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CYTOKINES AND THE IMMUNOPATHOLOGY OF HUMAN NEUROCYSTICERCOSIS.

C. A. W. Evans[1], H. H. Garcia[2], R. H. Gilman[2], M. Martinez[2], D. G. Remick[3], J. S. Friedland[1]. Dept of Infectious Diseases, Hammersmith Hospital, London, UK[1]; Universidad Cayetana Heredia, Peru[2]; University of Michigan Medical School, USA[3].

Neurocysticercosis is a major cause of epilepsy in poorer nations. Morbidity and mortality result either from inflammation around degenerating *T. solium* larvae or are due to immune cell influx to the brain during anti-parasitic therapy. Little is known about the immunopathology of infection and current anti-inflammatory therapy has limited efficacy.

We therefore collected serum from 9 patients and 20 controls as well as CSF from 14 patients and 9 controls. We measured the concentrations of the proinflammatory cytokine TNF-α and the acute phase cytokine Interleukin (IL)-6 by bioassay and the eosinophil and neutrophil attractants IL-5 and IL-8 respectively by ELISA.

IL-6 was elevated in the CSF of 86% of patients compared to 33% of controls ($p<0.05$). The eosinophil chemoattractant IL-5 was elevated in the serum of 78% of patients versus 25% of controls and was detected in 43% of patients' CSF but not in control CSF (both $p<0.05$). In contrast, TNF-α and IL-8 were detectable in less than 25% of samples and there were no differences between patients and controls.

These data demonstrate first that patients with neurocysticercosis mount an acute phase response to the pathogen. Secondly, they indicate that eosinophil but not neutrophil influx may be critical in the human immune response. Anti-IL-5 may have a role in preventing excess cell influx during the treatment of neurocysticercosis.