



13th World Congress on

INFECTION PREVENTION AND CONTROL

December 14-15, 2017 | Rome, Italy

Keynote Forum

Day 1

Infection Prevention 2017

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**Waleed A Mazi***Directorate of Health Affairs, Taif, Kingdom of Saudi Arabia***Strategies in developing an effective infection prevention and control program**

Infection prevention and control programs involve everyone; the patient, healthcare workers, and visitors. In order to maintain a health and safe environment, any effective strategy must understand that you are dealing with people with different languages, religions, nationalities and cultural attitudes. Therefore, preventionists should have an effective ability to communicate new skills, and to encourage and motivate people involved. Plus, an ability to address issues and flawed implementation habits that have formed historically within the organization. Based on my local experience in Taif, Saudi Arabia, organizations should believe strongly in their value systems and in their appropriate standards in the clinical environment. These rules should become not just guidelines but organizational law. Zero tolerance of healthcare associated infections can be achievable for MOH hospitals by following the SHEA/IDSA practice guidelines and setting them as applicable standards or laws. For example, we observed 60% reduction of central-line associated bloodstream infection and achieved to NHSN 50 percentile of catheter associated urinary tract infections in 2012. Also, there is increasing evidence, that international or national accreditation programs can play a vital role in healthcare service improvement. Infection control auditing compliance rate results in hospital standards on infection control have increased from 76% to 86% during 2017.

Biography

Waleed A Mazi is a regional Director for Infection Prevention and Control, King Abdul Aziz Specialist Hospital, Taif – Saudi Arabia. He also worked in Philosophy of Medical Science, Clinical Microbiology, Karolinska Institutet, Sweden. He has published international articles on prevention of central line –associated bloodstream infection, WHO-Hand Hygiene implementation program, prevention sharp injuries in healthcare settings and molecular genotyping for epidemiological purposes and participated as a poster and oral presenters in many international conferences.

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***Lbachir BenMohamed****University of California, USA***Bolstering the number and function of hsv-1-specific cd8+ TEM and TRM cells in latently infected trigeminal ganglia reduces recurrent ocular herpes infection and diseases**

Herpes simplex virus type 1 (HSV-1) is a prevalent human pathogen that infects over 3.72 billion individuals worldwide and can cause potentially blinding recurrent corneal herpetic disease. HSV-1 establishes latency within sensory neurons of trigeminal ganglia (TG) and TG-resident CD8+ T cells play a critical role in preventing its reactivation. The repertoire, phenotype and function of protective CD8+ T cells are unknown. Bolstering the apparent feeble numbers of CD8+ T cells in TG remains a challenge for immunotherapeutic strategies. In this study, a comprehensive panel of 467 HLA-A*0201-restricted CD8+ T cell epitopes were predicted from the entire HSV-1 genome. CD8+ T cell responses to these genome-wide epitopes were compared in HSV-1 seropositive symptomatic (SYMP) individuals (with a history of numerous episodes of recurrent herpetic disease) vs. asymptomatic (ASYMP) individuals (who are infected but never experienced any recurrent herpetic disease). Frequent polyfunctional HSV-specific effector memory IFN- γ +CD107a/b+CD44^{high}CD62L^{low}CD8+ TEM cells were detected in ASYMP individuals and were mainly directed against three "ASYMP" epitopes. In contrast, SYMP individuals have more mono-functional central memory CD44^{high}CD62L^{high}CD8+ TCM cells. Furthermore, therapeutic immunization with an innovative prime/pull vaccine, based on priming with multiple "ASYMP" epitopes (prime) and neurotropic TG delivery of the T-cell attracting chemokine CXCL-10 (pull), boosted the number and function of CD44^{high}CD62L^{low}CD8+ TEM and tissue-resident CD103^{high}CD8+ TRM cells in TG of latently infected HLA-A*0201 Tg mice and reduced recurrent ocular herpes following UV-B induced reactivation. These findings have profound implications in the development of T-cell-based immunotherapeutic strategies to treat blinding recurrent herpes infection and disease.

