

Thesis Title A Study of Immune Cells in Diabetic Patients
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ABSTRACT

The lymphoproliferative responses to the homogenated pancreatic antigen were studied in 48 diabetic patients and 65 normal controls. The peak responses in the cases of high responders ($SI > 4.5$) were observed with the use of the pancreatic antigen at concentrations within the range 100-200 $\mu\text{g/ml}$. With regard to this range of pancreatic antigen, it was found that 14 out of 48 (29.2%) diabetic patients had positive lymphoproliferative responses, including 4/17 (23.5%) patients with IDDM, 6/23 (26.1%) patients with NIDDM and 4/8 (50.0%) patients with FCPD. The proportion of responders in each group of diabetic patients was higher than that found in the normal controls (9/65, 13.8%), although significantly different was observed only in the FCPD group ($p < 0.05$). It was observed that 4 patients with

IDDM who were responders had the onset of disease within 1 year and were under 40 years of age , while IDDM patients with longer duration of diabetes or had the onset of disease at older age did not respond to the pancreatic antigen. Interestingly, 4 patients with FCPD had positive lymphoproliferative responses. One of these 4 patients also showed increasing levels of soluble interleukin-2 receptor (sIL-2R) and soluble CD8 (sCD8) in the antigen stimulated PBMCs culture supernatant. These results suggested that some patients with FCPD might have altered immunological responses to pancreatic antigen.

The immunophenotypes of PBMCs, including CD3, CD4, CD8, CD19, CD56, CD45RA, CD25, L-selectin were studied, using flow cytometry. It was found that patients with IDDM of new-onset (≤ 1 month) had significantly decreased percentages of CD8⁺ (suppressor/cytotoxic) cells (27.84 ± 1.90) resulting in a significantly increased CD4/CD8 ratio (1.51 ± 0.14) compared with normal controls (34.14 ± 1.02 and 1.18 ± 0.06 , respectively). The patients with longer duration of diabetes did not show such alteration. We also found increased percentages of CD19⁺ (B) cells in the group of IDDM patients with either duration. The percentages of activated CD4⁺ (CD4⁺CD25⁺), CD4⁺ co-expressing CD45RA and CD4⁺ co-expressing L-selectin did not show any alteration in IDDM patients. The percentages of PBMCs with studied phenotypes, obtained from patients with NIDDM and FCPD, were not different from those found in normal controls, except CD3⁺ (T) cells that were significantly decreased in the group of relatively young NIDDM patients (age < 40 years).