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ORIGINAL ARTICLE

DEMOGRAPHIC STUDY OF PSORIASIS IN EASTERN UTTAR PRADESH INDIA

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ABSTRACT: BACKGROUND: Psoriasis is a chronic, immune-mediated inflammatory skin disease. It ranges in severity from a few scattered red, scaly plaques to involvement of almost the entire body surface. **OBJECTIVE:** Demographic study of psoriasis in Eastern Uttar Pradesh. **MATERIAL AND METHODS:** Patients of both gender and age diagnosed with psoriasis were enrolled for the study. Apart from the onset, duration, symptoms, lesion's location, aggravating factors and association with other diseases were noted. Routine investigations were done in each and every patient. **RESULT:** There were 342 patients (207 males and 135 females), with ages between 1 and 74 years. Disease was more prevalent in house hold workers as seen in 99 (28.94%) patients. The most common type of psoriasis was chronic plaque psoriasis found in 255 (74.56%) patients. The scalp was the most common site of involvement seen in 243(79.82%) patients. Nails were also affected in psoriasis and finger nail involvement (132 patients) was more than toe nails (82 patients). Most common aggravating factor for psoriasis was winter followed by trauma. Psoriasis was associated with other diseases in 138 patients. Disease was cleared spontaneously in 30(8.77%) patients and with proper treatment in in159 (46.49%) of cases while disease persisted in 153(44.73%) cases. **LIMITATION:** Limitation includes case series study design from one tertiary center. **CONCLUSION:** Psoriasis is a chronic relapsing and remitting dermatosis that can affect any age group and sex with different clinical presentations and influenced by environmental factors.

KEYWORDS: Psoriasis, sex, pregnancy, sunlight, relapsing.

INTRODUCTION: Psoriasis is a chronic, relapsing, immune mediated inflammatory, papulosquamous skin disease resulting in epidermal hyperplasia and greatly accelerated rate of epidermal turnover which may reflect clinically well-defined pink or dull red lesions surmounted by a characteristic silvery white scale. The pathophysiology of psoriasis is characterized by epidermal hyper proliferation, enhanced antigen presentation, helper T cell (Th1) and Th17 cytokine production, T cell expansion and angiogenesis.[1]

Psoriasis is worldwide in distribution with a considerable variation in its incidence. According to published reports, prevalence in different populations varies from 0% to 11.8%.[2,3,4,5] both sexes are equally affected though there is earlier age of onset in females than in males.[3]

The course and prognosis still remains unpredictable as it was 150 years ago. Psoriasis is at all times and under all forms remain troublesome and often, an intractable disease, but is rarely dangerous to life.

Relapse is the rule, psoriasis being essentially benign so treatment depends upon age, sex, occupation, personality, general health, intelligence and resources, as well as type, extent, duration and clinical history of the disease.

Precipitating factors, like trauma, infection, drugs, psychogenic factor, alcohol and smoking should be eliminated.

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MATERIAL AND METHODS: The study was carried out in a series of patients with psoriasis who were attending dermatology outpatient department of B.R.D. medical college Gorakhpur from July 2007 to July 2008. Approval of the ethics committee was deferred because the study neither affected routine treatment of patients nor required any intervention.

Almost all the patients with psoriasis were included in the study irrespective of age sex religion and occupation.

A total number of 342 patients formed the basis of the study and they were subjected to further investigations. A detailed history of patients were taken regarding name, age, sex, occupation, address, socioeconomic status, age at onset of disease, total duration of disease, disease in relatives was taken as well as history of any other disease as hepatic, diabetes, hypertension, pulmonary tuberculosis, etc. Subjects were examined in day light. A routine general and systemic examination was done in all the cases for evidence of other concomitant diseases. The variants of psoriasis were noted and morphologic details of the lesions in terms of number, site, size, configuration and its distribution over the body were recorded along with nail changes (If present). Patients were also photographed before and after therapy.

A clinical criterion for the diagnosis of psoriasis was the presence of papulosquamous lesions with loosely adherent silvery white scales. The Auspitz's sign was demonstrated in all the cases. The patient in whom the scalp was the only site of involvement, the diagnosis was made by the presence of multiple isolated scaly patches which were recurrent and chronic. Similarly in cases of palms and soles involvement without other skin lesion, the diagnosis was made by excluding the other causes of palmoplantar hyperkeratosis like tinea, tylosis, etc. In very difficult cases biopsies were done for the confirmation of diagnosis.

