In-vitro Analysis of cytokines responses of visceral leishmaniasis and pulmonary tuberculosis patients to homologous and heterologous antigen stimulation

presented by

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Leishmania and Mycobacterium TB share many similarities in their pathogenesis and both pathogens are macrophage parasites. Furthermore, co-infection by the two pathogens is not uncommon in clinical practice in East Africa and in other parts of the world (Sati 1942; el-Safi et al. 1995; Khalil et al. 1998, Bryceson et al. 1985

Little is known about the immunological responses of Visceral Leishmaniasis and pulmonary Tb patients to homologous and heterologous antigen stimulation.

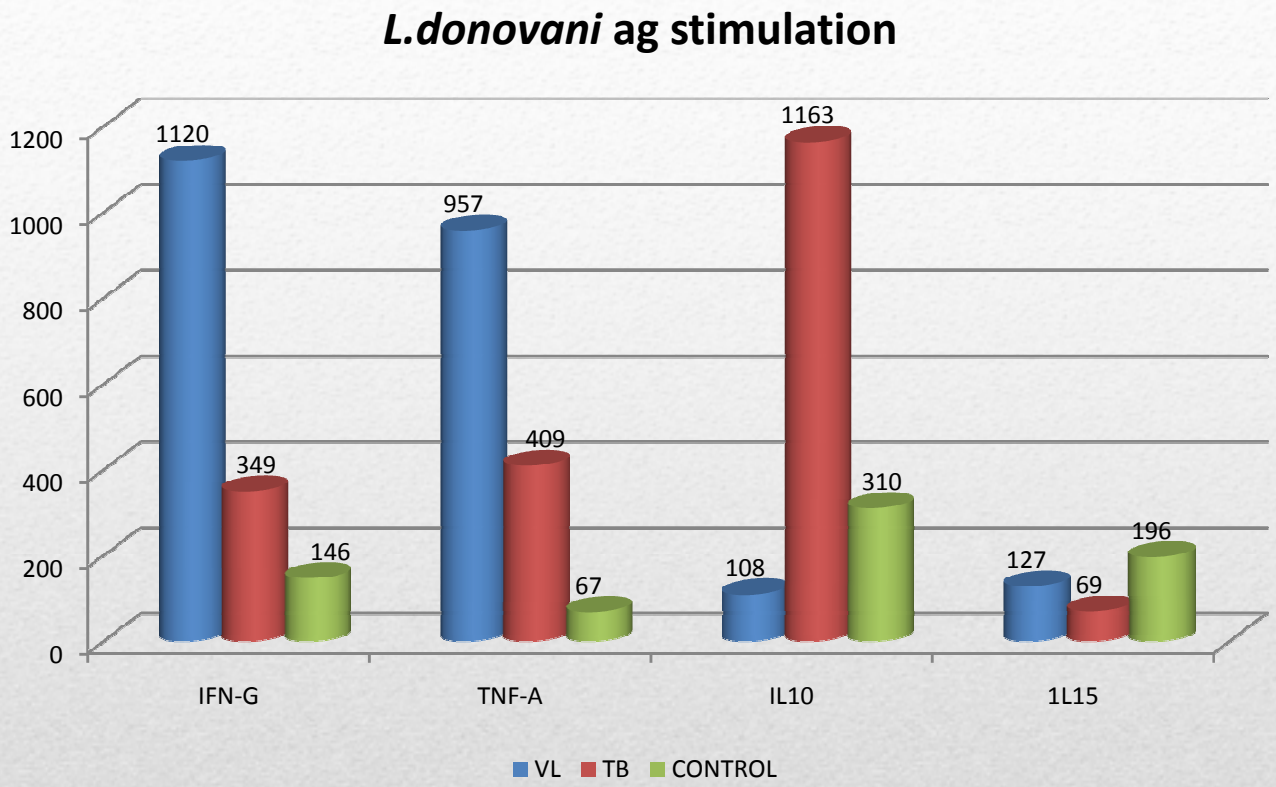
Visceral Leishmaniasis, also noun as kala-azarm is usually an inidious chromic disease among the inhabitants of endemic areas.

Tuberculosis is known as a major cause of morbidity and mortality worldwide.

