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IL-10 and IL-13 Production by Peripheral Blood Mononuclear Cells in Patients with Diabetes Mellitus

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Abstract: Aim: It is generally accepted that proinflammatory cytokines secreted by mononuclear cells are responsible for pancreatic beta (B) cell destruction in animal models of autoimmune type-1 diabetes mellitus (DM). Several studies have shown that markers of inflammation and pro-inflammatory cytokines such as interleukin (IL)-10 and IL-13 associate with the metabolic syndrome, dyslipidemia, type-2 DM and type-1 DM. The aim of this study was to examine the in vitro production of IL-10 and IL-13 in cultures of peripheral lymphocytes obtained from patients with type-2 DM, type-1 DM and healthy controls. Materials and Methods: Twenty patients (10 females, 10 males) with type-2 DM (median disease duration: 10 years), 10 patients (5 females, 5 males) with type-1 DM (median disease duration: 11 years) and the healthy control group were enrolled in the study. IL-10 and IL-13 in culture supernatants were measured using the enzyme immunoassay method. Statistical analyses were performed using Mann-Whitney U test, Wilcoxon signed rank tests, and Spearman's rank correlation. Results: IL-10 and IL-13 levels were similar in culture supernatants incubated with 10 µg/ml phytohemagglutinin (PHA) in all patients and healthy controls ($P > 0.05$). In type-2 DM, IL-10 levels were significantly lower than in the control group in culture supernatants incubated with 20 µg/ml PHA ($P = 0.001$ for poor metabolic control and $P = 0.048$ for good metabolic control, respectively). Conclusions: According to this study, the alterations in IL-13 did not play an important role in the pathogenesis of type-2 DM and type-1 DM. Furthermore, the deficiency in IL-10 production from peripheral blood mononuclear cells observed with high dosages of PHA suggests that IL-10 may play an important role in the pathogenesis of type-2 DM.

Key Words: IL-10, IL-13, diabetes mellitus

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