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Arthritis in psoriasis

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SUMMARY A group of 61 unselected patients with psoriasis attending a dermatology clinic were studied to determine the prevalence of psoriatic arthritis. On defined criteria arthritis was present in 41·6%. Peripheral arthritis was present in 15·5%, and sacroiliitis in 43%. A strong association of distal interphalangeal arthritis with psoriasis and nail dystrophy was confirmed. Tissue typing showed a strong association of B23, 17, in Caucasoid psoriatics, while the haplotype A1/B8 was increased in mixed Caucasoid—Negroid psoriatics.

The entity psoriatic arthritis is now generally accepted, and criteria for its definition have been formulated.[1] In recent years many reports have indicated a close association of genetic markers with various disease entities. In psoriasis studies have indicated that the antigens HLA B13 and HLA B17 are increased, and the correlation of HLA B27 with psoriatic sacroiliitis is well established in Caucasian populations.[2–4] The following associations of some tissue types with psoriatic peripheral arthritis have been claimed Bw16,[5] B13/17,[4 6] Bw38.[4] The purpose of this study was to investigate the prevalence of arthritis and tissue types in patients with psoriasis attending a dermatology clinic in Cape Town.

Materials and methods

Unselected patients with psoriasis were examined for evidence of peripheral and axial arthritis. The majority were outpatients attending a dermatology clinic and a few were seen in the wards. The criteria for the peripheral arthritis associated with psoriasis were those proposed by Wright and Moll[1]: (1) a history past or present of joint pain involving 3 or more joints; (2) swelling, limitations of motion, subluxation, or ankylosis of at least 3 limb joints including the distal interphalangeal joints and fifth prosxmal interphalangeal joints (the involvement of at least a hand, wrist, or foot joint was mandatory); (3) negative rheumatoid factor.

The presence of sacroiliitis was determined clinically by the following manoeuvres: (*a*) direct pressure over the sacroiliac joints; (*b*) compressing the iliac bones towards each other; (*c*) hyperextension of the one hip with the other in full flexion.

Nail dystrophy (nail pitting, onycholysis, hyperkeratosis under the nails) was sought in all cases. Tissue typing, technetium scintiscans, and radiology of the sacroiliac joints was done where possible. An *x*-ray of the hands was requested whenever there were nail changes or clinical evidence of hand arthritis.

The radiology of the sacroiliac joints included an antero-posterior view of the pelvis and oblique views which were graded according to the New York criteria[9]: (0) normal; (1) suspicious changes; (2) minimal abnormality—small localised areas with erosion or sclerosis, without alteration in the joint width; (3) unequivocal abnormality—moderate or advanced sacroiliitis with one or more of: erosions, evidence of sclerosis, widening, narrowing, or partial ankylosis; (4) severe abnormality—total ankylosis.

Results

Sixty-one patients were seen. This group comprised: 35 mixed Negro-Caucasoid and 26 Caucasoid patients. The sex distribution was female 34, male 27 (1·2:1). The mean age was 46·08 years (range 8–82). Three patients were not included in the final analysis because 2 were definite cases of rheumatoid arthritis, and the third had long-standing ankylosing spondylitis and developed psoriasis 20 years after the onset of the spondylitis.

PSORIATIC PERIPHERAL ARTHRITIS

(Tables 1 and 2)

Evidence of a definite peripheral arthritis was found

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Table 1 *Affected joints in patients with peripheral arthritis*

Radiocarpal	8
Distal interphalangeal	7
Proximal interphalangeal	7
Elbow	7
Knee	6
Ankle	5
Metacarpophalangeal	4
Metatarsophalangeal	4
Shoulder	3
Hip	1
Interphalangeal (toes)	1

