Original Article

Presentation of early onset psoriasis in comparison with late onset psoriasis: A clinical study from Pakistan

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ABSTRACT

Background: Early onset psoriasis and late onset psoriasis are known to have different clinical patterns in Caucasian population. However, there is paucity of data among Asian patients. **Aims:** To compare the clinical presentation of early onset psoriasis with late onset psoriasis in Pakistani population. **Methods:** During the study period, participating dermatologists filled a pre-tested questionnaire for each patient with psoriasis on first encounter. The questionnaire incorporated information regarding clinical and demographic features of psoriasis including age of onset, clinical type of psoriasis, nail or joint involvement, and PASI score. Patients were then divided into early onset (age of onset <30 years, group I) and late onset (age of onset ≥30 years, group II) psoriasis. **Results:** Five hundred and fifteen questionnaires were filled and returned for evaluation. There was no statistically significant difference in both groups with regards to gender, family history ($P = 0.09$), nail ($P = 0.69$) and joint ($P = 0.74$) involvement, disease severity ($P = 0.68$), and clinical type of psoriasis ($P = 0.06$). No significant difference between disease severities measured by PASI score was observed in the two groups ($P = 0.68$). Presence of nail involvement was associated with joint disease in both groups (odds ratio 2.8, confidence interval 1.9–4.1). **Conclusion:** Patients with early and late onset psoriasis in Pakistani population do not show different clinical and demographic features contrary to the Western patients.

Key words: Clinical features, early onset, late onset, psoriasis

INTRODUCTION

The concept of early and late onset psoriasis was first introduced by Henseler and Christophers in 1985. They studied over 2000 patients with psoriasis and discovered two peaks regarding age of onset; first occurring at 16–22 years and later at 57–60 years. They further differentiated the two types of psoriasis on the basis of many features including HLA typing, heritability, and clinical course of disease. They concluded that nonpustular psoriasis shows two distinct forms, one of which is hereditary, with early onset, and the other is sporadic and occurs in older age.[1]

Is psoriasis really genetic in nature? Statistical genetics theory states that if the ratio of disease (risk ratio) in first-degree relatives is at least four times as high as the population prevalence, and if at least one of the genes involved has a large effect on the phenotype, then a search for the genes by genetic linkage techniques is feasible.[2] On the basis of this, the usefulness of early and late onset psoriasis has been questioned. On the one hand, early onset psoriasis has been shown to be more common in first-degree relatives indicating a genetic association, but on the other hand it has been shown that these genetic associations may vary in different populations. Based on these findings, it can be said that genetic association of psoriasis is heterogeneous and population based.[2-4]

Delineating the features of early and late onset psoriasis can point toward a difference in genetic association of psoriasis. Since no clinical or epidemiological work on

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psoriasis has been done in Pakistan, as far as we have searched, we planned this study in a multi-center setting to observe and assess the clinical features of psoriasis according to age of onset in Pakistani population.

METHODS

This multi-center cross-sectional study was carried out in Pakistan from January to December 2006. Data was collected from ten dermatology units in different regions of Pakistan. These dermatology units were selected based on geographic distribution to obtain a representative sample.

During the study period, all new patients with a clinical diagnosis of psoriasis reporting to any of the study centers were included in the study. In case of uncertain diagnosis or incomplete information patients were excluded. The research and ethics committee of concerned hospitals approved the study.

The participating dermatologists were asked to fill and return a specially designed pre-tested questionnaire about all new psoriasis patients. The questionnaire included information regarding sex, age, age of onset of psoriasis, family history of psoriasis, history of joint and/or nail involvement, clinical type and severity of psoriasis, and clinical site involvement. Involved and noninvolved areas of the skin (including nails, scalp, and genital area) were drawn in a general body sketch enclosed in the questionnaire.

The severity of the psoriasis was estimated by means of the Psoriasis Area and Severity Index (PASI) score. Nail involvement was defined as presence of pitting, onycholysis, subungual hyperkeratosis, or nail bed psoriasis (seen as oil drop sign) in one or more finger or toe nails. Presence or absence of joint complaint was noted on the basis of past medical history and clinical examination. The patients were divided into two age related groups. Group I comprised age of onset up to 30 years (early onset psoriasis) and group II comprised age of onset above 30 years (late onset psoriasis).

Continuous data were described as mean, standard deviation, standard error, and 95% confidence interval (CI) for the mean and range. Categorical variables were described as frequencies and percentages. Comparisons of continuous variables were analyzed with independent sample *t* test; the chi-square test was used to compare categorical variables. Odds ratio was calculated for association between variables. A *P* value of <.05 was considered statistically significant. Data was managed and analyzed using SPSS software version 12.0.

