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Abstract Submission

Oral Presentation

Abstract Title:

Whole Blood Cytokine Responses in Urinary Schistosomiasis: from pathway immunology to human disease

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BACKGROUND: Urinary schistosomiasis is caused by chronic *Schistosoma haematobium* infection. Murine models have identified cytokine secretion patterns associated with resistance to helminthiases, but these paradigms are yet to be tested in human *S.haematobium* infection. Here we present a comprehensive profile of the natural human whole blood cytokine response to *S.haematobium*.

MATERIALS & METHODS: Whole blood was collected from 255 Zimbabweans (aged 0.5–84 years) inhabiting an *S.haematobium*-endemic region who had never been treated with anti-helminthics. Blood was cultured with crude (cercariae, egg and adult worm homogenates) and purified (GST and Sh13) parasite antigen preparations for 48 hours. Culture supernatants were harvested and IFNγ, TNFα, IL-2, IL-4, IL-5, IL-6, IL-8, IL-10, IL-12, IL-13, IL-17A, IL-21 and IL-23 were measured via ELISA. *S.haematobium* infection was quantified by urine filtration. *Schistosoma mansoni*, soil-transmitted helminth and malaria positive cases were excluded. Multivariate data was analysed by ANOVA and uncorrelated variables were grouped using principal components analysis (PCA).

RESULTS/CONCLUSIONS: *S.haematobium* prevalence was 51.44% and mean infection intensity was 28.5 eggs/10ml urine and both peaked at age 11-14 years. Cytokines showed distinct patterns according to antigen stimulation and host age. Cytokine profiles by age also differed according to schistosome infection status. PCA showed that 13 cytokines directed against 5 parasite antigens clustered into groups corresponding to CD4+ T cell phenotypes characterised in murine pathway immunology.