

Clinical and Demographic Profile of Patients with Psoriasis

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Abstract

Context: 125 million people worldwide 2 to 3 percent of the total population have psoriasis. Psoriasis prevalence in African Americans is 1.3% compared to 2.5% percent of Caucasian. **Aims:** To study the socio demographic profile and disease characteristics in a psoriasis. **Settings and Design:** Cross Sectional Study. **Methods and Material:** The study comprised of total 417 cases of psoriasis vulgaris. According to body surface area involvement disease was graded as mild moderate and severe. Metabolic syndrome was diagnosed and .Dermatology life quality index was evaluated. Out of 417 psoriasis patients, 90 patients with psoriasis were randomly selected and divided in 3 groups. PASI score was evaluated at baseline and then at every follow up of 2 weeks, 4 weeks and 6 weeks.

Results: Psoriasis is more common in males. 49.96% of male patients were involved in farming and manual work. 31.65% patients were smokers. Most common site was lower limb (94.72%). Nail changes were present in 79.85% and Arthritis was present in 11.99% of patients. Prevalence of obesity was more in females (26.86%). No significant difference was observed in prevalence of type 2 diabetes or hypertension or obesity. There was a positive association of hypertriglyceridemia with psoriasis. Quality of life is definitely greatly impaired by psoriasis as DLQI was hugely affected in 26.85% of patients and moderately affected in 36.58% of patients. Calcitriol ointment (0.0003%) had very effective role in keeping the disease under remission and has moderate response compared to clobetasol propionate (0.05%) cream. **Conclusions:** Psoriasis is associated with several comorbidities and can have a significant impact on a patient's quality of life.

Keywords: Psoriasis; DQLI; Metabolic Syndrome.

Key Message: Psoriasis is associated with a variety of comorbidities. Common co-morbidities associated with psoriasis include diabetes, hypertension, and metabolic syndromes.

Introduction

Psoriasis is a common, chronic inflammatory and proliferative condition of skin. The most characteristic lesions consist of red, scaly, sharply demarcated, indurated plaque, present particularly over extensor surface and scalp¹. Psoriasis can have a significant impact on a patient's quality of life and is associated with loss of productivity, depression, and an increased prevalence of associated systemic illness.

Subjects and Methods:

The study comprised of total 417 new and old cases of psoriasis vulgaris. Control group included same number

of patients with age and sex matching who came with common skin conditions. Written informed consent was taken by all the patients before enrolling in the study.

Detailed history of all patients was noted. Personal history about smoking, and alcohol was taken. Detailed clinical examination included distribution of the lesions, morphology of lesions, scalp involvement, nail changes, presence of joint involvement and type of arthritis. Each patient was subjected to laboratory investigations that included complete blood count, liver and renal function tests, random blood sugar, serum lipids level, electrocardiograph, X-ray (if relevant).

According to body surface area involvement disease was graded as mild (<3%), moderate (3-10%) and severe (>10%). BMI was calculated and graded according to WHO guidelines.

According to International Diabetes Foundation, metabolic syndrome was diagnosed in the presence of central obesity (waist circumference ≥ 90 cm in men or ≥ 80 cm in women) in addition to two or more criteria from the following; hypertriglyceridemia ≥ 150 mg/dL; HDL < 40 mg/dL in men or < 50 mg/dL in women; blood pressure $\geq 130/85$ mmHg; fasting blood glucose ≥ 100 mg/dL. Dermatology life quality index was evaluated and graded after asking the standard questionnaire.

Out of 417 psoriasis patients, 90 patients with mild to moderate psoriasis were randomly selected and divided in 3 groups. PASI score was evaluated at baseline and then at every follow up of 2 weeks, 4 weeks and 6 weeks.

Group 1: Calcitriol ointment (0.0003% w/w) application twice a day.

Group 2: Boswelliaserrata (5%) cream application thrice a day.

Group 3: Clobetasolpropionate (0.05%) cream application twice a day.