Table 2 *Clinical presentation of psoriatic arthritis*

	Males	*Females*	*Total*
Peripheral arthritis	2	1	3
Peripheral and axial arthritis	3	3	6
Axial arthritis	5	12	17
Total			26

in 9 of 58 (15·5%) patients. In the upper limb the joints most frequently involved were the distal, proximal interphalangeal, radiocarpal, and elbow joints; in the lower limb the ankles, knees, and metatarsophalangeal joints. One patient had an arthritis mutilans. Radiological sacroiliitis was present in 6 of the patients who had peripheral arthritis. Two patients had only clinical signs of sacroiliitis, and 1 patient had normal sacroiliac joints. Clinical involvement of the distal interphalangeal joints was found in two-thirds of the patients but it never occurred alone. Three patients had a history of peripheral arthritis and radiological erosions, and 2 patients a history of only peripheral arthritis. Nail dystrophy was present in 8 of the 9 patients with peripheral arthritis. One patient with nail dystrophy whose hands were *x*-rayed showed erosive changes without clinical evidence of arthritis.

PSORIATIC SACROILIAC DISEASE

Clinical sacroiliitis was present in 16 of the 58 (25%) patients. Grade 2 or more sacroiliitis was present in 22 of 55 (43%) radiographs (14 female, 8 male). The mean age of these patients was 52 years, compared with 42 years in those without sacroiliitis.

The duration of psoriasis in both groups was 15 years. The sacroiliac changes were bilateral in 9 and unilateral in 13 (8 grade 2, 14 grade 3). Fourteen of the patients with positive radiographs were asymptomatic. Joint scans were positive in 7, and 6 had peripheral arthritis. Of the 16 patients with clinical sacroiliitis 9 were confirmed radiologically and 4 had positive joint scans. Joint scans were done in 49 patients and were positive in 12. Seven positive scans were confirmed radiologically and 5 of these patients had clinical sacroiliitis. Nail dystrophy was present in 10 patients with sacroiliitis.

Table 3 *HLA antigen frequencies in psoriatic Caucasoids*

HLA antigen	*Patients (n=21) % positive*	*Controls (n = 300) % positive*	*Relative risk*	*p Value*
B7	5	24	0·23	0·022
B13	19	5	4·43	0·027
B27	19	10	2·28	0·113
B17	33	6	7·46	0·0004

Table 4 *HLA antigen frequencies in psoriatic Negro-Caucasoids*

HLA antigen	*Patients (n=26) % positive*	*Controls (n=251) % positive*	*Relative risk*	*Value*
A1	54	16	5·88	0·00004
A19	4	33	0·12	0·0007
B8	23	8	3·23	0·025
B17	42	25	2·15	0·035
Bw22	15	4	5·10	0·021
Bw35	0	18	0·08	0·006

TISSUE TYPING (Tables 3 and 4)

HLA typing was performed by the microlymphocytotoxicity test.[10] Patients and controls were tissue typed for the following: HLA antigens: A1, A2, A3, A9, A10, A11, A28, A29, A19, Aw23, Aw24, A25, A26, Aw30, Aw31, Aw32, Aw33, Aw34, Aw36, and Aw43 of the A locus series, and B5, B7, B8, B12, B13, B14, B18, B27, B15, Bw16, B17, Bw21, Bw22, Bw35, B37, Bw38, Bw39, B40, Bw41, B347, and Bw42 of the B locus series. Highly selected sera were used, the sources being the Provincial Blood Grouping Laboratory and interchange with other laboratories.

A significant increase of B13 ($P = 0·027$) and B17 ($P = 0·0004$) was demonstrated for psoriatics of Caucasoid stock, while in those of mixed stock, A1 ($P = 0·00004$), B8 ($P = 0·025$), B17 ($P = 0·035$), and Bw22 ($P = 0·0211$) were increased. There was an increased prevalence (19% versus 10%) of B27 in the Caucasoid group, but this was not statistically significant. HLA B27 was significantly decreased in frequency in the Caucasoid group ($P = 0·022$). In the mixed group A19 ($P = 0·007$) and Bw35 ($P = 0·006$) were found to have decreased frequencies. The details of the statistical evaluation have been fully discussed elsewhere.[11 12]

