

Serum Levels of Total Immunoglobulin E in Patients with Psoriasis: Relationship with Clinical Type of Disease

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SUMMARY

Psoriasis is a common cutaneous disorder characterized by inflammation and abnormal epidermal proliferation. Its severity ranges from a chronic plaque psoriasis (CPP) to generalized psoriatic erythroderma (PE). The cause of psoriasis is unknown although most evidence supports the hypothesis that psoriasis is an immunologically mediated disease. The aim of the study was to compare serum levels of total immunoglobulin E (IgE) between patients with psoriasis and

healthy subjects, and to assess the difference between localized form (CPP) and extensive form of disease (PE). Fifty patients with psoriasis and 30 healthy subjects were included in this study. Serum levels of IgE were measured using nephelometric method. Serum levels of total IgE were significantly higher in patients than in controls (42% vs 10%; $p < 0.05$). The exact role of serum IgE in psoriasis should be additionally investigated in future studies.

Keywords: psoriasis, total immunoglobulin E, serum levels

1. INTRODUCTION

Psoriasis is a common cutaneous disorder characterized by inflammation and abnormal epidermal proliferation with a prevalence of 2-3% in the general population (1). Chronic plaque psoriasis (CPP), the most common form of the condition is usually manifested as erythematous, scaly plaques on elbows, knees, scalp, but any skin surface may be affected as well. Psoriatic erythroderma (PE) represents the generalized form of the disease that affects all body sites. The specific pathogenesis of psoriasis is not completely understood, but the underlying mechanisms involve a complex interplay between epidermal keratinocytes, T lymphocytes as well as other leukocytes, and vascular endothelium (2,3).

The discovery of immunoglobulin E (IgE) was major stimulus to the investigation of allergic diseases (4). Although serum IgE concentrations are low in normal health condition, they are high in atopy, parasitosis (5), human immunodeficiency virus (HIV) infection (6), and certain types of cancer. In some of these diseases, serum IgE concentration correlated with the

activity and intensity of disease, and may be used as a prognostic factor. Serum IgE levels in dermatologic condition other than atopic dermatitis usually have been reported as normal (7), although increased serum IgE concentrations have been documented in patients with contact allergic dermatitis, systemic lupus erythematosus (8), and alopecia areata (9).

Literature data on serum IgE in patients with psoriasis are very limited and results are controversial. The aim of our study was to evaluate serum concentrations of total IgE in psoriasis patients and control subjects, and also to assess the difference between CPP and PE.

2. PATIENTS AND METHODS

2.1. Patients

The study included 50 patients with psoriasis (14 female and 36 male, median age 37.5). Patients with systemic disease, atopic history or allergy were excluded. Patients with systemic or topical administration of corticosteroids before immunoglobulin detection were also excluded. Family history and data on the duration and severity of the disease were collected.

Control group consisted of 30 generally healthy subjects (9 female and 21 male, median age 36.5). The total group of psoriasis patients and the two patients subgroups divided according to skin involvement were compared to the control group. Group 1 (n=50) included all psoriasis patients, group 2 (n=37) patients with CPP, and group 3 (n=13) patients with PE.

2.2. Methods

Serum IgE levels were measured by the nephelometric method (Dade Behring Marburg GmbH, Marburg Germany) with a normal range of 0-100 IU/mL.

2.3. Statistical analysis

Statistical comparisons were performed using X²-test. Data were considered statistically significant at $p < 0.05$.

