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Evaluation of In Vitro Production of IFN-γ, IL-10, IL-12 and IL-13 by Blood Cells in Patients with Cutaneous Leishmaniasis Lesions

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Abstract:

This study investigated the in vitro production of interferon-γ, interleukin (IL)-10, IL-12, and IL-13, after antigenic stimulation of the cells (with Leishmania antigen and lipopolysaccharide) using whole blood from patients with cutaneous leishmaniasis lesions caused by Leishmania tropica and in volunteers with history of cutaneous leishmaniasis.
ELISA results showed that the mean production of interferon-γ by cells of whole blood in patients with lesions in response to Leishmania antigen was significantly lower than corresponding values in volunteers with history of cutaneous leishmaniasis (P< 0.05) and significantly higher levels of IL-10 production in patients with lesions were observed compared with cured volunteers of the disease (P<0.01). A similar level of IL-12, including p40 subunit of IL-12, was detected in both groups tested in this study in response to stimulation of parasite antigen. The levels of the IL-13 after stimulation with Leishmania antigen were significantly more in patients compared with volunteers with history of cutaneous leishmaniasis (P< 0.01). There was no significant difference in the mean production of IFN-γ, IL-10, IL-12 and IL-13 by PHA or LPS stimulated cells from patients with lesions and volunteers with history of the disease, indicating that there was no qualitative defect in cytokine production in these patients.
In this study, we have detected the decreased production of interferon- γ by cells of patients with lesions of cutaneous leishmaniasis in response to parasite antigen and unbalanced production of regulatory cytokines such as IL-10 and IL-13 using the whole-blood stimulation assay technique. The required small volume of blood and the rapid set up time are the advantages in this assay technique. Using this assay for further immunodetection of cytokines may confirm its value for clinical investigation.

Keywords:

Interferon-γ ، Interleukin ، IL5 ، IL10 ، IL12 ، IL13

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