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Challenges in the development of vaccines for leptospirosis in the philippines

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Strategies to prevent and control leptospirosis have been done for decades yet the magnitude of the burden of the disease continues to be high. Strengthening the immunity of high risk humans or animals through effective vaccines has been one of the priorities of public health professionals. Although some leptospirosis vaccines have been developed, the vaccination is relatively unsuccessful in clinical application. This is attributed to the high variability of pathogenic *Leptospira*: there are over 200 serovars and 25 serogroups, and many strains with small antigenic differences found in some serovars. Furthermore, new serovars and genotypes are continually being discovered in many parts of the world. In a recent study that our group conducted (Villanueva et al, 2010), 92% of 106 rat serum samples were found to be positive for anti-Leptospira antibodies using the microscopic agglutination test (MAT); the most common infecting serovars were Manilae, Hebdomadis, and Losbanos. On the basis of pulsed-field gel electrophoresis and gyrase B gene sequence analyses, four groups of rat kidney isolates were found: *L. interrogans* serovar Manilae, serovar Losbanos, and serogroup Grippotyphosa and *L. borgpetersenii* serogroup Javanica.. More recently, we conducted studies on the prevalence of Leptospira serovars among patients and high risk groups, as well as animals from the National Capital Region and from three other regions in the Philippines. Serovars Manilae , Grippotyphosa, Javanica, and Canicola were isolated from five samples (out of 695 blood and urine samples) collected from humans, using monoclonal antibodies. Among the 10 rat samples collected, 4 were culture positive (urine and kidney), with serovars identified as Manilae and Javanica. These were the same serovars we isolated almost a decade ago, with the addition of Serovar Canicola. Microscopic agglutination test (MAT)performed on human sera showed antibodies to serovar Patoc to be the most frequently occurring among National Capital Region patient referrals, followed by Copenhageni and Semaranga , whereas Serovars Poi and Pyrogenes were found to have high prevalence among MAT positive samples from the regional surveillance. These results taken together showed high antibody positivity against serovars that are different from the culture isolates. The finding that the majority of the serum samples were reactive with Patoc suggests a high exposure to this serovar which is considered non-pathogenic. Additional studies need to be conducted to further characterize the leptospira serovars that are most common in our setting in order to understand better, and address the problem of leptospirosis in the Philippines.

Biography

Professor Nina G. Gloriani is a medical doctor, public health profesional with a PhD in microbial immunology from the University of Melbourne. She has had a number of post doctoral fellowships in medical microbiology and immunology, and has published more than 30 papers in reputable journals. She is currently full professor and Dean of the College of Public Health, University of the Philippines Manila and Director of SEAMEO-TROPMED Regional Center for Public Health, Hospital Administration, Environmental and Occupational Health.