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"Unearthing a Subterranean Infection"

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Introduction

The 2nd South Asian Melioidosis Congress (2nd SAMC) was held at the Cinnamon Lakeside Hotel, Colombo, Sri Lanka, on 29th and 30th August 2017. As its name implies, this was the second congress on melioidosis to be held in this region, involving countries like India, Sri Lanka, Bangladesh, Nepal, Bhutan and Pakistan. The 1st SAMC was held in November 2015 at Manipal University in India.

Melioidosis is a neglected tropical disease that is frequently mis-diagnosed or under-diagnosed in the region. Hence the theme of the conference, "Unearthing a Subterranean Infection". Revealing the hidden burden of infection requires the co-operation of a network of microbiologists, epidemiologists, infectious disease specialists, and public health personnel.

The 2nd SAMC aimed to allow researchers and clinical personnel to meet and learn from global experts on the disease and develop collaborations within and between countries in the region and groups overseas with the ultimate goal of reducing the morbidity and mortality of this potentially fatal infection. The objectives of the 2nd SAMC were

1) To raise awareness among clinicians, public health personnel, policy makers and the public of the burden of disease caused by melioidosis in South Asia
2) To disseminate knowledge and skills pertaining to melioidosis within the South Asian region
3) To promote basic and applied research in melioidosis
4) To promote collaboration among clinicians and researchers in the region to study the epidemiology, clinical and laboratory diagnosis, management and prevention and control of melioidosis.

The target audiences were Clinical Microbiologists, other Clinicians, Infectious Disease specialists, Laboratory Personnel, Epidemiologists, Public Health Personnel, Veterinarians, Policy makers and Researchers in Infectious Diseases.

The Organising Committee of the conference consisted of scientists from Sri Lanka [Prof. VasanthiThevanesam (Patron), Dr.EnokaCorea(Chairperson), Dr.AnuraDharshan de Silva, Dr. ThushariDissanayake, Dr.NayomiDhanthanarayana, Dr MalikaKarunaratne, Ms.RanmalieAbeysekara and Dr.MudithaAbeykoon] and scientists from other countries, including Prof. ChiranjayMukhopadhayay (India), Prof. Tim Inglis (Australia), Prof. David Dance (Laos) and Prof. Herbert Schweizer (USA).

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Programme

The academic progamme of the 2nd SAMC consisted of a series of lectures delivered by world renowned experts in all areas of melioidosis including history, epidemiology, clinical presentation, immune response, laboratory diagnosis, antibiotic resistance and therapy, soil surveillance, etc. International speakers from the USA, Netherlands, Australia, Austria, Thailand, Laos, India and Bangladesh were the resource persons at this conference.

The conference opened with a special speech on the historical background of melioidosis from Prof. David Dance who has been working on melioidosis and its causative bacterium, *Burkholderiapseudomallei* for over 30 years. He is currently based in Vientiane, Laos.

The global and regional epidemiology of melioidosis was highlighted in several talks. Dr.DirekLimmathurotsakul from Mahidol University in Bangkok, Thailand, presented an update on the global epidemiology of melioidosis that was originally presented in an acclaimed paper published in 2016 in Nature Microbiology. The Chairperson of the 1st SAMC Prof. ChiranjayMukhopadhyay from the Kasturba Medical College at Manipal University, India, provided the audience with a progress report on the epidemiology of melioidosis in South Asia, with a focus on India. This was followed by a speech by Dr. Enoka Corea, Chairperson of the 2nd SAMC, from the University of Colombo, Sri Lanka. She highlighted the substantial progress that has been made over the last decade on the nationwide epidemiology of melioidosis in Sri Lanka. Dr.SharifulAlamJilani from Ibrahim Medical College in Dhaka, Bangladesh, summarized in his talk collaborative efforts aimed at documenting the epidemiology of melioidosis in Bangladesh. A 'One Health' initiative to uncover the epidemiology of melioidosis in southern Thailand was presented by Dr.ApichaiTuanyok from the University of Florida in the U.S.A. Two talks on the molecular epidemiology of *B. pseudomallei* completed the epidemiology sessions. Dr.ChaitanyaTellapragada from the Kasturba Medical College, Manipal University, India, highlighted efforts aimed at understanding the molecular epidemiology of *B. pseudomallei* in South Asia. Collaborative studies between Australian and Sri Lankan scientists on the molecular epidemiology of *B. pseudomallei* in Sri Lanka were presented by Mr. Adam Merrit from PathWest Laboratory, Perth, Australia.