RESULTS: In the present study, out of 342 cases 207 were males and 135 were females. This apparently shows a higher prevalence in males.

The mean age at onset irrespective of sex was 27.54 years while mean age at onset in male was 30.79 years and in female 22.55 years. The maximum frequency of onset of disease was observed in the range of 21-30 years of the age in male and 11-20 years of age in female (Table 1).

Age	Males		Females		Total	
(In year)	No.	%	No.	%	No.	%
0-10	09	02.63	09	02.63	18	05.26
11-20	27	07.89	42	12.28	69	20.16
21-30	54	15.78	36	10.52	90	26.31
31-40	51	14.51	27	07.89	78	22.80
41-50	30	08.77	18	05.26	48	14.03
51-60	24	07.01	03	00.87	27	07.89
61-70	09	04.35	00	00	09	04.35
71-80	03	00.87	00	00	03	00.87
Total	**207**		**135**		**342**	
Mean	34.13		25.88		30.87	

Table 1: Age and sex distribution of the subjects

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The earliest age of onset was one year and maximum age of onset was 74 years in male patient and the earliest age of onset was five year and maximum age of onset was 58 years in female patient (Table 2).

Age (In year)	Males		Females		Total	
	No.	%	No	%	No	%
0-10	12	03.50	18	05.26	30	08.77
11-20	33	09.64	48	14.03	81	23.67
21-30	63	18.42	36	10.52	99	28.94
31-40	57	16.66	18	05.26	75	21.92
41-50	21	06.14	12	03.50	33	09.64
51-60	12	03.50	03	00.87	15	04.35
61-70	09	02.63	00	00.00	09	02.63
Total	**207**		**135**		**342**	
Mean	30.79		22.55		27.54	

Table 2: Age of Onset

The frequency of psoriasis in different occupational groups was also studied. The highest percentage of cases were observed in household workers in 99 cases (28.94%), next to it were farmers in 81 cases (23.68%) and least frequency was in the businessmen in 24 cases (7.01%) (Table 3).

Occupation	No. of Patients	Percentage (%)
Students	63	18.42
Farmers	81	23.68
Businessmen	24	07.03
Servicemen	48	14.03
House hold workers	99	28.94
Unemployed	27	07.89
Total	**342**	**100.00**

Table 3: Occupational Distribution

Clinically different types of psoriasis were seen during the study in which chronic plaque psoriasis was most common (255 patients-74.56%) followed by palmoplantar psoriasis (99 patients-28.95%), sebopsoriasis (69 patients-20.17%), guttate psoriasis (66 patients-19.29%), flexural psoriasis (60 patients-17.54%), pustular psoriasis and psoriatic arthritis (each 12 patients-3.50%) and psoriatic erythroderma (9 patients-2.63%) (Table 4).

Type of Psoriasis	No. of Patients	Percentage (%)
Flexure	60	17.54
Plaque	255	74.56
Guttate	66	19.29
Palmo-plantar	99	28.95
Elephantine	00	00.00
Sebopsoriasis	69	20.17
Pustular	12	03.50
Erythroderma	09	02.63
Psoriatic arthropathy	12	03.50

Type 4: Type of Psoriasis

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Involvement of scalp was seen in 79.82% of the cases along with other body areas involvement. Scalp was only affected in 2.63% of cases. The scalp, trunk and extremities were the most frequently involved site. In extremities, shin and elbows were the commonly involved sites because of most vulnerable to trauma. Elbow was involved in 67.50% and involvement of shin was seen in 64.02% of the cases (Table 5 & 6). Genitals were also involved in 14.90% of cases (Table 6). The involvement of palmoplantar area in present study was 13.12% in association with other site involvement which was more than the Bedi's observation (7%).[5] and lesser than the Kaur et al observation (14.5%).[2]

Site	No. of patients	Percentage (%)
Scalp	09	2.63
Face	00	0.00
Elbow	24	7.01
Shin	33	9.64
Lumbosacral area	15	4.35
Palm	21	6.14
Sole	27	7.89
Thigh	03	0.89
Genitalia	00	00
Total	132	38.55