RESULTS

A total of 515 patients with psoriasis were included in the study. Of these, 396 (76.9%) were men and 119 (23.1%) were women ($P = 0.0005$). Mean age of onset was 30.48 years, range 1–75 years, standard deviation (SD) $\pm$14.37. Two hundred and sixty three patients (51.1%) were in group I and 252 (48.9%) were in group II. Mean age of onset in group I was 19.67 years, SD $\pm$7.83, standard error mean (SEM) 0.48, and range 1–30 years. Mean age of onset in group II was 41.85 years, SD $\pm$10.37, SEM 0.65, and range 31–75 years. Women were more likely to have an earlier onset of psoriasis (odds ratio 2.1, CI 1.5–3.1).

Family history was positive in 12.5% and 17.9% of patients in group I and II, respectively. Difference between the two groups was not statistically significant [Table 1].

History of joint involvement was present in 28.8% and 31.9% of patients in group I and II, respectively. History of nail involvement was present in 34.5% and 30% in group I and II, respectively. The difference between the two groups in nail and joint involvement was not statistically significant [Table 1]. Presence of nail involvement was associated with joint disease (odds ratio 2.8, CI 1.9–4.1). Nail involvement was not significantly associated with disease severity assessed by PASI score ($P = 0.09$, Chi square).

PASI scores in the two groups were compared. In group 1, mean PASI score was 15.2, SD $\pm$16.2, SEM 1.0, 95% CI –2.1$\pm$3.2. In group II, it was 14.7, SD $\pm$14.7, SEM 0.9, 95% CI –2.1 $\pm$ 3.2. Comparative PASI scores did not show statistically significant difference between the two groups [Figure 1].

Stable plaque psoriasis was the commonest clinical type seen in 458 (88.9%) patients, guttate psoriasis was next with 45 (8.7%) patients, followed by erythrodermic with 10 (1.9%) patients, and least common was pustular psoriasis with only two (0.4%) patients. Group comparison of clinical types of psoriasis did not show statistical significance [Figure 2].

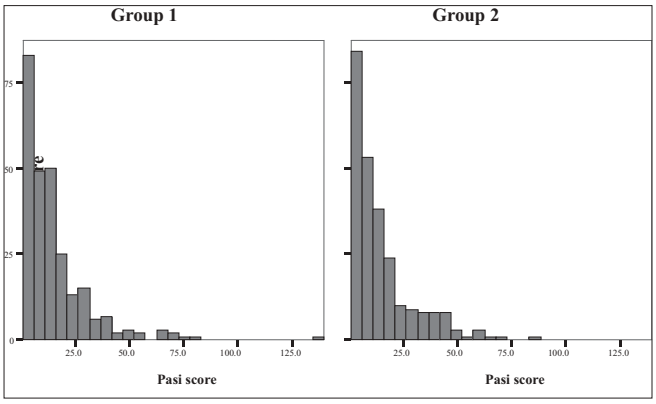

Figure 1: PASI scores compared according to groups. Independent samples t test, *P*-value = 0.68

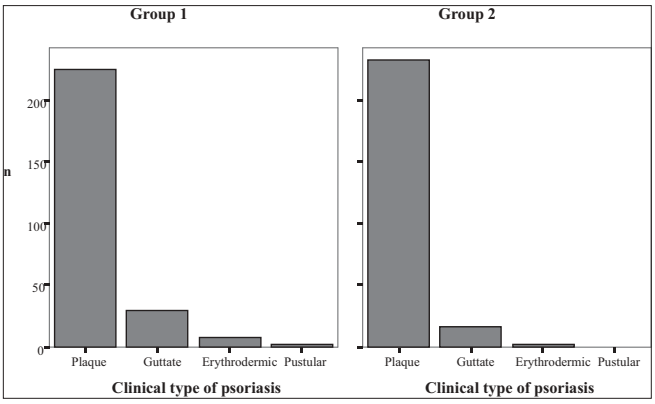

Figure 2: Clinical types of psoriasis according to disease groups. Pearson's Chi square value 7.24, *P*-value = 0.06

Table 1: Comparison of gender, family history, nail, and joint involvement in two age-related groups

		Disease group		Total	Chi square value
		Group 1 n = 263	Group 2 n = 252	N = 515	(*P*-value)
Sex of patient	Male	182 (69.2%)	214 (84.9%)	396	17.8
	Female	81 (30.8%)	38 (15.1%)	119	(<0.0005)
Family history	Positive	33 (12.5%)	45 (17.9%)	78 (15.1%)	2.82
	Negative	230 (87.5%)	207 (82.1%)	437	(0.09)
Joints involvement	Present	76 (28.8%)	80 (31.9%)	156 (30.3%)	0.10
	Absent	188 (71.2%)	171 (68.1%)	359	(0.74)
Nails involvement	Present	91 (34.5%)	75 (30%)	166	0.15
	Absent	173 (65.5%)	175 (70%)	348	(0.69)

Trunk was the commonest involved site in both groups (group I, 35.2%; group II, 23.4%), followed by limbs (group I, 8.9%; group II, 11.2%), scalp (group I, 4.7%; group II, 10.4%), face (group I, 0.8%; group II, 1.2%), palms and soles (0.4% each group), while erythroderma was seen in 1% in group I and 1.2% in group II. Difference between the two groups regarding involvement sites was not statistically significant (P = 0.56, Chi square).

