THE EGYPTIAN JOURNAL OF IMMUNOLOGY Vol.10 (2), 2003
Page: 9-18

Increased circulating FcepsilonRII-bearing B-lymphocytes and serum levels of IL-4 in non-autoreactive chronic idiopathic urticaria

Roshdy Wasfi Mohamed 1, Amal Fathy, Abeer Ezzat el-Sayed

Departments of Dermatology & Andrology, Suez Canal University, Ismailia, Egypt.

PMID: 15719607

The exact pathophysiology of chronic idiopathic urticaria (CIU) is not well understood. The concept of autoreactivity has evolved to explain the disease in up to 50% of cases, while the search for other mechanisms is still needed to explain the disease, at least among the remaining subpopulation of non-autoreactive CIU. Therefore, we thought to investigate some aspects of the IgE-dependent, lymphocyte-mediated late-phase response (LPR) of anaphylaxis. We searched for percentages of FcepsilonRII-bearing (CD23+) B and T lymphocytes and correlated this with total IgE serum levels, IL-4 serum levels and the disease severity scores. Twenty-five patients with non-autoreactive CIU and ten healthy control subjects participated in this study. CD23+ B- and T-cells were assessed by flow cytometry, total IgE serum levels were estimated by enzyme linked fluorescent assay (ELFA), IL-4 serum levels were estimated by Enzyme Amplified Sensitivity Immunoassay (EASIA), while disease severity was determined by a daily self-assessment urticaria activity and itching score. Our results showed that the mean values for percentages of CD23+ B-cells (6.7 +/- 2.3%), total IgE serum levels (139.6 +/- 103.9 microg/dl) and IL-4 serum levels (18.3 +/- 14.7 ng/ml) for patients were statistically significant (p = 0.002, 0.013 and 0.008, respectively), when compared with the corresponding values for controls (4.0 +/- 1.7%, 51.5 +/- 25.1 microg/dl, and 5.1 +/- 4.1 ng/ml, respectively), while the difference between the mean percentage of CD23+ T-cells for patients (2.8 +/- 2%) and that for controls (2.1 +/- 0.6%) was non-significant (p = 0.267). Strong positive correlations were detected between percentages of CD23+ B-cells and severity scores (r = 0.678, p = 0.0001), total IgE serum levels (r = 0.756, p = 0.0001) and IL-4 serum levels (r = 0.709, p = 0.0001), while no correlation was detected between CD23+ B-cells and CD23+ T-cells (r= 0.188, p= 0.368). It is concluded, that CD23+ B-cells, regulated by IL-4, may contribute in the pathogenesis of non-autoreactive CIU, by producing high levels of IgE and possibly lymphokines, while CD23+ T-cells may be involved in early antigen recognition. This may have a future therapeutic ramification in this distinct subset of CIU by targeting low-affinity IgE receptors.