Table 5: Single Site Involvement Group

Site	No. of patients	Percentage (%)
Scalp	243	79.82
Face	81	23.67
Neck	75	21.93
Shoulder	66	19.29
Arm	216	61.15
Elbow	231	67.50
Hand	213	62.28
Palm	75	21.93
Chest	129	37.71
Back	67	58.77
Armpit	33	09.64
Abdomen	147	42.98
Lumbosacral area	135	39.46
Palm and sole only	45	13.12
Buttock	117	35.08
Thigh	207	60.41
Knee	210	61.41
Shin	219	64.02
Feet	147	42.98
Genitalia	51	14.90
Sole	78	22.79
Flexure area	84	24.54
Finger and Toe	81	23.67
Nail	39	11.40

Table 6: Multiple Site Involvement Groups

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In present study various type of nail involvement was seen in psoriatic patients as pitting 6.14% in finger nails and 1.75% in toe nails; subungual hyperkeratosis 7.01% in finger nails and 4.35% in toe nails; discoloration 4.35% in finger nails and 3.50% in toe nails; thickening 9.64% in finger nails and 6.14% in toe nails; onycholysis 1.75% in finger nails only; longitudinal ridges 7.89% in finger nails and 5.26% in toe nails, transverse ridge 1.75% in finger nails and 3.50% in toe nails (Table 7).

Type of Involvement	Finger nail		Toe nail	
	No.	%	No.	%
Pitting	21	6.14	06	1.75
Subungual hyperkeratosis	24	7.01	15	4.35
Discoloration	15	4.35	12	3.50
Thickening	33	9.64	21	6.14
Onycholysis	06	1.75	00	00
Transverse Ridge	06	1.75	12	3.50
Longitudinal Ridge	27	7.89	18	5.26
Total	**132**		**82**	

Table 7: Various Type of Nail Involvement

During the follow-ups of the cases, I found that cold weather worsen the disease in 189 cases (55.26%) while in 54 patients (15.78%) improvement were seen but in 99 cases (28.94%) there were no effect. In hot weather, the disease improved in 165 cases (43.86%) and worsened in 66 cases (19.29%) but not affected in 111 cases (32.45%). In summer, disease usually improves and in winter it worsens (Table 8).

Sun exposure has significant influence over the natural course of the disease. Sunlight improved the disease in 21.05% of cases and worsened in 14.03% of the cases while on rest 64.90% of cases, no effect were seen (Table 8).

Factors	Aggravated		Improved		No effect	
	No.	%	No.	%	No.	%
Throat infection	15	04.35	00	00.00	327	95.61
Mental stress	24	07.01	00	00.00	318	92.98
Trauma	93	27.19	00	00.00	249	72.80
Alcohol/smoking	15	04.35	00	00.00	327	95.61
Pregnancy	15	04.35	12	03.50	87	25.43
Sunlight	48	14.03	72	21.05	222	64.90
Dialysis	00	00	00	00	00	00
Summer	66	19.29	165	43.86	111	32.45
Winter	189	55.26	54	15.78	99	28.94
Spring	75	21.92	147	42.98	120	35.08

Table 8: Precipitating Factors

In the present study, trauma precipitated the disease in 27.19% of the cases and disease was not precipitated by trauma in 72.80% of the cases.

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In the present study, 114 females gave history of pregnancy during the course of the disease. I observed that disease had improved in 3.50% of the cases. It worsened in 4.35% of the cases and had no effect in 25.43% of cases.

In present study diseases associated with psoriasis were vitiligo (3.50%), neurodermatitis (1.75%), other skin diseases (7.89%), diabetes mellitus (2.43%), hypertension (4.35%), gout (2.63%), heart disease (1.75%), enteropathy and oral ulcer (8.77%) and atopy (7.01%) (Table 9).

Disease	No. of Patients	Percentage (%)
Diabetes mellitus	09	2.63
Vitiligo	12	3.50
Hypertension	15	4.35
Gout	09	2.63
Heart disease	06	1.75
Enteropathy and oral ulcer	30	8.76
Atopy	24	7.01
Neurodermatitis	06	1.75
Other skin disease	27	7.89
Total	**138**	

Table 9: Association of psoriasis with other diseases

The course of disease was very variable as observed during the study of all the cases. Spontaneous recovery was seen in 30 patients (8.77%) for a brief period as they told but about 159 patients (46.49%) were become free of disease after proper treatment while 153 patients (44.73%) were still suffering from disease even after proper treatment (Table 10). During the course of study 105 patients (30.70%) showed relapse of disease at variable interval.