Discussion

Nine (15%) of an unselected population of patients with psoriasis had peripheral arthritis on the criteria of Wright and Moll.[1] These criteria have not received universal acceptance, and a valid comparison with other quoted figures of 0·4%–49·0% is not possible.[13–16]

Five patients had peripheral joint symptoms, and in 3 of these there were erosions. The presence of erosive changes coupled with a history of arthritis in these patients suggests that these may be examples of inactive psoriatic arthritis. Furthermore there was 1 patient with nail dystrophy and erosive changes who probably represents an example of psoriatic arthritis. If the criteria were redefined to include these patients, the prevalence of peripheral arthritis in this group of psoriatic patients would be 25·8%.

The association of nail dystrophy with peripheral arthritis in 88% of these patients concurs with previous reports[1 17] and can be compared with the findings in patients who had sacroiliac disease, where the association was less strong (45%). Although a topographical relationship of DIP arthritis and nail involvement has been proposed, it is of interest that no single case of DIP arthritis occurred without other small joint involvement of the hand. The DIP arthritis nevertheless is an important feature of psoriatic arthritis, and it bears a close relationship to nail dystrophy.

Clinical sacroiliitis was found in 25% of patients. The clinical evaluation of sacroiliitis is open to some doubt because subacute disease may give false negative tests and other spinal disease may give false positive tests. Notwithstanding the clinical limitations, it is claimed to be more sensitive than radiological or scintiscan investigations for sacroiliitis.[18]

Radiological sacroiliitis was present in 43 of the patients. Radiological sacroiliitis was more frequently associated with psoriasis than peripheral arthritis. Thus 66% of patients with peripheral arthritis had sacroiliitis, while 27% of patients with sacroiliitis had peripheral arthritis. It would therefore seem that, as a guide to the joint manifestations associated with psoriasis, radiological sacroiliitis is a more accurate reflection of suspected psoriatic arthritis.

Several reports have also indicated a high prevalence of radiological sacroiliac disease.[3 7 19 20] The prevalence of peripheral and axial arthritis (*x*-ray) in this group of unselected psoriatics was 41·6%, which compares with other findings on the same criteria.[8]

In one population study 8% of persons with severe psoriasis had moderate or severe polyarthritis, while the prevalence of psoriatic arthritis was estimated in the Faroe Islanders as 5 per 10 000.[16] No population studies have been undertaken with internationally accepted criteria, and Lawrence has suggested that if criteria were defined and strictly applied 'the diagnosis will be so rare, that it will seldom be made in population samples'.[21]

Joint scanning in our patients proved disappointing, since it failed to provide confirmatory evidence of sacroiliitis when it was compared with the clinical and radiological data. The reason for the poor results may be multifactorial in that disease activity may have been at an early stage, mild, or quiescent at the time of the scan, while our method of scanning has the limitation of not picking up mild unilateral disease.

One study has shown that technetium isotope is taken up by immature collagen tissue in psoriasis, which suggests that positive scintiscans in psoriatic arthritis may not only be due to increased vascularity.[22] Because of the uncertainty of what is being measured, some have called for a moratorium on joint scans.[23]

The genetic associations of psoriasis are generally accepted, and the mode of inheritance is considered to be multifactorial.[24] The genetic mechanisms is unknown. The genetic markers B17 and B13 have once again been confirmed for Caucasian psoriatics. The haplotype A1/B8 was shown to be the main genetic marker in the patients of mixed Negro-Caucasoid stock. No particular tissue type was demonstrated in patients with psoriatic peripheral arthritis. The presence of B27 in 6 out of 19 patients (31·5%) with *x*-ray sacroiliitis confirms previous findings. However, it was only in the Cauasoid group with sacroiliitis that B27 was increased ($P = 0·03$). It should be noted that in normal South African Negroid people B27 has a low frequency, the respective antigen and gene frequencies being 0·0083% and 0·0042% (Briggs B R, unpublished data). The figures from this mixed group would thus tend to suggest that B27 is not so significant a marker gene for sacroiliitis in black populations.

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