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Biography

BenMohamed is a Professor of Immunology, the founder and the head of the Laboratory of Cellular and Molecular Immunology in the Department of Ophthalmology at the University of California. He also holds a joint appointment with the Center of Immunology at UC Irvine and with Chao Family Comprehensive Cancer Center UCI Medical center. Dr. BenMohamed received his Ph.D. in Immunology from the Pasteur Institute, Paris, France in 1997 where he worked as the key developer and co-inventor of a new promising vaccine strategy that uses mucosal delivery of clinically approved lipopeptide molecules. Dr. BenMohamed has been involved in clinical immunology, humoral and cellular immune responses, epitope mapping, epitope improvement, and the development and optimization of sub-unit vaccines against several infectious diseases including malaria *Plasmodium falciparum*, human immunodeficiency virus (HIV), human cytomegalovirus (HCMV) and herpes simplex virus type 1 and type 2 (HSV-1 and HSV-2). Dr. BenMohamed is an independent immunologist, with a national and international reputation in vaccine development against both infectious diseases and cancer. Dr. BenMohamed is well integrated into the scientific community within the United States as well as Europe and is actively involved in a number of professional societies including American Association of Immunologists (AAI), American Society for Microbiology (ASM), American Society for Hematology (ASH), Association for Research in Vision and Ophthalmology (ARVO).

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**Waleed A Mazi**

Directorate of Health Affairs, Taif- Kingdom of Saudi Arabia

Application of high resolution melting to methicillin resistant *Staphylococcus aureus* and *Shigella sonnei* genotyping for epidemiological purposes

Introduction: High resolution melting (HRM) analysis has been used in laboratory medicine as accurate, rapid and cost effective scheme method. Methicillin resistant *Staphylococcus aureus* (MRSA) infections impose huge risk to public health in healthcare and community settings worldwide. *Shigella sonnei* has been predominantly responsible for dysentery worldwide. The organism has only one serotype and is genetically homogeneous. We evaluated MRSA *spa* typing and introduced new tools for *Shigella sonnei* genotyping using HRM analysis for epidemiological purposes.

Methods: Fifty clinical MRSA isolates were selected randomly from Scotland, Brazil, Sudan and Saudi Arabia. Methicillin-resistant phenotype was determined in accordance with BSAC standards using the Vitek 2 system. Ten *Shigella sonnei* DNA samples were provided by Institut Pasteur, France. Primers for the polymorphic X region of the *spa* gene and the six single nucleotide polymorphisms (SNPs) within *kduD*, *deoA*, *emrA*, *fdX* and *menF* were amplified by colony PCR using the SensiMix HRM kit, and the melting temperature (T_m) and melting curves of the amplicons were analyzed in close tubes using a Rotor-Gene 6000 instrument.

Results: Fifteen *spa* types detected each had a distinct melting temperature (T_m) that unambiguously assigned 44 isolates. Both t008 and t2770, as well as t311 and t021 *spa* types, shared the same T_m . The first set run separated lineages I, II and III with distinctive melting curves and the T_m of each allele was at least a half degree away from that of other alleles. The second set run distinguished the sublineages IIIa, IIIb and IIIc with distinctive melting curves.

Conclusion: HRM analysis is accurate, rapid and cost effective scheme method for identification of MRSA and *Shigella sonnei* for epidemiological purposes

Biography

Waleed A Mazi is a regional Director for Infection Prevention and Control, King Abdul Aziz Specialist Hospital, Taif – Saudi Arabia. He also worked in Philosophy of Medical Science, Clinical Microbiology, Karolinska Institutet, Sweden. He has published international articles on prevention of central line –associated bloodstream infection, WHO-Hand Hygiene implementation program, prevention sharp injuries in healthcare settings and molecular genotyping for epidemiological purposes and participated as a poster and oral presenters in many international conferences.

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