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Original Article

Hyperuricemia in female and male patients of chronic plaque psoriasis

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Abstract

Objective To determine hyperuricemia in patients with chronic plaque psoriasis.

Methods Out of 194, 97 biopsy proven patients of psoriasis were taken as cases and 97 participants coming to OPD with any other skin disease like acne, alopecia, dermatomycosis etc. as controls. 5ml of venous blood was drawn in sterile syringe and using gel sample tube was sent to the laboratory for serum uric acid level.

Results There were 54.6% (106/194) male and 45.4% (88/194) female. Patients of psoriasis had hyperuricemia more frequently than controls (25.8% vs. 7.2%). Although male patients and similar frequency of hyperuricemia as in controls (15.2% vs. 6.7%), female patients had significantly more frequent than controls (35.3% vs. 8.1%).

Conclusion Hyperuricemia is a common finding in psoriatic patients. Its treatment might be clinically useful for the global treatment of patients. We found a female preponderance which could also be due to the overall more proportion of female patients visiting the clinic.

Key words
Serum uric acid, chronic plaque psoriasis.

Introduction

Psoriasis is a common, chronic, disfiguring, inflammatory and proliferative condition of the skin, in which both genetic and environmental influences have a critical role. Psoriasis is characterized by erythematous, scaly plaques over extensor aspects of the body and scalp.[1] It affects 120 to 180 million of the world population, with a prevalence of 0 to 11.8%.[2] The exact etiology is unknown.[3,4] Psoriasis is considered as a systemic inflammatory disease causing various complications and comorbidities which have significant impact on patient health and quality of life.[5] Psoriasis is often associated with features of metabolic syndrome including obesity, dyslipidemia, and type 2 diabetes mellitus.[6] Up to 30% cases are associated with chronic inflammatory psoriatic arthritis.[3] These associated diseases and comorbidities tend to worsen the burden of disease, as well as, reduce quality of life indices.[6]

Hyperuricemia in psoriatic patients is due to increase in purine metabolism as a result of rapid epidermal cell turnover.[3] Hyperuricemia in psoriatic patients is an accepted comorbidity,[5] which predisposes patients to gouty arthritis and

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is now considered as an emerging risk factor for cardiovascular mortality and morbidity.[6,7]

In the present study we compared hyperuricemia in male and female patients of chronic plaque psoriasis with controls.

Methods

This observational study was conducted in outpatient clinic of Department of Dermatology, PNS Shifa, Karachi, after approval from institutional ethical committee. Non-probability consecutive sampling technique was used.

Patients of psoriasis fulfilling the inclusion criteria were selected after informed written consent. 5 ml of venous blood was drawn in sterile syringe and using gel sample tube was sent to the hospital laboratory for serum uric acid level. The test was done by enzymatic calorimetric reaction on fully automated chemical analyzer, Cobas® modular 8000 (Roche/Hitachi), using Roche/Hitachi calibrators and controls. On the basis of laboratory reports the hyperuricemia in psoriatic versus healthy controls was recorded.

Data analysis was done on SPSS (Statistical Package for Social Sciences) version 19.0. A descriptive statistical analysis of continuous and categorical variables was performed. Mean ± standard deviation and confidence interval.

Results

Out of 194, 97 patients were biopsy proven cases of psoriasis were taken as cases and 97 participants coming to OPD with any other dermatosis like acne, alopecia, dermatomycosis etc. were as controls. There were 54.6% (106/194) males and 45.4% (88/194) females (**Figure 1**).

Hyperuricemia was observed in 25 (25.8%) cases and 7 (7.2%) controls (p<0.005), **Table 1**. **Table 2** compares hyperuricemia in male cases (n=46) and controls (n=60). 7 (15.2%) male patients of psoriasis had hyperuricemia as compared to 4 (6.7%) cases (p=0.15). In contrast, female patients of psoriasis (35.3%) had statistically significant frequent hyperuricemia than female cases (8.1%), (p=0.003), (**Table 3**).