Patients were followed up after 6 weeks for further 6 weeks for any relapse of the disease and PASI evaluation.

Results

Psoriasis is more common in males (64.02%) than females (35.98%). Maximum number of patients were from 4th decade - 28.29%. Family history of psoriasis was present in 4.3% of patients.

Maximum number of patients (52.05%) belonged to middle socioeconomic status. Majority (49.96%) of male patients were involved in farming and manual work and 52% females were housewives. Thus neither occupation nor SE class had any relation to psoriasis.

Winter and stress were precipitating factors in 68.1% and 41.96% respectively. 31.65% patients were smokers and 20.38% patients were alcoholics. Pruritus was present in 97.6% of patients. Psoriasis is a pruriginous disorder. Auspitz sign was positive in 72.9% of patients and Koebner phenomenon in 32.85% of patients. Although multiple sites can be involved in a single patient but most common site was lower limb (94.72%) followed by scalp (92.32%). Nail changes were present in 79.85% of patients of psoriasis with most common and characteristic being pitting and subungual hyperkeratosis. Arthritis was present in 11.99% of patients with asymmetrical oligo articular as the most common type. 45.8% patients were from the average BMI group, 24.22% from pre obese and 18.47% from obese group.

Prevalence of obesity was more in females (26.86%) compared to males (16.06%) but no significant association was seen between psoriasis and obesity as 19.8% from study group and 14.62% from control group

were obese (p value > 0.05). No significant difference was observed in prevalence of type 2 diabetes or hypertension in study group and control group (diabetes-11.75% vs 8.35%, hypertension-19.32% vs 14.36%) as p value was > 0.05 and showed equal preponderance in males and females. Association between metabolic syndrome and psoriasis was not significant statistically (p value > 0.05) as 26.11% of study group and 20.36% of control group showed metabolic abnormality. But investigations for the same are recommended in every patient as a significant percentage (26%) of patients had metabolic syndrome. Female had higher prevalence compared to males (35% vs 19.47%). There was a positive association of hypertriglyceridemia with psoriasis (p < 0.05) with study group showing as high prevalence as 6.06% in contrast to that of control group (2.87%). Probability of having metabolic syndrome and arthritis was directly proportional to the severity of psoriasis. Obesity, type 2 diabetes, hypertension and hypertriglyceridemia did not show any significant correlation with disease severity.

Quality of life is definitely greatly impaired by psoriasis as DLQI was hugely affected in 26.85% of patients and moderately affected in 36.58% of patients.

Vitamin D3 analogue calcitriol ointment (0.0003%) had very effective role in keeping the disease under remission and has moderate response compared to clobetasolpropionate (0.05%) cream.

Boswelliaserrata (5%) cream has slow effect compared to clobetasol propionate (0.05%) cream and calcitriol ointment (0.0003%) with greater relapse compared to clobetasolpropionate (0.05%) cream.

Table 1: Age Distribution.

Age Group In Years	Sex		Total
	Male	Female	
0-10	6 (2.25%)	4 (2.67%)	10 (2.39%)
11-20	12 (4.49%)	12 (8%)	24 (5.75%)
21-30	48 (17.98%)	27 (18%)	75 (17.95%)
31-40	76 (28.46%)	42 (28%)	118 (28.29%)
41-50	62 (23.22%)	33 (22%)	95 (22.78%)
51-60	43 (16.10%)	21 (14%)	64 (15.34%)
>61	20 (7.49%)	11 (7.33%)	31 (7.43%)
Total	267	150	417 (100%)

In the study maximum number of patients were from the 31-40 years age group that is 28.29% while lowest number of patients were from 0-10 years group that is 2.39%. Childhood psoriasis was present in 3.35% of patients. Similar characteristics were also found in male and female group.

