Decreased levels of serum soluble complement receptor-II (CR2/CD21) in patients with rheumatoid arthritis

M Masilamani, Johannes Von Kempis & H Illges

OBJECTIVE: The soluble cluster of differentiation 21 (sCD21) represents the extracellular portion of the CD21 glycoprotein and is released by shedding from cell surfaces into plasma. Soluble CD21 binds complement fragments and activates monocytes through binding to membrane CD23. Elevated levels of sCD21 are found during Epstein-Barr virus EBV infections, B-cell lymphoma and other lymphoblastoid tumours. The present study was undertaken to investigate levels of sCD21 in rheumatoid arthritis. METHODS: A specific enzyme-linked immunoassay was developed using sCD21, biochemically purified to homogeneity from human plasma as a standard for the determination of sCD21 concentration in patient sera. Peripheral blood B and T lymphocytes were isolated from healthy donors and rheumatoid arthritis patients and cultured, and supernatants were analysed for CD21 shedding. RESULTS: The normal values of serum sCD21 in healthy individuals between 20 and 40 yr of age ranged from 100 to 477 ng/ml (median 292 ng/ml), decreasing with age but not differing with gender. In rheumatoid arthritis patients, sCD21 levels ranged from 50 to 300 ng/ml (median 182 ng/ml), did not differ with age and were independent of rheumatoid factor. CONCLUSIONS: In contrast to healthy donors, patients with rheumatoid arthritis have significantly lower sCD21 levels (P < 0.0001), independently of the age of the patients. Sorted B cells from rheumatoid arthritis patients released amounts of CD21 comparable with those of normal controls. Possible causes and consequences of the findings are discussed.

type journal paper/review (English)
date of publishing 2-2004
journal title Rheumatology (Oxford, England) (43/2)
ISSN print 1462-0324
pages 186-90