DISCUSSION

Mean age of onset of psoriasis seen in our population was in concordance with earlier data regarding age of onset in Asian patients.[5-8] Among the Asian races, most of work has been done in Chinese ancestry, whereas no large studies on psoriatics from Indo–Pakistan subcontinent could be found. Results are more variable in Caucasian population with some studies showing a higher age of onset.[9,10] We were unable to see two age related peaks of onset as suggested in these studies. It seems likely that age of onset of psoriasis may vary according to geographic area. Earlier age of onset in females shown in this study is in concordance with earlier, albeit, Caucasian studies.[10]

Family history of psoriasis has been variably reported from 2–91%.[6,9] A small case-control study from Pakistan addressing the issue has reported the incidence of family history in guttate psoriasis to be 45.7% in early onset psoriasis,[11] whereas some other studies on Asian populations have shown 23% and 64% incidence of family history, respectively, in early onset psoriasis.[12,13] Our results suggest an overall chance of 15% of having a first-degree relative with psoriasis; moreover, the difference in the two age related groups was not found to be statistically significant. A lower occurrence of family history in our patients, especially in early onset psoriasis may point toward a different genetic basis of psoriasis in Pakistani population.

Joint involvement has been reported to affect about 30% of psoriatic patients.[14] A previous nonage-related study on Pakistani population has shown about 10% overall incidence of joint involvement.[15] A large retrospective study has shown an incidence of joint involvement in 9.3% of psoriatics in Caucasian patients.[16] Increased incidence of joint involvement in early onset psoriasis has been suggested by various researchers,[1,17] others have found no age related difference in joint disease.[10] Reasons put forward

are different characteristics of the population studied and different criteria used to define psoriatic joints involvement.[10,18] In the present study, we could not elicit any relationship of joint disease with the age of onset. One reason could be that our data was based on history and clinical examination, while radiological examination was not done. Due to this limitation of our study, we cannot rule out information bias completely. The other studies mentioned were focused only on psoriatic joint disease and more stringent inclusion criteria were employed.

Nail changes in psoriasis have been reported in up to two-thirds of patients,[18,19] whereas MRI-based nail changes associated with joint disease have been reported in up to hundred percent of patients.[20] A positive correlation between nail and joint involvement has been found by others.[21] Though we have seen an overall positive correlation between nail and joint disease, no significant difference in the two age groups was seen regarding nail and joint disease. Nail involvement has been associated with disease severity in Caucasian population,[10] but our study did not reveal any significant association.

Plaque psoriasis was the commonest clinical type seen in our patients which is in concordance with earlier reports.[5,6,10] No significant relationship could be established between the age of onset and the clinical form of disease. This finding is also consistent with earlier studies.[10,22] The frequency of guttate psoriasis was more in early onset psoriasis in our study but not statistically significant. Likewise, erythrodermic and pustular psoriasis did not show any significant difference in the two groups. We believe that the number of patients with these clinical types was too few to reveal meaningful results. We suggest further analysis of the rarer types of psoriasis to bring out any age related differences.

We have determined the severity of psoriasis based on PASI score only. Although PASI score gives a fair assessment of disease severity, but still there are other parameters which can augment patient assessment, for example, systemic therapy used and number of hospital admissions during the disease period. We believe this is a limitation of the present study and these parameters need to kept in mind during further research in this direction.

Early onset psoriasis has previously been shown to be more severe than late onset psoriasis based on PASI score.[1,10,22-24] Researchers have also shown a more unstable course of psoriasis early on.[10] We have been unable to show any statistically significant difference in the two groups regarding disease severity. However, we could not find any large studies from Indo–Pakistan subcontinent comparing the early and late onset psoriasis for comparison with our results.

We have been unable to reject the null hypothesis of this study that early onset psoriasis is phenotypically different from late onset psoriasis as suggested in literature reviewed. As far as two age related peaks, association of early onset psoriasis with family history, association of joint and nail disease with disease severity and onset are concerned, this study has shown a different behavior of psoriasis in Pakistani population from Caucasian population. Coming back to the statistical genetic theory argument referred to earlier, we are of the opinion, based on our findings, that different clinical pattern of psoriasis in Pakistani population could be due to different genetic pattern of psoriasis in this region. We recommend further genetic studies on our population to confirm our findings.

CONCLUSION

No age related phenotypic difference was found in psoriasis in Pakistani population contrary to Western patients. Genetic heterogeneity in our population needs to be explored to further validate our research.

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