BORDERLINE LEPROSY: IN SITU AND CYTOKINE PROFILE IN SUPERNATANT OF MONONUCLEAR CELL CULTURE

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ABSTRACT: In order to contribute to a better understanding of cytokine participation in borderline leprosy, in the present study we determined – by in vitro and in situ examinations – the production of these cytokine mediation in non-treated borderline tuberculoid (BT) patients and borderline lepromatous (BL) patients. Seven non-treated BT patients, 12 non-treated BL patients, besides 19 healthy individuals (control group), were evaluated. Peripheral blood mononuclear cells (PBMC) were stimulated or not with specific-M. leprae stimulus (whole and sonicated M. leprae antigens) and a non-specific stimulus. After 48 hours, supernatant was collected for TNF-alpha, IFN-gamma, IL-10 and TGF-beta1 cytokine determination by ELISA. Biopsies from cutaneous lesions were submitted to histological analysis and hematoxylin-eosin and Fite-Faraco stainings; the sections then underwent iNOS, IL-10 and TGF-beta1 in situ detection by immunohistochemistry. Cytokine quantification in PBMC supernatants from patients showed that BT patients produced higher levels of IFN-gamma. Compared to healthy individuals, both borderline patient groups produced lower levels of TGF-beta1 while BL patients generated lower IL-10 levels. The in situ iNOS expression was higher in BT patients compared to BL individuals. On the other hand, TGF-beta1 cytokine revealed a higher proportion of immunostained cells in BL patients. There was no significant difference in IL-10 level between BT and BL patients. Regarding cutaneous lesions, in BL patients there was a negative correlation between TGF-beta1 tissue expression and IL-10. Independently of the clinical form, we observed a positive correlation between TGF-beta1 and bacterial index as well as a negative correlation between the TGF-beta1 tissue expression and iNOS. The results even showed a positive correlation between iNOS tissue expression and production of IFN-gamma by PBMC stimulated with M. leprae antigens. Taken together, the histopathological and immunological observations reinforce the notion of immunological instability in borderline leprosy patients and indicating the participation of mixed cytokines profiles in these individuals, specifically a Th1 profile in BT patients and Th2 profile in BL patients, with a possible participation of T-regulatory lymphocytes.

KEY WORDS: leprosy, borderline leprosy, cytokine, immunohistochemistry, peripheral blood mononuclear cells, immunopathology.

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