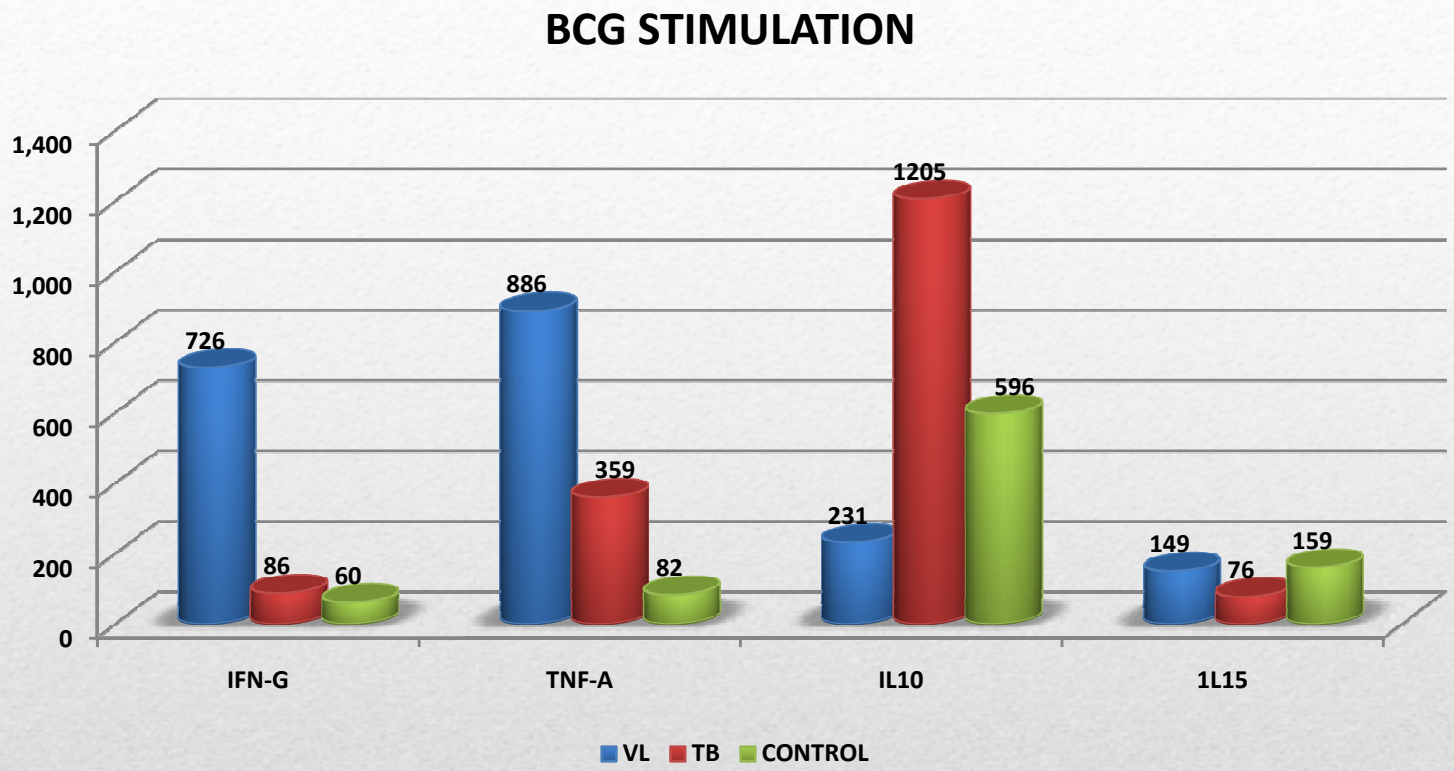
The present study was carried out to analyze in-vitro Th-1 and Th-2 cytokines responses of visceral leishmaniasis (VL) and pulmonary tuberculosis (TB) patients to homologous and heterologous antigens stimulates .

The cytokine profiles of confirmed VL patients, pulmonary TB patients and healthy individuals were compared after stimulation with live *Leishmania* promastigotes and BCG. Th-1 (IFN-γ and TNF-α), Th-2 (IL-10) and inflammatory cytokine IL-15 were measured in the supernatants of stimulated whole blood samples by ELISA.

The concentration of Th-1 cytokines (IFN-γ and TNF-α) were significantly higher in the supernatants of stimulated whole blood of VL patients compared with TB patients mainly when stimulated by homologous *L.donovani* antigen.



Cytokines profiles of visceral leishmaniasis, pulmonary tuberculosis and healthy controls whole blood samples stimulated with live L.donovani promastigotes.



Stimulation of VL, TB and healthy controls samples with BCG resulted in significant production of IFN-γ and TNF-α by VL samples while induced a significant IL-10 production by TB patients' samples. No significant IL-15 was produced by either VL, TB or healthy controls samples.

Th-2 cytokine IL-10 was significantly produced by whole blood of TB patients following BCG stimulation. Both VL and TB patients produced significant concentration of IL-15 when stimulated with homologous and heterologous antigens.

VL and pulmonary TB patients responded effecticiently to homologous antigen stimulation. While VL patients mounted protective immune response (TH1), TB patients mounted TH2 response.