

Prevalence of pruritus in psoriatic skin lesions and its relations to different variables

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Abstract *Objective* To examine the prevalence of itching in psoriatic skin lesions and its relation with different variables.

Methods A simple questionnaire and a verbal four point intensity scale were used. Severity of disease was calculated by using Psoriasis Area Severity Index (PASI).

Results Six hundred and fourteen patients of psoriasis were examined in which majority were chronic plaque type. Pruritus was present in 79% of the patients, and was severe in 34%; moderate in 15% and mild in 29%.

Conclusion Pruritus was common in chronic plaque psoriasis. It was more severe in more severe type of psoriasis and was more common in females in comparison to males. But there is no difference between pediatric and adult psoriasis.

Key words

Pruritus, psoriasis, severity, PASI.

Introduction

Pruritus is the predominant symptom of skin diseases. It is also a common complaint in psoriasis. But, many leading textbooks do not mention it as a symptom in psoriasis.¹⁻³ A few workers had studied the prevalence of itching among hospitalized psoriatic patients. Newbold studied 200 consecutive hospitalized psoriatic patients and found that 92% had pruritus at some time.⁴ Gupta *et al.*⁵ studied 82 hospitalized patients with psoriasis and found that 67% reported moderate itching. Yosipovitch *et al.*⁶ studied the prevalence and clinical characteristics of pruritus among 101 patients with extensive psoriasis and found that 84% had generalized pruritus. Despite its high prevalence, the data regarding itching in

psoriatic skin lesions and its relation to different variables are sparse. The aim of this study was to find prevalence of pruritus in all types of psoriatic skin lesions with different disease severity and its relation to different variables.

Methods

The study comprised of 614 psoriatic patients who were recruited consecutively from skin outpatient clinic, J. N. Medical College Hospital A.M.U., Aligarh, a tertiary health care centre. This was a clinico-epidemiological study. All types of psoriasis (except isolated nail and arthritic psoriasis) and all grades of disease severity of psoriasis were included. Exclusion criteria were other concomitant dermatological or medical disorders that might cause pruritus, such as scabies, anemia, chronic uremia and cholestasis etc. Diagnosis of the disease was done mainly on clinical grounds, but biopsy was done in suspected cases to confirm the diagnosis. KOH

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examination was done in almost all cases to rule out fungal infection. Simple questionnaire was used. In cases of infants and small children, history of pruritus was taken from their parents. All patients were examined carefully, evaluated and data analyzed.

Pruritus was graded on 0-3 scale (0, no pruritus; 1, mild pruritus; 2 moderate and 3, severe pruritus). Disease severity was calculated by using PASI (Psoriasis Area Severity Index) which has a maximum score of 72. A PASI score ≤ 10 was grouped in mild psoriasis and >10 PASI score in severe psoriasis.

Statistical analysis was done by using MSTAT. For statistical analysis, intensity of pruritus was divided in two groups (absent or mild and moderate to severe).

Results

A total of 614 patients were taken. Males constituted 68.2% and females 30.8%. Majority of patients had plaque type of psoriasis followed by palmoplantar psoriasis. Patients' characteristics were given in **Table 1**. Age of the patients ranged from 1 year to 80 years. Pruritus was present in 484(79%) cases and was mild is 30%; moderate in 15% and severe in 34%. **Table 2** shows presence of pruritus and its intensity in different types of psoriasis. In **Table 3**, the relation between intensity of pruritus and disease severity is shown. There was some difference in the prevalence and intensity of pruritus between mild psoriasis and severe psoriasis but it was statistically not significant ($\chi^2=3.88, p>0.05$). Pruritus was more common and intense in females. In females, it was present is 84% and severe in 46%, while in males it was 75% and 28.5% respectively. Difference in prevalence and intensity of pruritus was statistically highly significant ($\chi^2=18.78, p<0.001$). There was no significant

Table 1 Patient characteristics (n=614).

Male	425 (69.2%)
Female	189 (30.8%)
Age	
Mean \pm SD (years)	31.2 \pm 4.7
Range (years)	1-80
Types of psoriasis	
Plaque	402 (65.4%)
Palmoplantar	148 (24.1%)
Scalp	42 (6.8%)
Erythrodermic	10 (1.6%)
Guttate	7 (1.1%)
Pustular	3 (0.5%)
Flexural	2 (0.3%)
Age-wise types	
Pediatric (1-14 years)	124 (20.2%)
Adult (>14 years)	490 (79.8%)

difference in prevalence and severity of pruritus in adult and pediatric type of psoriasis.

Discussion

The current study covered a large group of ambulatory psoriatic patients with different types of psoriasis and all grades of severity of disease. It provides a further evidence of high prevalence of pruritus in psoriasis. This prevalence is almost similar to previous studies,^{4,5} which concerned only hospitalized patients who might be more acutely ill than those cared for in ambulatory centre; a factor that might had biased the results. Yosipovitch *et al.*⁶ studied the prevalence and clinical characteristics of pruritus among 101 patients with extensive psoriasis ($>30\%$ body involvement) which again may have biased the results. They studied prevalence of pruritus in overall psoriatic patients (not specifically in psoriatic skin lesions) which may include other types of itches. Twycross *et al.*⁷ proposed classifying itches into pruritoceptive (originate in diseased skin); neurogenic (due to molecular or neurophysiologic dysfunction in the nervous system); neuropathic (due to nervous system pathology); and psychiatric (e.g. parasitophobia). Disease severity was classified according to PASI score. A PASI score of less than or 10 was considered as mild psoriasis because systemic treatment in

Table 2 Pruritus in different types of psoriasis.

