Specificity of predominant IgG4 antibodies to adult and microfilarial stages of Brugia malayi.

Kurniawan-Atmadja A, Sartono E, Partono F, Yazdanbakhsh M, Maizels R.

Department of Parasitology, Faculty of Medicine, University of Indonesia, Jakarta, Indonesia.

Abstract

Human infections with filarial nematodes such as Brugia malayi are accompanied by unusually high titres of parasite-specific IgG4 antibodies. We have compared the profile of antigens recognised by filarial-specific IgG1 and IgG4 isotypes by Western blotting. Serum samples were collected from 120 subjects exposed to Brugia malayi, divided into three groups of asymptomatic amicrofilaraemic (endemic normal), microfilaraemic, and elephantiasis patients. Antigen preparations were tested from both adult B. malayi parasites, and from microfilariae; 24 distinct bands were analysed from the former, and 19 from the latter. Both qualitative scoring for band reactivity, and densitometric scanning of major bands, were employed. The consistent result was one of high and preferential IgG4 reactivity to a set of low molecular weight bands, of 15, 17, 20, 31 and 33 kDa; most of the 19 other bands showed higher reactivity with IgG4. Analysis of Western blot patterns showed an overall tendency for stronger IgG4 responses in microfilaraemic cases, and higher IgG1 responses in elephantiasis patients, consistent with published studies using ELISA on unfractionated parasite extracts. This study has defined an array of filarial antigens from each stage, and relative levels of IgG4 recognition, which will be important in unravelling distinct immune responses to this complex parasite.