Bimodal peak according to study of B.S. Prashant et al⁴ and Neimann et al³ was not observed in our study. Out of 417 patients, family history was positive in 4.3% of patients which is higher than reported by Kaur et al⁵ (2%) and lower than reported by Bedi et al⁶ (14%).

Majority of patients were involved in farming and manual work that is 49.06% in males where as majority of females were housewives (52%).

According to our study there is no any direct correlation of occupation to occurrence of psoriasis which is similar to observation done by T P Sharma et al.⁷

Table 2: Occupation.

Occupation	Sex		Total
	Male	Female	
Farmer	68 (25.46%)	10 (6.66%)	78 (18.70%)
Labourer	63 (23.59%)	13 (8.66%)	76 (18.22%)
Household/ Housewife	-	78 (52%)	78 (18.70%)
Government Service	25(9.36%)	7(4.66%)	32(7.67%)
Private Service	23(8.61%)	6(4%)	29(6.95%)
Businessman	46(17.22%)	-	46(11.93%)
Student	18(6.74%)	16(10.66%)	34(8.15%)
Others	24(8.98%)	20(13.33%)	44(10.55%)
Total	267	150	417

Table 3: Socio-Economic Class.

Socioeconomic Class	No. of Patients	Percentage
Upper	50	11.99%
Middle	217	52.03%
Lower	150	35.97%

Maximum (52.03%) patients were from middle socioeconomic class. Upper and lower class contribute 11.99% and 35.97% respectively. According to our study psoriasis affects all SE classes, this result is consistent with the study by T P Sharma et al.⁷

Out of 417 patients 284 (68.1%) patients gave history of winter induced aggravation. This is higher than the study by Bedietal⁵ and Kaur et al⁷ who noted winter aggravation in almost 50% of patients. History of summer aggravation was present in 3.59% of patients. History of stress and infection induced aggravation was present in 175 (41.96%) and 95(22.78%) patients respectively. B jaeger et al⁸ study shows significant association between aggravation of psoriasis and stress which is also found in our study. Koebner phenomenon was present in 32.85% patients. In our study 20.38% patients had history of alcoholism and 31.65% were smokers which is less than the study by F Christina et al⁹ who noted 49.18% were alcoholics and 65% of patients were smokers.

Table 4: Sites Involved.

Site	Number	Percentage
Face	38	9.11%
Upper Limb	328	78.65%
Lower Limb	395	94.72%
Trunk	320	76.73%

Scalp	385	92.32%
Genital	28	6.71%
Oral	56	13.42%
Palmoplantar	43	10.31%
Flexures	68	16.30%

Most common site of involvement was lower limbs in 94.72% of patients, followed by scalp, upper limb and trunk in 385(92.32%), 328(78.65%) and 320(76.73%) of patients respectively.

Results of our study are comparable to study by Okhandiar et al¹⁰ who found that the extensors (93%) were the most common site of involvement followed by the scalp (88%). According to Bediet al⁶ most common site of involvement in descending order of frequency was trunk, limbs, scalp.

In our study pruritus was present in 97.6% of patients while burning was present in 12.23% of patients. The results are comparable to study by Okhandiar et al¹⁰ who found pruritus to be present in 95% and burning sensation in 15% of cases. So, the results of various studies suggest that psoriasis is a pruriginous disorder adding to the morbidity of this disease.

Auspitz sign was positive in 304(72.9%) patients, while according to T R bediet al⁶ study it was found in 78% which is slightly higher than our study.

Table 5: Nail Changes.

