardia is also common with a prevalence varying between 4% and 30% but seems to be a common cause of diarrhoea in the rural areas while it is less common in urban areas. Different genotyping systems have shown that E. histolytica has a complex genetic structure which might affect disease presentation. Similarly, host genetics might also have an impact on diseases progression with different cytokines playing crucial roles according to the individual profile. In conclusion, the parasitic aetiology of diarrhoea varies tremendously according to the population considered and probably with time and the complex interaction of host parasite relationship.

Systems effectiveness for malaria elimination: measurement for policy

Dr. Victor Alegana, University of Southampton, Southampton, United Kingdom

As malaria declines, health system strengthening is vital to achieving elimination along with improving surveillance through a combination of active case detection (ACD) and passive case detection (PCD). There is however lack of research that combines population level metrics with health system parameters to evaluate health system effectivenes and health gain in population. This talk will outline methods on estimating population level metrics combined with health system parameters can be combined to estimate coverage in low malaria transmission settings.

Efflux pumps: How important are they for resistance in M. tuberculosis

Dr. Mandira Varma Basil, Vallabhbhai Patel Chest Institute, University of Delhi, Delhi, India

Genomic mutations in the drug targets in M. tuberculosis have been identified as the major cause of drug resistance in this organism. Although the presence of mutations leading to drug resistance in M. tuberculosis isolates have been reported in several studies, a section of isolates do not possess these mutations despite being drug resistant. Approximately 20 to 30% of clinical isoniazid resistant M. tuberculosis isolates do not have mutations in any of the known genes associated with INH resistance while 5% of clinical rifampicin resistant M. tuberculosis isolates do not harbor mutations in the RIF resistance-determining region of the rpoB gene. Therefore, it is evident that other, more undefined mechanisms play a role in drug resistance.

The highly impermeable lipid rich cell envelope present on the thick cell wall of M. tuberculosis, enzymatic inactivation of drugs, target alteration and efflux mechanisms are some of the factors contributing to drug resistance in M. tuberculosis.

Analysis of genome sequences has shown that mycobacteria have multiple putative efflux pumps but the role of these putative efflux pumps in intrinsic and acquired resistance has been neglected as a major cause for antibiotic resistance of mycobacteria and has only recently received attention.

EuroSciCon Ltd. Registered in England and Wales, Company number: 4326921, Trading Address: Euroscicon Ltd, Highstone House, 165 High Street, Barnet, Herts, 5SU, UK. Registered Office: 47 High Street, Barnet, Herts, EN5 5UW, UK

Current evidence suggests that M. tuberculosis contains more than one efflux pump capable of extruding different antibiotics. Inactivation or silencing of the efflux pumps could be a possible mechanism for controlling drug resistance. This would render the bacterium more susceptible, allowing lower doses of drugs to be used in the treatment of TB. However, this requires an in- depth knowledge of efflux pumps in M. tuberculosis. We provide an overview of the efflux pumps reported in M. tuberculosis, their effect on drug resistance and the implications of using efflux pump inhibitors.

Resuscitation of Viable but non culturable Mtb by CD271+ Bone Marrow Mesenchymal stem cells

Ms Jaishree Garhyan, Jawaharlal Nehru University, New Delhi, India

Tuberculosis poses a global public health threat and remains the leading cause of death among infectious diseases. It is known that post-treatemnt Tb patients, showing culture negative sputum at the end of the treatment, show disease replaspe, indicating that they still harbour noncultrable Mtb cells and gain viability in an unknown fashion to relapse the disease. Recenlty, we have reported that Mtb remains persistent in Bone Marrow-mesenhymal stem cells (BM-MSCs). We were able to find that infected BM-MSCs are capable of causing lung infection in healthy mice. In this study we found that BM-MSCs also has capability to resuscitate VBNC state to culturable state. This is the first study showing that BM-MSCs have capability to reactivate the disease by resuscitation of VBNC to culturable state.

Global funding trends for infectious disease research - a systematic analysis of investments from the G20 nations

Dr. Michael Head, University Hospital Southampton Foundation NHS Trust, Southampton, United Kingdom

The Research Investments in Global Health study is analysing global R&D investment trends for infectious diseases and will present a summary of the results, showing funding awarded by disease, disease area, nation, and by type of science along the research pipeline. Investments are compared to global and national burdens of disease to identify areas of research strength and potential knowledge gaps, with recommendations for future priority areas.

Oral Presentation Abstracts

Oral presentations will be added after the submission deadline

Day 1:

Day 2:

Day 3:

Poster Presentation Abstracts

Poster abstracts will be finalised weeks before the event