Course of Disease	No. of Patients	Percentage (%)
Spontaneous recovery	30	08.77
Recovery with treatment	159	46.49
Disease persisted even after treatment	153	44.73
Disease relapsed after clearance	105	30.70

Table 10: Course of Disease

DISCUSSION: Sex: In India Sehgal et al (1974) in their series of 142 patients found 92 males and 50 female.[6] A prospective study of 530 patients of psoriasis drawn from northern part of India revealed a male preponderance as observed by Bedi et al (1995).[5]

Age of onset: The first manifestation of psoriasis may occur at any age. Psoriasis in India is seen more during active period of life from 20-50 years of age when the patient are more liable to the stress and strain of life as observed by Sharma and Sepaha (1964), also reported that the age at onset was below 30 years in 70% of their cases.[7] In a recent prospective study, 60% patients having onset before the age of 30 years, youngest age at onset being one week and the oldest 72 years as observed by Bedi (1995).[5]

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Occupational Distribution: Sharma and Sepaha (1964) observed 23.33% cases in agriculture group, 13.33% in service class, students and housewives and 6.6% in business class.[7] The higher frequency of psoriasis in household workers and farmers can be explained on the basis that they were more prone to trauma and stress in their daily routine work in comparison to student and service class people.

Type of Psoriasis: Bedi analyzed data of 530 psoriasis patients seen over a period of five years.[8] Chronic plaque type psoriasis was the most common (90%) clinical phenotype. The second most common clinical phenotype was palmoplantar psoriasis followed by flexural psoriasis. He found guttate psoriasis, mucosal involvement and psoriatic erythroderma to be uncommon. Kaur et al. reported chronic plaque type psoriasis (93%) as the most common clinical phenotype.[9] Palmoplantar pustulosis, guttate and erythrodermic variants accounted for less than 2% of cases each. Generalized pustular, isolated nail, flexural and arthropathic forms were very uncommon.

Site of Involvement during Course of Disease: Psoriasis may be present on a particular site or can be involved whole of the body. Elbow, knee, lumbosacral area and scalp were the most frequent site, whereas the face, palms and soles were the least involved site. Farber and Nall (1979) observed that the disease affect scalp, trunk and extremities commonly.[3] Scalp is a common site for psoriasis.

The scalp was affected alone in 10% of cases as observed in a study reported from India Zawahary (1967).[10] The first site of involvement was scalp in 32.99% as observed by Kaur et al (1986).[2] Another study had shown 60% scalp involvement as observed by Bedi (1995).[5]

Face was the only site of involvement in 33.3% cases while in 23.33% cases face was involved in combination with other site as observed by Sharma and Sepaha (1964).[7] Involvement of face was seen in 28% of patients as observed by Bedi (1995).[5]

In my study involvement of face was seen in 23.67% of the cases, so it was more than the Sharma and Sepaha and lesser than the Bedi's observation. Farber and Nall (1964) reported that finger nails were affected in 50% of cases and toe nails in 35% of cases. Pitting, discoloration, crumbling, loosening of nail plates were noted in descending order of occurrence in patients.[3] Involvement of nail alone was seen in 0.5% as observed by Kaur et al (1986).[2]

A prospective study observed by Bedi (1995) showed 54% of cases had nail changes when first seen.[5] Kaur et al. studied nail changes in 167 psoriasis patients over a period of five years.[11] of the total cases, 3% had isolated nail involvement. Pitting was the most common nail change, followed by onycholysis, discoloration, subungual hyperkeratosis, longitudinal ridging and thickening of the nail plate. Pits were present in irregular pattern in 90% cases while in rest 10% they were arranged in transverse or longitudinal lines.

Two third of their subjects did not have nail fold involvement. While one third cases who had proximal and/or lateral nail fold involvement, had larger body surface area involved and also had significantly higher mean number of nail changes per subject. Ghosal et al. studied nail involvement in 100 psoriasis patients.[12] Finger nails were involved in 32% and toe nails in 24% cases. Pitting and subungual hyperkeratosis were the most common finger and toe nail changes noted in 65% and 33% cases, respectively. Nail changes were more common in those with joint pain (73%) compared to those who had no joint complaints (30%) and odds ratio was 6.6. They also noted significant association of nail changes with Koebner phenomenon.