Nail Change	Finger Nails (Number)	Toe Nails (Number)
Nail Change	333(79.85%)	230(55.15%)
Pitting	159 (38.12%)	71 (17.02%)
Subungual Hyperkeratosis	93 (22.30%)	85 (20.38%)
Discoloration	116 (27.81%)	75 (17.98%)
Salmon Patch	26 (6.22%)	13 (3.11%)
Onycholysis	56 (13.42%)	44 (10.55%)
Longitudinal Ridging	43 (10.31%)	19 (4.55%)
Beau's Lines	39 (9.35%)	18 (4.31%)
Dystrophic Changes	32 (7.67%)	59 (14.14%)
Leukonychia	91 (21.82%)	45 (10.79%)
Onychomadesis	42 (10.07%)	32 (7.67%)

Out of 417 patients, 333(79.85%) patients had psoriatic nail changes. In finger nails most common finding was pitting (38.12%) where as in toe nails majority patients had subungual hyperkeratosis, pitting, discoloration and dystrophic changes that is 20.38%,17.02%,17.98% and 14.14% respectively.

Study results are comparable to study by Ghosal et al¹¹ and Bedi et al⁶ who found pitting and subungual hyperkeratosis as most common nail changes.

Table 6: Types of Joint Involvement.

Type of Arthritis	Sex		Total
	Male	Female	

Distal IP Joint	12 (70.58%)	5 (29.42%)	17 (34%)
Asymmetrical Oligoarticular	18 (66.66%)	9 (33.33%)	27 (54%)
Axial Involvement	5 (83.33%)	1 (16.66%)	6(12%)
Rheumatoid Type	-	-	-
Arthritis Mutilans	-	-	-
Total	35(70%)	15(30%)	50(11.99%)

Table 7: Distribution According To BMI.

	Male	Female	Total
Obese (BMI≥30)	40(14.98%)	37(24.66%)	77(18.47%)

Table 8: Distribution of Obesity among Cases and Controls.

Preobese (BMI≥25,<30)	65(24.34%)	36(24%)	101(24.22%)
Average (BMI≥18.5.<25)	133(49.8%)	58(38.66%)	191(45.8%)
Underweight (BMI<18.5)	29(10.86%)	19(12.66%)	58(13.9%)
Total	267	150	417

Out of 417 patients, 77(18.47%) patients were from obese group while 101(24.22%) patients were from preobese group. Average and underweight groups contribute 45.8% and 13.9% respectively Females (24.66%) were more obese compared to males (14.98%).

Age Group In Years	Male			Female			Total		
	No. of Patient	Case	Control	No. of Patient	Case	Controls	No. of Patient	Case	Control
21-30	48	3	2	27	3	2	75	6(8%)	4(5.33%)
31-40	76	14	11	42	9	7	118	23 (19.49%)	18 (15.25%)
41-50	62	12	9	33	12	9	95	24 (25.26%)	18 (18.94%)
51-60	43	9	7	21	8	6	64	17 (26.56%)	13 (20.31%)
>61	20	2	1	11	4	2	31	61 (9.35%)	3 (9.67%)
Total	249	40(16.06%)	30 (12.09%)	134	36 (26.86%)	26 (19.4%)	383	76 (19.8%)	56 (14.62%)

In our study 19.8% of patients were obese in study group as compared to 14.62% in control group with

Malhotra et al¹⁵ reported it was 58.3% vs 33.3%. Obesity

Age group in years	Male			Female			Total		
	No. of patient	Case	Control	No. of patient	Case	Control	No. of patient	Case	Control
21-30	48	0	0	27	0	0	75	0	0
31-40	76	9	7	42	6	4	118	15 (12.71%)	11 (9.32%)
41-50	62	8	6	33	7	5	95	15 (15.8%)	11 (11.57%)
51-60	43	6	4	21	3	2	64	9(14.06%)	6 (9.37%)
>61	20	4	2	11	2	2	31	6(19.35%)	4 (12.90%)
Total	249	27(10.84%)	19(7.63%)	134	18 (13.43%)	13(9.7%)	383	45 (11.75%)	32 (8.35%)

p=0.055. A study by Nisa et al¹⁴ showed 14.6% of the psoriatic patients were obese as compared to 20.6% of controls.

Table 9: Distribution of Type 2 Diabetes among Cases and Controls.