Various aspects of human melioidosis were highlighted in several presentations. The current state of knowledge on mechanisms of human susceptibility to *B. pseudomallei* infections was summarized by Dr.GanjanaLertmemongkolchai from KhonKaen University in Thailand. Dr.JoostWiersinga from the University of Amsterdam, The Netherlands, presented an update on novel insights into the pathogenesis of *B. pseudomallei*. This was followed by a presentation by Dr. Dharshan de Silva from Genetech Research Institute, Sri Lanka, on the immune responses seen in *B. pseudomallei* infections. Dr.NatkunamKetheesan from the Australian Institute of Tropical Health and Editor of the first book on melioidosis "Melioidosis – A Century of Observation and Research" introduced host-pathogen interactions in melioidosis as a 'fatal attraction'. Clinical correlates of barefoot bacteraemia were presented by Prof. Tim Inglis from the University of Western Australia, Perth, Australia. The identification of host and pathogen specific biomarkers as drivers for melioidosis disease management was described in a presentation by Dr. Mohan Natesan from the Division of Translational Sciences, United States Army Medical Research Institute of Infectious Diseases, USA.

Rapid and accurate diagnosis of melioidosis presents ongoing challenges. A comprehensive review of traditional and novel methods involved in the laboratory diagnosis of melioidosis from different clinical specimens was presented by Dr.NarisaraChantratita from Mahidol University, Bangkok, Thailand. Dr.Vandana KE from Kasturba Medical College, Manipal University, India, described the best approach to diagnose septicaemic melioidosis.

Although antibiotic resistance is relatively rare in *B. pseudomallei*, melioidosis therapy is hampered by intrinsic and acquired resistance. A summary of the current knowledge on antibiotic resistance mechanisms in *B. pseudomallei* and how it can be used to inform melioidosis therapy and antibiotic stewardship was presented by Prof. Herbert Schweizer from the University of Florida, USA. This was followed by an update on the clinical treatment of melioidosis by Dr.WirongrongChierakul from Mahidol University, Bangkok, Thailand.

Although melioidosis is likely more widespread than previously thought, the critical task of environmental detection of the causative agent *B. pseudomallei* in prospective endemic regions remains a challenge. Dr. Ivo Steinmetz from the MedizinischeUniversität Graz, Austria, provided conference attendees with an update on soil surveillance. His presentation was followed by Dr.Tushar Shaw from the Kasturba Medical College, Manipal, India, who provided an overview of efforts aimed at understanding *B. pseudomallei* soil epidemiology in southwest India.

"Omics" approaches have enabled the tremendous advances made in many aspects of *B. pseudomallei* biology, pathology and epidemiology over the last decade. A presentation on the "omics" of *B. pseudomallei* by Prof. Tim Inglis from the University of Western Australia, Perth, Australia, therefore, provided a fitting conclusion to the 2ndSAMC.

In addition to expert presentations, concerted efforts were made to enable other researchers to present and interact with other researchers and experts. This was achieved by: 1) Case presentations that were presented by researchers from Sri Lanka, Malaysia and India; 2) A "Meet the Expert" session where researchers and clinicians could meet and interact with the expert of their choice; and 3) Presentation of 24 e-posters that were evaluated by resource persons. First, second and third prizes were awarded to the poster presenters at a valedictory ceremony.

Outcome

The 2ndSAMC was highly successful with the participation of 160 persons on the 29th August and 150 persons on the 30th August. This included 18 speakers from overseas, 2 local speakers, 2 observers from the region (from Nepal and Pakistan) and 4 Indian researchers who were awarded travel scholarships and a further 21 overseas registrants.

Acknowledgements

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