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HUMORAL IMMUNO-DEFICIENCY IN LICHEN PLANUS

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Serum immunoglobulin levels were studied in 41 histopathologically proven, idiopathic lichen planus patients and 25 normal healthy individuals. No difference was observed in IgG levels, though, IgA and IgM levels were significantly reduced in patients with lichen planus as compared to normal controls. There was no association between the mucosal involvement and the reduced levels of IgA and IgM. These results suggest the possibility of humoral immuno-deficiency in lichen planus patients.

Key words : Lichen planus, Immunoglobulins, Humoral immuno-deficiency.

Lichen planus is a disease of virtually unknown aetiology. The existence of a lichen planus-lupus erythematosus syndrome[1] and the occasional co-existence of lichen planus with known immunological disorders like myasthenia gravis,[2] bullous pemphigoid[3] and late onset hypogammaglobulinemia[4] suggests an immunopathogenetic mechanism. Besides these, direct immunofluorescence studies[5,6] have shown globular or cytoid body like deposits of immunoglobulins, mainly IgM, at the dermo-epidermal junction and in the upper dermis.

Serum immunoglobulin studies in lichen planus have shown variable results.[7-10] Stankler[7] observed significantly reduced levels of IgA and IgM in 13 patients with cutaneous lichen planus. Jacyk and Greenwood[8] also found deficiency of serum IgM but IgG and IgA levels were normal. Scully[9] and Shuttleworth et al[10] did not find any evidence of a humoral immunodeficiency in lichen planus. Mahood[11] on the other hand observed an increase in the levels of IgG, IgA and IgM after the resolution of the lichen planus lesions.

The present study was carried-out to find out the changes in the humoral immunity in patients with lichen planus from this geographical area and to see whether there was any difference in the serum immunoglobulin levels in the patients having lichen planus with and without mucosal involvement.

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Materials and Methods

A total of 41 randomly selected, clinically diagnosed and histopathologically confirmed patients with idiopathic lichen planus who had not taken any treatment were investigated for serum immunoglobulin levels. None of the patients had taken any drug known to cause lichenoid eruptions prior to the onset of the disease. The results were compared with those of 25 normal healthy controls, mostly the attendants of the patients, and without having any disorder known to affect the immunoglobulin levels. Ten ml of venous blood was collected in a sterile vial without any anticoagulant. Serum was separated after clotting the blood and stored at —20°C until assayed for immunoglobulins. Estimation of serum IgG, IgA and IgM concentrations was carried-out by single radial immunodiffusion technique.[12] Results were analysed by using Student's 't' test. Serum immunoglobulin levels are expressed as mg/dl (mean $\pm$SD).

Results

Out of 41 lichen planus patients, there were 22 males and 19 females. The age of the patients ranged from 11 years to 70 years (mean

Table I. Serum immunoglobulin levels in lichen planus patients and normal healthy controls.

Group	Mean (SD) levels of immunoglobulins in mg/dl		
	IgG	IgA	IgM
Patients with lichen planus	1454.87(±156.09)	177.07(±33.07)	90.97(±14.28)
Normal	1396.60(±208.90)	272.20(±75.63)	183.04(±68.38)
t value	1.86	7.05*	8.36*

* $p<0.001$

age 34.67±15.32 years) and those of normal individuals from 12 years to 55 years (mean age 31.42±11.58 years). The average duration of lichen planus was 11.14±10.23 months. Eight patients were having oral mucous membrane involvement.

As a group, the patients with lichen planus had statistically significant ($p<.001$) lower IgA and IgM levels. IgG levels, however, were not significantly different as compared to the normal healthy controls (Table I). There was no significant difference in the serum levels of IgG, IgA and IgM in lichen planus patients with and without mucosal involvement.

Comments

The present investigation on lichen planus patients shows significantly low levels of IgA and IgM, irrespective of oral mucosal involvement, as compared to the normal healthy controls. These results are in accordance with those of Stankler[7] and Jacyk and Greenwood[8] and thus support the suggestion[7] that a humoral immunodeficiency underlies lichen planus.

The immunoglobulin deposition in the colloid bodies has been observed as one of the earliest pathological event in the genesis of the colloid bodies.[5] Direct immunofluorescence studies have shown deposition of IgG, IgA and particularly IgM, as well as components of complement and fibrin at the basement membrane zone of epithelium and epidermis.[5,6] The reduced levels of IgA and IgM, as observed in this study, in the blood of lichen planus patients might be a reflection of the deposition of immunoglobulins in the skin.

The involvement of oral mucosa could not be attributed to lowering of immunoglobulin levels as there was no statistically significant difference in IgG, IgA and IgM levels in lichen planus patients with and without mucosal involvement.

Similar reduced levels of IgA and IgM in blood are also present in some recognised immunodeficiency syndromes with a high susceptibility to infection and with malabsorption and infection with *Giardia lamblia*.[13,14] There was no history of susceptibility to infection or bowel upset in our patients of lichen planus, an observation similar to that of Stankler,[7] the immunoglobulin levels were however reduced in them. Low levels of immunoglobulins may make these individuals susceptible to an unknown viral agent,[15] or this immunosuppression may be secondary to direct cytotoxic effect of some unknown agent on the lymphoid cells.

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