In our study 11.75% of psoriatic patients had type 2 diabetes while in control group type 2 diabetes was detected in 8.35% of patients (p=0.1). In contrast to our study Nisa et al¹⁴ noted,18% psoriatic patients were

was found higher in 41-60 years age group. In females obesity was present in 26.86% of patients while in males it was present in only 16.06% of patients.

diabetic as compared to 5.3% in controls (p<0.001). In a study by Malhotra et al¹⁵, incidence of diabetes was found to be 8.3% in psoriasis patients as compared to 3.3% in controls.

Diabetes was not detected in any of the patient less than 30 years of age. In both psoriatic and control group. Highest prevalence of diabetes found in >61 age group that is 19.35%, 13.43% females were diabetic while in Table 10: Distribution of Hypertension among Cases and Controls.

males, with slightly less prevalence, it was present in 10.84% of patients.

Age group in years	Male			Female			Total		
	No. of patient	Case	Control	No. of patient	Case	Controls	No. of patient	Case	Control
21-30	48	0	0	27	0	0	75	0	0
31-40	76	13	10	42	11	7	118	24 (20.33%)	17 (14.40%)
41-50	62	17	14	33	8	6	95	25(23.75%)	20 (21.05%)
51-60	43	13	9	21	5	4	64	18(28.12%)	13 (20.31%)
>61	20	4	3	11	3	2	31	7(22.58%)	5 (16.12%)
Total	249	47 (18.88%)	36(14.45%)	134	27 (20.14%)	19(14.18%)	383	74(19.32%)	55 (14.36%)

In our study, 19.32% of patients were hypertensive while in control group 14.36% of patients were hypertensive (p=0.06). In a study by Gisondiet al¹⁶, 40.8% patients were hypertensive in study group and 39.5% were hypertensive in control groups while Thomas et al¹⁷ observed 14.1% psoriatic patients to be hypertensive.

Highest prevalence of hypertension was present in 51-60 years age group that is 28.12%, while none of the patient less than 30 years was hypertensive in the study. In males 18.88% of patients and in females 20.14% of patients were hypertensive.

Table 11: Distribution of Metabolic Syndrome among Cases and Controls.

Age group in years	Male			Female			Total		
	No. of patient	Case	Control	No. of patient	Case	Controls	No. of patient	Case	Control
21-30	48	3	2	27	4	2	75	7(9.33%)	4(5.33%)
31-40	76	13	10	42	14	12	118	27(22.88%)	22(18.64%)
41-50	62	19	16	33	15	12	95	34 (35.78%)	28(29.47%)
51-60	43	13	10	21	12	9	64	25 (39.06%)	19(29.68%)
>61	20	4	3	11	3	2	31	7(22.58%)	5(16.13%)
Total	249	52 (20.88%)	41(16.46%)	134	48(35.8%)	37(27.61%)	383	100(26.11%)	78(20.36%)

In the study metabolic syndrome was diagnosed in 26.11% of psoriasis patients while in control group it was diagnosed in 20.36% of patients (p=0.059). Anandan et al¹⁸ noted metabolic syndrome in 44% of psoriasis patients vs 30% in control group while study by Nisa et al¹⁴⁶ from Kashmir showed prevalence of 28%. This gross difference was due to racial factors and higher

prevalence of metabolic syndrome in south India. A study by Gisondiet al¹⁶ found metabolic syndrome in 30.1% vs 20.6%. Higher prevalence of metabolic syndrome was present in 41-50 years age group that is 34%. Metabolic syndrome was present more in females (35%) as compared to males (19.47%).

Table 12: Distribution of Hypertriglyceridemia.