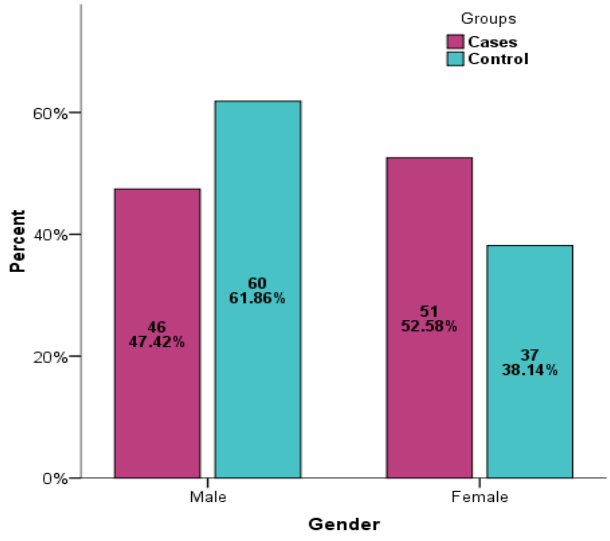

Figure 1 Gender distribution according to groups (N=194)

Table 1 Hyperuricemia in patients with chronic plaque psoriasis and controls.

Hyperuricemia	*Cases (n=97)*	*Control (n=97)*	*Total*	*P value*	*OR (95% CI)*
Yes	25 (25.8%)	7 (7.2%)	32 (16.5%)		4.46
No	72 (74.2%)	90 (92.8%)	162 (83.5%)		(1.83-10.91)

Chi-Square=12.12 OR: CI: Confidence Interval

Table 2 Hyperuricemia in male patients with chronic plaque psoriasis and controls.

Hyperuricemia	*Cases (n=46)*	*Control (n=60)*	*Total*	*P value*	*OR (95% CI)*
Yes	7 (15.2%)	4 (6.7%)	11 (10.4%)	0.15	2.51
No	39 (84.8%)	56 (93.3%)	56 (89.6%)		(0.68-9.17)

Chi-square=2.04, OR: odds ratio, CI: confidence interval

Table 3 Hyperuricemia in female patients with chronic plaque psoriasis and controls.

Hyperuricemia	*Cases (n=51)*	*Control (n=37)*	*Total*	*P value*	*OR (95% CI)*
Yes	18 (35.3%)	3 (8.1%)	21 (23.9%)	0.003	6.18
No	33 (64.7%)	34 (91.9%)	67 (76.1%)		(1.66-22.97)

Chi-square=8.72, OR: odds ratio, CI: confidence interval

Discussion

In the present study, hyperuricemia was significantly frequent in cases than controls. In female cases significantly more frequent while significant difference was not observed for male cases and controls.

In Gisondi *et al*.[6] study in psoriatic patients, serum uric acid (SUA) levels were significantly higher in patients with PASI score 10 or greater than in those with PASI score less than 10 (SUA: 5.9 6 1.6 vs 5.2 6 1.5 mg/dL; P<0.05). In addition, SUA was positively associated with BMI (r=0.34; P=0.001), serum triglyceride (r = 0.24; P<0.01), and creatinine levels (r = 0.33; P=0.001), but it was not significantly associated with age, sex, and psoriasis duration. Finally, no significant difference was found in SUA levels between patients with PsA and those with psoriasis alone (SUA: 5.66±1.6 vs 5.56±1.5 mg/dL; P=0.60).

Increased serum uric acid is accepted as a common finding in patients with psoriasis.[8,9] Enhanced purine catabolism due to the increased epidermal cell turnover is thought to be the cause of the raised serum uric acid.[5,8] Therefore, a correlation of the serum uric acid concentration (SUAC) with the extent of skin involvement would be expected. Some researchers[8,10] have found that patients with psoriasis with extensive skin involvement tended to have a higher incidence of hyperuricemia, but others[11] failed to show such a relationship. Recently, a number of studies[12,13] have contributed to the accumulating evidence that uric acid is associated with several predictors of metabolic disorders such as obesity, hypertension and diabetes. It has also been recognized that patients with severe psoriasis are at a higher risk of developing systemic comorbidities such as coronary heart disease and metabolic syndrome.[10] Therefore, the degree of association between SUAC and severity of psoriasis seems to be more complex and clinically important than previously thought. Most of the previous studies[14,15] concerning the relationship between SUAC and psoriasis severity have been conducted in white

populations, and have not fully considered other possible confounding factors including body mass index (BMI) and other metabolic parameters.

Conclusion

Hyperuricemia is a common finding in psoriatic patients. Its treatment might be clinically useful for the global treatment of patients. Serum uric acid in female was greater than male.

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