HISTOCOMPATIBILITY ANTIGENS IN PSORIASIS

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Summary

HLA typing on 30 Indian psoriatics and 60 controls identified BW17 antigen to be significantly associated with the disease. HLA-A1 + BW17 combination appeared in 26.6% of patients against 5% controls; the difference was statistically significant. The patients with HLA-HW17 and A1 + BW17 combination were associated with younger age of onset of psoriasis. HLA-B27 was present in 2 patients of psoriasis without arthritis and in 1 with arthritis providing no correlation between HLA-B27 and the presence of psoriatic arthritis.

The observations of familial occurrence, twin studies and geographical variations in the world-wide prevalence of psoriasis indicate a genetic predisposition[1,2]. The genetic factors appear important from the alleged increased frequency of HLA antigens BW17, BW16 and B13 in caucasian patients[3-8] and because of the demonstration of a direct relation between the HLA antigens and the prevalence of psoriasis in different countries[9]. India being one of the low prevalence areas[2], it became relevant to study the HLA-antigens in the Indian patients.

Patients & Methods

Thirty patients suffering from plaque psoriasis were studied. All the patients belonged to northern parts of India. 22 patients were male and 8 female, age at onset varied from 19 to 65 years; duration of psoriasis from 4 months to 18 years. The extent of psoriasis in them varied from 5 to 100 patient body surface. Five patients complained of arthralgia involving the small and large joints; 3 of them had arthropathy with nail dystrophy. Family history was positive in 3 patients.

Sixty normal unrelated healthy north Indian subjects were studied as control group.

HLA typing:

Two stage lymphocytotoxicity micromethod test[10] was performed for HLA typing on the patients and the controls. Eighty HLA antisera defining 19 specificities (obtained from NIH, USA and Westminster Hospital Medical School, London) were used to identify the antigens.

Results

The frequency of HLA antigens of the psoriasis patients are compared with those of normal controls in Table I. The difference in frequency between the 2 groups for the antigen BW17 was highly significant ($P < 0.001$). HLA-BW17 was present in 36.7% of psoriatics against 8.3% of controls. Although, HLA-B13 was more frequent among the patients than the controls the differece

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TABLE 1
HLA antigen frequency in psoriasis

HLA	30 Psoriasis Patients		Controls 60	
	No.	%	No.	%
HLA-A	13	43.3	18	30.0
HLA-A2	15	50.0	18	30.0
HLA-A3	6	20.0	11	18.0
HLA-A9	5	16.6	9	15.0
HLA-A10	2	6.7	9	15.0
HLA-A11	7	23.3	17	28.3
HLA-A28	4	13.4	11	18.3
HLA-A29	1	3.4	5	8.3
HLA-B5	4	13.4	15	25.0
HLA-B7	0	0	13	21.7
HLA-B8	3	10.0	9	15.0
HLA-B12	2	6.7	12	20.0
HLA-B13	4	13.4	3	5.0
HLA-B14	0	0	0	0
HLA-B27	3	10.0	2	3.3
HLA-BW35	6	20.0	8	13.3
HLA-BW15	4	13.4	5	8.3
HLA-BW17**	11	36.7	5	8.3
HLA-BW22	0	0	3	5.0
HLA-A1+BW17* combination	8	26.6	3	5.0

* $P < 0.01$ ** $P < 0.001$

was not statistically significant. HLA-A1 and BW17 combination was found in 26.6% of cases against 5% of controls; the difference was statistically significant ($P < 0.01$). When the average age at onset of psoriasis was calculated for groups of patients possessing specific antigens the patients with HLA-BW17 (26.40 ± 7.80 years) and combination of A1+BW17 (27.36±7.20 years) were associated with younger age at onset compared to the patients lacking these antigens (31.80 ± 13.00 years) or the total group of the patients (30 83 ± 12.54 years). The difference was however not significant statistically ($p > 0.05$). Likewise, the various antigen subgroups were unrelated to the extent of psoriasis in terms of percent body area involvement. The analysis of association of sex with various revealed distinct male preponderance among patients with antigens BW17 (M : F = 9 : 2), and combination of A1 and BW 17 (M : F = 7 : 1) as compared to the total group (M : F = 22 : 8), and patients without BW17 (M : F = 13 : 6) and A1 + BW17 (M : F = 15 : 7).

Of the 5 psoriatics with joint symptoms, 3 had demonstrable arthropathy involving the large and small joints of the extremities. In all 3, the joint affection was clinically indistinguishable from rheumatoid arthritis but their sera were negative for rheumatoid factor. In one case (No. 30) sacro-iliac joints were also involved. HLA-A2 was found in 4 patients with joint changes and HLA-B27 in one patient with psoriasis and arthritis with sacroiliac affection (Table II). HLA-B27 was also found in 2 other patients of psoriasis who had no evidence of arthritis or arthralgia.

TABLE 2
HLA antigen in psoriatic patients with arthralgia and arthritis

Case No.	Diagnosis (Psoriasis with)	HLA A-Locus	HLA B-Locus
9	arthralgia	1, 11	13, 17
11	arthralgia	1, 2	13, 21
25	arthritis	2, 29	18
26	arthritis	1, 2	12, 18
30	arthritis	2	27

Discussion

The frequency of HLA-BW17 appeared to be significantly increased in Indian patients with psoriasis. Our findings also identified HLA-A1+ BW17 as a disease associate combination, an observation made earlier by Seignalet et al[11]. The increased frequency of HLA-B13 in Indian patients did not appear to be significant. The patients possessing HLA-BW17 or A1 + BW17 combination demonstrated younger age onset compared to the patients lacking these antigens or the whole group. There was no correlation between the extent of psoriasis and a particul r HLA antigen subgroup as reported by Krulig et al[8]. Likewise, no correlation could be seen between the presence of arthralgia or arthritis and HLA-B27. Of

the 5 patients with associated joint affection HLA-B27 was present in one and HLA-A2 in 4 patients. Two other patients with no evidence of arthritis also possessed HLA-B27. It may be interesting to follow them if they develop arthritis at a later date as HLA - B27 has been associated with a variety of polyarthritis.

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TRUE or FALSE ?

The antiperspirant activity of aluminium chlorpydrate in the human axilla is only on the atrichial eccrine glands.

(Answer page No. 35)