Age group in years	Male			Female			Total		
	No. of patient	Case	Control	No. of patient	Case	Controls	No. of patient	Case	Control
21-30	48	0	0	27	0	0	75	0	0
31-40	76	1	1	42	3	1	118	4(3.39%)	2(1.68%)
41-50	62	4	2	33	4	2	95	8(8.42%)	4(4.21%)

51-60	43	4	1	21	3	2	64	7(10.93%)	3(4.68%)
>61	20	2	1	11	2	1	31	4(12.90%)	2(6.45%)
Total	249	11(4.42%)	5(2.09%)	134	12(8.9%)	6(4.47%)	383	23(6.06%)	11(2.87%)

Out of 383 patients, 6.06% of patients were hypertriglyceridemic in psoriasis group while in control group it was in 2.87% (p=0.03). The significance of result is comparable to study by Gisondiet al¹⁶, who reported hypertriglyceridemia in 37.8% and 23.3% in psoriasis

and control group respectively. Thomas et al¹⁷ showed hypertriglyceridemia in 4.10% of psoriasis patients.

Hyper triglyceridemia was detected in 8.9% of female patients where as in males it was in 4.42% of patients.

Table 13: Distribution of Comorbidity According to Body Surface Area Involvement.

Involved BSA	No. of patients in each group	No. of patients aged>20 years in each group	Obesity	Diabetes	Hypertension	Metabolic syndrome	HyperTriglyce rid-emia	Arthritis
<3%	167 (40.04%)	148	14 (9.45%)	11 (7.43%)	11 (7.43%)	15 (10.13%)	5 (3.37%)	0
3%-10%	142 (34.05%)	129	28 (21.7%)	15 (11.63%)	24 (18.6%)	35 (27.13%)	6 (4.65%)	12 (9.3%)
>10%	108 (25.91%)	106	35 (33.01%)	19 (17.92%)	39 (36.79%)	50 (47.17%)	12 (11.32%)	38 (35.85%)
Total	417	383	77 (19.8%)	45 (11.75%)	74 (19.32%)	100 (26.11%)	23 (6.06%)	50

Out of 417 total patients, severe psoriasis (BSA>10%) was present in 108(25.91%) patients, moderate (BSA=3%-10%) in 142(34.05%) and mild (BSA<3%) in 167(40.04%) patients.

Higher prevalence of obesity was present in 35(33.01%) of patients with severe psoriasis compared to 28(21.7%) in moderate and 14(9.45%) in mild psoriatic patients.

Among the severe psoriatic patients diabetes was detected in 19(17.92%), while in patients with moderate and mild psoriasis, it was in 15(11.63%) and 11(7.43%) respectively. Hypertension was detected in 39(36.79%), 24(18.6%) and (7.43%) patients with severe, moderate and mild psoriasis respectively.

Metabolic syndrome was diagnosed in 50(47.17%) of patients with severe psoriasis while in moderate and mild psoriasis group it was 35 (27.13%) and 15 (10.13%) respectively. None of the patients with mild psoriasis had psoriatic arthritis in study while in moderate and severe psoriasis group, arthritis was present in 8.3% and 35.85% respectively.

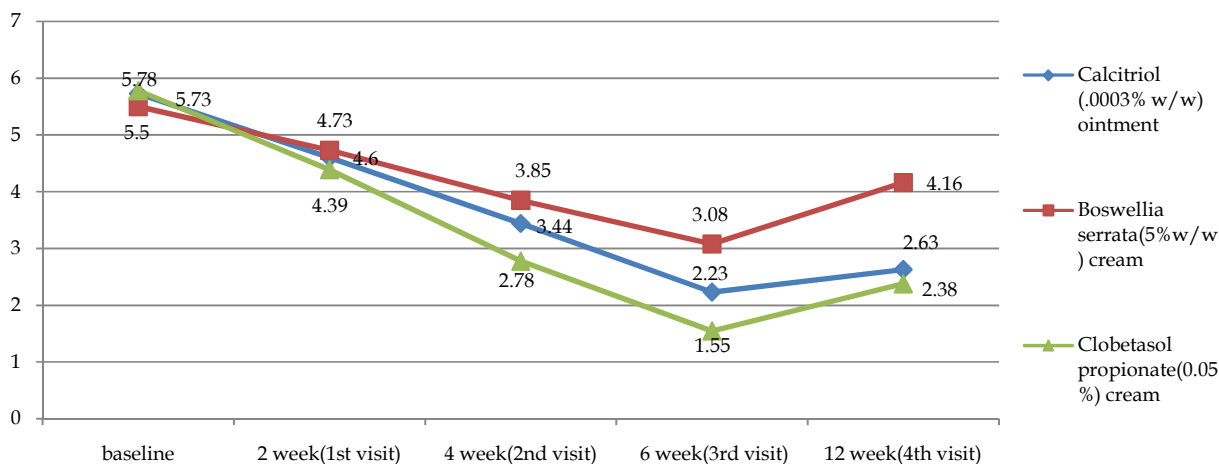
Graph 1: Treatment Response in All Groups.

