

Our previous studies had shown that platelet activating factor (PAF) was an important mediator of vascular leak. We found that although the dengue virus (DENV) or dengue immune serum did not induce PAF production by monocytes, lipopolysaccharide (LPS) acted synergistically with the DEN, in the production of PAF. Since LPS levels in serum have been found to be significantly elevated in SD, LPS could further contribute to disease pathogenesis and vascular leak.

Mast cells are an important source of PAF and have shown to be important in disease pathogenesis in dengue mice models. We found that mediators such as trypsinase and secretory phospholipase, which are produced exclusively by mast cells, are significantly elevated in patients with DHF, during early infection. Therefore, in summary, the events that lead to severe dengue appear to occur before the onset of vascular leak and the role of mast cells and viral proteins in the pathogenesis of SD should be further investigated.

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Type: Invited Presentation

Final Abstract Number: 25.003

Session: *Dengue, Chikungunya and Zika Virus Go Global*

Date: Friday, March 4, 2016

Time: 15:45-17:45

Room: Hall 5

Management of severe dengue

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Abstract: Dengue is an important human arboviral disease caused by infection of four antigenically related strains of dengue virus (DENV 1-4) belonging to the Flaviviridae family. Despite extensive worldwide efforts, it remains a major public health concern with 55% of the world's population estimated to be at risk for dengue. Infection by any of the four dengue serotypes can cause a wide spectrum of disease manifestations that ranges from mild, self-limiting febrile dengue fever to severe, life-threatening disease. The pathophysiological hallmark that determines disease severity is the degree of plasma leakage, bleeding and single or multi-organ involvement. In recent years, there were several clinical trials using re-purposed pharmaceutical agents to treat dengue, however none has shown significant usefulness for its recommendation for routine use. Lacking the anti-viral agents, management of dengue is largely supportive in nature. Ability to recognise infection early and early signs of disease progression remain key in instituting early and appropriate interventions, preventing disease progression or late presentation of disease where treatment options are limited and outcomes are poor. Patients with severe dengue should be admitted to a hospital with access to intensive care facilities. Judicious intravenous fluid replacement is critical to balance the 2 stages between plasma leakage and fluid re-absorption during recovery phase. Dengue is a dynamic disease particularly so during the critical phase where plasma volume changes rapidly, close and frequent monitoring of hematocrit is critical to guide fluid replacement. Concealed bleeding may pose a clinical challenge and in instance blood transfusion may be needed. Dengue mortality can be reduced with system priming to recognise the disease and systematic treatment approach.

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Zika virus: What you need to know

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Abstract: (no abstract received from presenter)

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Type: Invited Presentation

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Session: *Neglected Infectious Diseases Around the World*

Date: Friday, March 4, 2016

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Room: Hall 6

Leptospirosis

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Abstract: Leptospirosis is present worldwide and is especially important in developing countries, where sanitation is precarious. Sporadic cases are linked to contact with urine-contaminated water. In tropical countries, urban outbreaks can occur after floods in rainy season. Mild non-lethal anicteric forms comprise most cases and can be easily confused with flu, dengue fever, other mild viral illnesses and *P. vivax* malaria. About 5 to 10% of cases develop severe sepsis-like disease or meningitis during outbreaks. The serious illness form, also known as Weil's Disease, courses with jaundice, shock, renal failure, coagulopathy and other organ dysfunctions, leading to prolonged hospitalization in intensive care facilities and death, with high healthcare costs. Differential diagnosis includes bacterial sepsis, hepatitis, yellow fever, Hantavirus disease, *P. falciparum* malaria and other severe febrile illnesses. Highly sensitive and specific rapid diagnosis tests are commercially lacking. Antibodies or antigen detection by enzyme-linked assays and nucleic acid detection by PCR in blood or other body fluids are promising. Mechanisms of disease are little known, but evidence points out to systemic inflammatory response syndrome-like pathophysiology in severe cases. Spirochete cell wall proteins, lipopolysaccharide, enzymes like phospholipase and other bacterial toxic products produce tissue damage and activate inflammatory response locally and systemically, through toll-like receptors on antigen-presenting cells, triggering cytokine secretion by innate and adaptive immune cells, resulting in inflammatory and immune responses. Some patients evolve with shock, coagulopathy, organ failure and death. Which regulatory mechanism leads to severe disease is not exactly known. Lethality varies widely in severe cases, reaching 50% in some reports, depending of diagnosis and treatment institution speed, level of care and other factors.

