Abstract Submission for ILC 2013

Immunology

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EVOLUTION OF THE ANTIBODY RESPONSE IN HEALTHY HOUSEHOLD CONTACTS THAT PROGRESSED TO CLINICALLY DIAGNOSED HANSEN’S DISEASE

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Preferred Presentation Method: Oral or Eposter

Would you like to be considered for the Young Scientist Award?: No

Introduction: Household contacts of individuals with untreated leprosy disease likely have the highest risk of eventually succumbing to disease. Serum samples were obtained at two separate timepoints from twenty-four healthy household contacts of index cases, one at enrolment and another sample at the time that the individual was clinically diagnosed with Hansen’s disease. The duration of time elapsed between these two timepoints ranged from 1 month to over 11 years. The sera from these two timepoints were examined for changes to the antibody titer against M. leprae antigens by immunoblot and ELISA.

Methods: The paired serum samples were examined for reactivity by immunoblot to the protein antigens LID-1, Ag85B (ML2028), and the native M. leprae cytosolic subcellular fraction (MLSA). The antibody titer was also assessed by ELISA against ML2028, ND-O-BSA (to measure the anti-PGL-I titer), and lipoarabinomannan (LAM).

Results: Individuals were classified in the disease spectrum at diagnosis as tuberculoid (10/24, 42%), indeterminate (9/24, 38%), lepromatous (2/24, 8%), or the pure neural form (3/24, 12%). Only two individuals had a measurable bacillary index (BI), the rest had a BI = 0. Eight individuals showed increased reactivity over the baseline sample to one or more antigens in both immunoblot and ELISA. Overall, increases in the titers in the individuals in this group were found against PGL-I (5/8, 63%), protein antigens (6/8, 75%) and LAM (7/8, 88%). Interestingly, the individual that showed the most dramatic increase in titers to all antigens by both immunoblot and ELISA over a three year time period was a patient that developed pure neural disease.

Conclusion: The antibody titer of those household contacts who eventually developed disease symptoms was found to increase over time in about one third of the individuals in this study. It may be possible to monitor these changes over time to predict those individuals who are most at risk of succumbing to disease.