Table 14: Distribution According to Dermatology Life Quality Index and Sex.

DLQI	Male	Female	Total	Percentage
No Effect (0-1)	36	14	50	12.79%
Little Effect (2-5)	72	21	93	23.78%
Moderate Effect (6-10)	90	53	143	36.58%
Huge Effect (11-20)	55	50	105	26.85%
Total	253	138	391	100

Out of 391 patients, DLQI was hugely affected, moderately affected and mildly affected in 26.58%, 36.58% and 23.78% respectively.

This results are comparable to study done by Soumya N et al, who found psoriasis had little effect on quality of life in 17% of patients, moderate effect in 39% and huge effect in 23% of patients.



In study group 1, treated with calcitriol (.0003% w/w) ointment, baseline average PASI score was 5.73. At the end of 2, 4 and 6 week reduction was 19.73%, 40% and 61% respectively as compared to baseline. On further follow-up after 6 week, with more patients in remission, average PASI score was 18% increased compared to 3rd visit PASI score.

Study group 2, treated with boswelliaserrata (5%) cream, showed slow response as well as greater relapse compared to study group 1. PASI score reduction was 14%, 30% and 44% at 1st, 2nd and 3rd visit respectively and PASI score increased 24% compared to 3rd visit.

Study group 3, treated with clobetasol propionate (.05% w/w) cream, showed faster response with reduction of PASI 24%, 52% and 73% at 1st, 2nd and 3rd visit respectively. At the 4th visit, patients of these study group also showed more relapse, that average PASI score was 50% increased compared to 3rd visit.

Conclusion

- No significant difference was observed in prevalence of type 2 diabetes or hypertension in study group and control group (diabetes-11.75% vs 8.35%, hypertension-19.32% vs 14.36%) as p value was >0.05 and showed equal preponderance in males and females.
- Association between metabolic syndrome and psoriasis was not significant statistically (p value >0.05) as 26.11% of study group and 20.36% of control group showed metabolic abnormality. But investigations for the same are recommended in every patient as a significant percentage (26%) of patients had metabolic syndrome. Female had higher prevalence compared to males (35% vs 19.47%).
- There was a positive association of hypertriglyceridemia with psoriasis (p<0.05) with study group showing as high prevalence as 6.06% in contrast to that of control group (2.87%).
- Probability of having metabolic syndrome and arthritis was directly proportional to the severity of psoriasis. Obesity, type 2 diabetes, hypertension and hypertriglyceridemia did not show any significant correlation with disease severity.
- Quality of life is definitely greatly impaired by psoriasis as DLQI was hugely affected in 26.85% of

patients and moderately affected in 36.58% of patients.

- Vitamin D3 analogue calcitriol ointment (0.0003%) had very effective role in keeping the disease under remission and has moderate response compared to clobetasolpropionate(0.05%) cream.
- Boswelliaserrata(5%) cream has slow effect compared to clobetasol propionate(0.05%) cream and calcitriol ointment (0.0003%) with greater relapse compared to clobetasolpropionate(0.05%) cream.

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Conflicts of interest: NIL

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