

Poster presentation

Determinants of the humoral response in Indian patients with neurocysticercosis

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The predominance of solitary cysticercus granulomas (SCG) among patients with neurocysticercosis (NCC) is peculiar to the Indian subcontinent as multi-lesional NCC is more prevalent globally. The difficulty in immunological determination of solitary cyst infections led to a study of the role of infection specific *Taenia solium* antigens in humoral immunity of Indian patients with SCG.

The study was a retrospective analysis of cysticercus antibodies in blood samples received for routine diagnostic cysticercus serology in the Neurochemistry Laboratory, Christian Medical College Hospital, Vellore, between November 2001 and March 2005 and June 2006 and January 2008 (61 months). Two thousand two hundred and sixty nine samples were received and in 801 of these patients the CT/MRI scan was indicative of neurocysticercosis (NCC). Radio images were either not characteristic of NCC or not requested in the remaining patients. Among these 801 patients cysticercus serology was positive in 449 patients.

NCC was diagnosed in all ages between 1 and 80 years. Fifty percent of all NCC presented in people under the age of 20 years and fifty percent in those between the ages of 21 and 80 years. Seventy six percent of 801 NCC patients were diagnosed with a solitary cysticercus granuloma (SCG). Fifty eight percent of all SCG was in patients under 20 years of age while 70% of MNCC was diagnosed in patients older than 21 years. Fifty one percent of patients

with SCG and 71% with MNCC were positive for cysticercus serology. The humoral response to *T. solium* infection specific antigens was stronger in patients with MNCC than with a solitary cyst suggesting the response is determined by antigen concentration. Among seven infection specific *T. solium* cyst glycoproteins, antibodies were raised predominantly against 3 proteins of molecular weight 18, 14, 13 kDa. These are secretory proteins but are neither the most abundant nor the most glycosylated among the 7 cyst proteins. They are however the most resistant to oxidation of their glycosyl groups indicating the stable molecules. The stability of these 3 glycoproteins would prolong their antigenic life and enable antibody production.

We suggest antigen load and stability contribute to the humoral response of NCC and will discuss utilization of both factors to improve serological diagnostic tests for SCG.