3. RESULTS

Results are shown in Table 1. A total of 50 patients (14 female and 36 male) were examined. Family history was positive for psoriasis in 5 of 50 patients (10%). The duration of psoriasis ranged from 3 to 267 months. The range of individual IgE levels was wide. IgE values showed no significant sex difference. There were no correlation between the duration and clinical type of disease and serum IgE concentration. The serum IgE level was elevated in 42%

Group	n	n (%)
Psoriasis	50	21 (42)
CPP	37	11 (29.7)
PE	13	10 (76.9)
Control	30	3 (10)

TABLE 1. Serum levels of IgE in patients with psoriasis, chronic plaque psoriasis (CPP), psoriasis erythrodermica (PE) and in control group

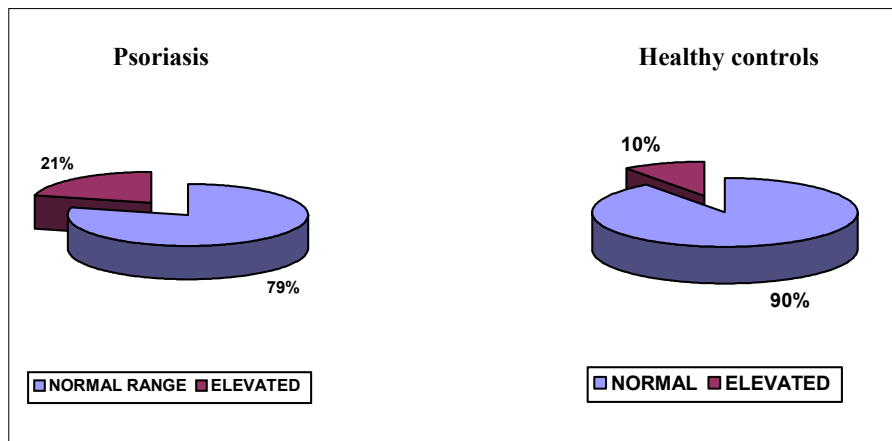


FIGURE 1. Serum IgE levels in patients with psoriasis and healthy controls

of the psoriatic patients, as compared with 10% of the control group (Figure 1). Serum levels of total IgE were significantly higher in psoriasis patients than in control subjects ($X^2 = 0.071$, $p < 0.05$). The serum IgE level was found to be elevated in 77% of the PE group, which is much higher than that (29.7%) of CPP group ($p < 0.05$), but there was not of a statistical significance.

4. DISCUSSION

A variety of humoral changes have been demonstrated in psoriatic skin. Psoriasis patients, especially those with severe disease, have elevated serum levels of IgA and often IgG and even anti-nuclear antibodies (10). These antibodies can be shown in the stratum corneum, where they may stimulate complement and thus attract neutrophils.

The possible association of serum IgE levels and psoriasis has been previously reported (11-13). Our study clearly demonstrated that total serum IgE was significantly increased in psoriatic patients (42%) in comparison to healthy subjects (10%). These results are consistent with a clinical study performed by Chen et al. (14). They analyzed serum IgE levels in 56 patients with psoriasis, and found serum levels of IgE to be elevated in 46% of patients. Our findings are similar to the study of Li et al. (15), who also recorded a significant increase in serum IgE (81.3%) in patients with PE. Nevertheless, our observations of serum IgE concentrations in psoriatic patients were in contrast to some previous studies (16,17), which did not find an increase in IgE levels.

Although there may be other mechanism regulating IgE synthesis, over production of IgE is usually Th2 cell determined (18,19). The Th2 cyto-

kines IL-4 and IL-13 are required signals for IgE synthesis. Keratinocytes do not produce IL-4 or IL-13, but are involved in IL-4 or IL-13 induced biological effects (20). Hyper IgE in psoriasis, specially in PE implies that a shift from Th1 to Th2 has occurred in psoriasis and suggest that caution should be taken in the use of Th2 inducing treatments in psoriasis (15).

Accordingly, our results suggest that elevation of total serum IgE might be a common feature in psoriasis. Unfortunately, the mechanism by which IgE might interact in the pathogenesis of psoriasis is unknown. Further studies on the molecular mechanisms of IgE overproduction and its role in psoriasis are needed.

5. CONCLUSION

In summary, this study supports the evidence that elevation of total serum IgE is associated with psoriasis. Additional studies are clearly warranted to elucidate whether these observations represent a causal, pathogenic, or non-causal association.

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