Better comprehension of disease immunopathogeny can lead to adequate treatment and prevention.

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Session: *Neglected Infectious Diseases Around the World*

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Room: Hall 6

Leprosy: Is it a disease to be neglected?



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Abstract: On 31st December 2005 we realized that India had reached the goal of Eliminating Leprosy. This was quite pleasing since we had failed to reach the goal in 2000, as originally scheduled. This was also quite surprising for a country which had an annual new case detection rate of more than 4 per 10,000 population. Leprosy with its long incubation period and sub-clinical carriage did not appear to be a disease whose incidence can be reduced by treating clinical cases. This presentation is aimed at providing insights into the circumstance leading to elimination of leprosy and its implications.

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Session: *Neglected Infectious Diseases Around the World*

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Room: Hall 6

Parasitic infections and allergies



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Abstract: The hygiene hypothesis has been proposed to explain temporal trends of increasing allergy prevalence in high-income countries and in urbanizing populations in low-income countries (LICs). Improvements in hygiene and reductions in exposures to childhood infectious diseases are considered to cause increased allergy through a failure to educate appropriately the developing immune system leading to inadequate regulation of allergic inflammation. Parasite infections are extremely common in poor populations in LICs and a high prevalence of parasites, particularly helminth parasites, has been put forward to explain the low prevalence of allergy in rural populations of LICs. Data from epidemiological studies in populations infected with helminth parasites have provided strong evidence that exposures to helminth infections attenuate atopy and Th2 inflammatory responses directed against aeroallergens. Further, helminth exposures appear to modify the effects of atopy on allergic diseases (i.e. asthma, rhinitis, and eczema). However, exposures to some parasites with a life cycle phase of pulmonary migration may increase the risk of wheeze. For example, half the cases of wheeze in a rural

case-control study were attributable to evidence of allergic sensitization to ascariasis, while two thirds of acute bronchospasm in an urban setting was attributable to house dust mite IgE. Helminths may, therefore, be the primary target of allergic responses in traditional rural populations and such responses may be subject to immune regulation leading to a milder clinical course of allergic diseases. In contrast, in urbanizing populations where the introduction of sanitation may lead to the gradual disappearance of helminth infections, aeroallergens may emerge as the primary allergic sensitizers, and because such responses may be subject to less rigorous regulation, could cause more severe disease. Prospective studies from birth in populations undergoing the process of urbanization are helping to define the role of exposures to helminth parasites and other childhood parasitic infections in the changing epidemiology of allergic disease in LICs.

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Session: *Neglected Infectious Diseases Around the World*

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Room: Hall 6

Infectious disease pathology in India: Interactive cases



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Abstract: India is in a unique position in that Indian clinicians and pathologists encounter both diseases endemic to other tropical and developing countries, as well as healthcare and immunosuppression associated infections more typical of developed countries. This interactive session will discuss several cases that illustrate the varied clinical presentations of infectious diseases, their differential diagnosis and correlate the clinical with the pathological findings in these patients.

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Session: *The Silent Epidemic of Hepatitis*

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Room: G.01-03

Hepatitis C infection in people who inject drugs



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Abstract: Hepatitis C virus (HCV) is a major global public health problem. Worldwide, ~184 million people are infected, with a higher prevalence in developing countries compared to developed countries in North America and Europe. However, vulnerable populations (e.g., people who inject drugs (PWID), Aboriginal people, and incarcerated individuals) account for >80% of new infections and most of the onward transmission. In Bangladesh, PWID account for the vast majority of HCV infections.