THE EGYPTIAN JOURNAL OF IMMUNOLOGY Vol. 10 (2), 2003
Page: 19-26

Proinflammatory cytokines (IL-12 and IL-18) in immune rheumatic diseases: relation with disease activity and autoantibodies production

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PMID: 15719608

Interleukin-18 (IL-18) and its inducer IL-12 have multiple biological activities that are important in generating Th1 responses and inflammatory tissue damage. We investigated serum concentration of the novel proinflammatory Th1 cytokine; IL-18, and its inducer IL-12 in patients with immune rheumatic diseases. Group I comprised32 patients of systemic lupus erythmatosus (SLE), Group II comprised 36 patients of rheumatoid arthritis (RA). Group III comprised 9 patients (2 patients of Behcet, 2 patients of Dermatomyositis, 2 patients of Sicca syndrome, one patient of Scleroderma, and 2 patients of Mixed connective tissue disease). Group IV is a control group consists of 21 sex and age matched healthy subjects and correlated their levels with autoantibody concentration (ANA and ds-DNA), clinical grades and SLE disease activity index (SLEDAI). Serum IL-18, IL-12, ANA and ds-DNA were measured by enzyme immuno sorbent assay. IL-18, IL-12 and ANA were significantly higher in the three studied groups than in the control group (IL-18; P < 0.001 in the three groups, IL-12; P = 0.019, P = 0.002, and P = 0.006, and ANA; P < 0.001, P = 0.002,and P = 0.006, respectively).ds-DNA was significantly higher in SLE patients than in control group (P < 0.001). There were significant positive correlations between; A) levels of IL-18,and both ANA and ds-DNA in SLE patient (r = 0.41,P = 0.001, r = 0.58 and P=0.001 respectively); and B) IL-18 and ANA in both RA and group III patients (r = 0.32, P = 0.005, r = 0.61and P = 0.022 respectively). Also, there were significant positive correlation between the levels of IL-18 and clinical grades of the three groups (r = 0.60,P = 0.001, r = 0.79,P = 0.001, r = 0.78 and P= 0.001 respectively). In SLE patients , IL-18 concentration shows significant positive correlation with SLEDAI score (r = 0.76, P = 0.001). In conclusion, the elevation of proinflammatory cytokines (IL-18 and IL-12) may trigger the inflammatory process in immune rheumatic diseases and IL-18 is correlated with disease activity