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ELEVATED SERUM IMMUNOGLOBULIN LEVELS IN POLYMORPHOUS LIGHT ERUPTIONS

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Abstract. Elevated immunoglobulin levels were demonstrated in the sera of patients suffering from chronic polymorphous light eruptions. Compared with corresponding levels in a control population, the IgE levels were elevated very significantly, the IgM levels significantly, and the IgG levels almost significantly. Apart from the occurrence of a low grade positive Waaler-Rose test titre in 14% of the patients, serological abnormalities associated with so-called collagen diseases could not be demonstrated.

Key words: Chronic polymorphous light eruptions; Serum immunoglobulins; Collagen diseases

When patients with chronic polymorphus light eruptions (CPLE) were screened with a panel of clinical laboratory tests, statistically significant deviations from the normal levels of several immunoglobulin serum levels were disclosed. The results of the immunoglobulin measurements and of certain other serological tests are presented and discussed briefly.

MATERIAL AND METHODS

The data were collected at the Dermatological Clinic, University Hospital, Oulu, Finland, in connection with a clinical study of 138 CPLE patients (6). CPLE was defined as a recurring, itching summer eruption, confirmed predominantly to exposed skin and precipitated by sun exposure. Furthermore, the typical morphological features of CPLE (6, 10) were present. Patients with light-aggravated atopic dermatitis were not included. To exclude photosensitivity from porphyria, erythrocyte protoporphyrin measurements and urinary and faecal porphyrin measurements had been made.

Serum IgE levels measured with the Phadebas® (Pharmacia, Sweden) radioimmunosorbent test. The normal values as determined in a group of 95 healthy persons were mean 84 U/l and standard deviation (S.D.) 80 U/l. Measurements of serum IgG, IgA and IgM were made by radial diffusion techniques. Normal values as determined in a group of 248 healthy persons were mean 13.49 g/l, S.D. 3.90 g/l for IgG, mean 3.37 g/l, S.D. 1.89 g/l for IgA and mean 0.89 g/l, S.D. 0.52 g/l for IgM. For statistical evaluations, the *t*-test was used.

RESULTS

Serum immunoglobulin levels

The serum IgE level was determined in 100 CPLE patients and the IgG, IgA and IgM levels in 70 patients. The results are seen in Fig. 1. The mean value for IgE was 396 U/l, S.D. 635 U/l; mean value for IgG was 15.19 g/l, S.D. 5.13 g/l; mean IgA was 3.58 g/l, S.D. 2.25, and mean IgM level was 1.28 g/l, S.D. 0.96 g/l. These results differ very significantly ($p<0.001$) from the control values in the case of serum IgE, significantly ($p<0.01$) for serum IgM, and almost significantly ($p<0.05$) for serum IgG. The deviations observed for IgA do not reach the 5% significance level.

Other laboratory findings

The results of laboratory tests commonly used for the detection of immunoaberrance states found in connective tissue diseases are reported. The figures in brackets indicate the numbers of patients tested.

The erythrocyte sedimentation rate [74] ranged 2–57 mm/h; values greater than 20 mm/h were found in 13 patients. The leukocyte count [93] varied 3 000–26 000/ml; values less than 4 000/ml were noted in 7 patients, and a value of more than 10 000/ml in 3 patients.

The LE-cell phenomenon [99] was consistently negative in all patients tested, even in repeated tests. Nuclear antibodies [76] were absent in 72 patients and present in low titres (1 : 10 to 1 : 160) in 4 patients. The Waaler-Rose test for the rheumatoid factor [89] was negative in 78 patients. Four pa-

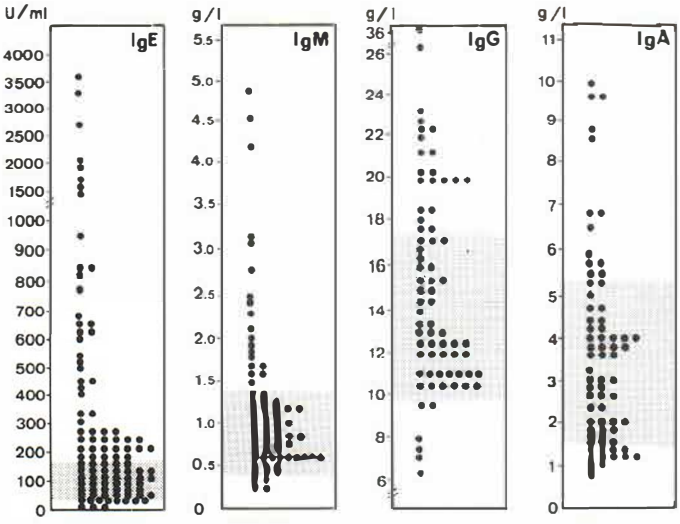

Fig. 1. Serum immunoglobulin levels in patients with chronic polymorphous light eruptions. The shaded areas represent the normal variation ranges.

tients had low titres (1:32 or less) and 7 patients had moderate titres (1:60 to 1:350). The Latex agglutination test [53], on the other hand, was negative in all patients tested except for 3 patients who had a +1 reaction. The sitolipin flocculation test [37] was negative in all patients tested, except in one who had been treated for syphilis 15 years earlier. The serum cryoglobulin test [74] was negative in all patients tested.

In 54 patients the levels of the complement components C3 and C4 were determined. The mean level of the C3 component was 1.16 g/l, and a value lower than the standard limit (0.60 g/l) was found in one patient only. The mean value for the C4 component was 0.46, with 2 patients having a value slightly less than the normal lower range (0.2 g/l).

DISCUSSION

To the best of the author's knowledge, no previous report on the levels of the various serum immunoglobulins in CPLE has been published. Meara et al. (12) measured the serum IgE in 11 patients with 'summer prurigo'. Two were reported to have elevated values, one of them 2790 ng/ml; the authors considered that this reflected an atopic state in these patients. The statistically very significant rise in the IgE level found in the present material may be a reflection of the relatively frequent association of CPLE with atopic complaints (7). The deviations in the IgG and IgM serum levels, however, point towards a more general disturbance in the immunoglobulin metabolism of CPLE patients. As elevated levels in the various immunoglobulin classes have been found in collagen diseases, e.g. rheumatoid arthritis and systemic lupus erythematosus (1, 3) the classic question of a possible relationship of CPLE to LE needs to be considered. None of the patients of the present series, however, had clinical signs compatible with overt discoid or systemic lupus erythematosus, and in none of the persons could the LE-factor be detected. Furthermore, elevated ESR, leukopenia or a positive nuclear antibody test were found only exceptionally, and the latter in low titres only. A negative cryoglobulin test and the absence of signs of complement consumption are further findings in contradiction of any collagen disorder. These findings corroborate the view of most earlier writers, that CPLE is clinically distinct from LE (2, 4, 5, 13).

The finding of a rheumatoid factor in low or moderate titres in 14% of the patients studied contrasts with less than 2% quoted for a general Finnish population (9), but rheumatic complaints are no more frequent in the CPLE population than in the rest of the community (6). Immunoglobulin aberrations are known to occur in close relatives of patients with collagen disorders (11), but a survey of

the relatives of CPLE patients (8) failed to disclose any particular proneness to such diseases in the families of CPLE patients (unpublished observation).

We are thus left with the fact of immunoglobulin level disturbances in CPLE, without any evident reason for this phenomenon. Interestingly, similar rises in serum immunoglobulin levels have been reported in patients with porphyria (14). As porphyrias were excluded in the patients of the present report, the apparent analogy of these findings is probably fortuitous.

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