Types of psoriasis	Pruritus			
	Absent N (%)	Mild N (%)	Moderate N (%)	Severe N (%)
Plaque	65 (16.2)	127 (31.6)	67 (16.6)	143 (35.6)
Palmoplantar	47 (31.71)	29 (20.1)	20 (13.5)	52 (35)
Scalp	9 (21.4)	21 (50)	5 (11.9)	7 (16.7)
Erythrodermic	1 (10.1)	3 (30)	1 (10)	5 (50.1)
Guttate	1 (14.2)	3 (42.9)	3 (42.9)	0
Pustular	1 (33.3)	2 (66.6)	0	0
Flexural	0	0	2 (100)	0

Table 3 Intensity of pruritus and disease severity.

Disease severity	Intensity of pruritus	
	Absent or mild N (%)	Moderate to severe N (%)
Mild	248 (53.3)	217 (46.7)
Severe	65 (43.6)	84 (56.4)

$\chi^2 = 3.88, p > 0.05$

Table 4 Pruritus (male versus female).

Sex	Intensity of pruritus	
	Absent or mild N (%)	Moderate to severe No (%)
Male	244 (57.4)	181 (42.6)
Female	72 (38.1)	117 (61.9)

$\chi^2 = 18.78, p < 0.001$

Table 5 Pruritus (adult versus pediatric psoriasis)

Type of psoriasis	Intensity of pruritus	
	Absent or mild N (%)	Moderate to severe N (%)
Adult	252 (51.4)	238 (48.6)
Pediatric	63 (50.8)	61 (49.2)

$\chi^2 = 0.001, p > 0.05$

psoriasis is usually given when PASI score is more than 10. This study showed that the prevalence and intensity of pruritus does not increase with the increase in severity of the disease. The prevalence of pruritus in previous studies might be biased again. In our first 50 patients, pruritus was present in 41 cases. It was present only in lesional skin in 40 patients and in one patient pruritus was also seen in nonlesional skin. Thus the present study provides a strong evidence of a high prevalence of pruritus in psoriatic skin lesion.

The high frequency and intensity of pruritus among females may be due to iron deficiency. Iron deficiency is very common in our country due to worm infestations, multiple subsequent pregnancies and some other reasons. Although

the patients with less than 10g% of Hb were excluded from the study but the Hb percentage in majority of females was lower than in males. Iron deficiency may be one of the possible reasons for itching. However, a study of a large series of patients with severe iron deficiency revealed no evidence of pruritus in any of these over a period of 6 months.⁸

There was no difference in pruritus between adult and pediatric psoriasis. Adult psoriasis also included patients in elderly age group. Itching in senescence is well known. In many of these cases, the cause is desiccation of the skin due to decline in natural moisturizing factors in aging skin. Skin dryness significantly aggravates itch, most probably by reducing itch threshold. In elderly age group,

other types of itch like neurogenic and psychiatric are more common. Pruritus in psoriatic skin lesions may be due to involvement of cutaneous nervous system and increased number of mast cells. In psoriatic lesional skin the number of neuropeptide-containing nerve fibers, as well as, the overall number of skin nerve fibers in the upper dermis and especially in the epidermis, is increased as compared with nonlesional psoriatic skin and normal skin.⁹⁻¹¹ Alteration in cutaneous sensory innervation during surgery or by trauma has been shown to induce the remission of psoriatic plaques at the site of sensory enervation but not in skin areas with intact sensory innervation.^{12,13} The ability of locally applied capsaicin, which depletes neuropeptides from the peripheral nerve endings of afferent C fibers improved psoriatic lesions¹⁴ and the pruritus within psoriatic skin lesions.¹⁵ Mast cells which are multifactorial immune effectors cells, may contribute to the perpetuation of the cutaneous inflammatory process in psoriatic lesions by releasing various mediators.¹⁶ An increased number of mast cells has been detected in lesional psoriatic skin compared with nonlesional or normal human skin. The driving force for the migration of mast cells in psoriatic skin lesions appears to be the increased expression of IL-8 by keratinocytes within lesional psoriatic skin.¹⁶

Current study provides a strong evidence regarding itching in psoriatic skin lesions. Pruritus should be mentioned as a symptom of psoriasis. At present, current treatment modalities are not so effective in treating pruritus in psoriasis, as a long-term effect.⁶ If it is not considered as a symptom, the proper treatment modalities cannot be searched out.

Acknowledgements

The author gratefully acknowledges Prof. T. B. Singh, Department of Biostatistics, Institute

of Medical Sciences, B.H.U., Varanasi, for helping in statistical analysis.

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