Okhandiar et al. collected epidemiological data of 116 psoriasis patients from various medical colleges.[13] they found that the extensors (93%) were the most common site of involvement followed

by the scalp (88%). Face, palm, sole and nail were affected in one third of the cases. Inverse psoriasis was uncommon. None of their patient had mucosal involvement and also they did not comment on the morphological types of psoriasis in their patients.

Factors Influencing the Disease: Effects of Climate: Farber and Nall (1974) observed that 89% of the patients had worsening of the disease in cold climate and 11% cases noticed improvement, in hot weather 78% noticed improvement while 22% complained worsening of disease.[3] Kaur et al (1986) observed that nearly half of the patients did not observe any seasonal effects, in 39.9% there was remission in summer month while 13.5% of patients had remission in winter month.[2] In a prospective study,72% patients showed seasonal variation, 30% felt worse in winter, 16% had worsening in monsoon and 4% had worsening in early summer, 10% improved during winter and 28% had lesions persisting all around the year with erratic fluctuations as observed by Bedi (1995).[5]

Sunlight: Farber and Nall (1974) observed that 80% of the patients showed improvement in the disease in sunlight, although 20% of the patients noticed aggravation of disease on sun exposure.[3]

Trauma: Braun-Falco et al (1972), in their study of 536 patients found 76% of the cases with lesions appearing after trauma.[14]

Infection: Among the several precipitating factors, infection especially throat infection is said to influence development of psoriasis. Tervaert and Esseveld (1970) observed the role of streptococcal infection specifically of the throat, in provoking acute guttate psoriasis.[15] Braun-Falco et al (1977) observed the sore throat infection aggravate psoriasis in 73% of the patients.[16]

Pregnancy: It is evident from the observation of several workers that there is definite tendency towards improvement during pregnancy. The disease has improved in 40% of cases as observed by Braun-Falco et al (1972).[14] Kaur et al (1986) observed that vaccination, pregnancy and parturition modified the severity of psoriasis.[2] Dunna and Finlay (1989) observed that if psoriasis is to alter during pregnancy, it is more likely to improve than to worsen, if it is to change in postpartum, it is more likely to deteriorate than to improve.[17]

It is very difficult to explain two contradictory statements. Improvement in the disease process during pregnancy can be correlated to the hormonal activity as steroid synthesis increases during pregnancy. Deterioration may be related to stress of pregnancy, unwanted or economical burden which might have worked as provocative factors. In those patients, where disease aggravated after delivery, it might have been due to strain of unwanted sex of baby to the mother.

Association of Psoriasis with other Diseases: Several other skin diseases like seborrhoeic dermatitis, hand eczema, lichen planus, lichen simplex chronicus etc. may coexist or alternate with psoriasis as observed by Pinkus and Mehregan (1966).[18] Systemic disease like gout was associated with psoriasis as observed by Talbot (1966).[19] There was long tradition of association of psoriasis with arthritis as observed by Leczinsky (1948).[20] In 1973, Moll and Wright clearly defined psoriatic arthritis (PsA) as a distinct entity under seronegative spondyloarthropathies and gave simple criteria for its diagnosis which include; an inflammatory arthritis (peripheral arthritis and/or sacroiliitis or spondylitis); presence of psoriasis; absence (usually) of serological tests for rheumatoid factor.[21]

They also described its five main clinical patterns viz: distal interphalangeal (DIP) arthritis, arthritis mutilans (Destructive), symmetric polyarthritis, asymmetric oligoarthritis and spondy-loarthropathy.

Other manifestations of PsA include enthesitis, tendonitis, fasciitis, and dactylitis. The incidence of PsA is estimated to range from 7% to 42% among all psoriasis patients.[22]

Bullous pemphigoid and vitiligo are two autoimmune diseases reported to be associated with psoriasis. More than 50 cases have been reported in literature, with coexisting psoriasis and bullous pemphigoid.[23,24] Vitiligo coexisting and co-localizing with psoriasis has been reported from India.[25,26,27] Dhar et al.[26] reported co-localization of vitiligo and psoriasis in a 9-years-old boy and concluded that, there could be structural similarities between anti stratum corneum antibodies and anti melanocyte antibodies and that a common neuropeptide might be responsible for co-habitation of vitiligo and psoriasis.

Course of Disease: Since psoriasis is a chronic lifelong disease that needs to be controlled with a customized treatment regimen, the constant presence of psoriatic lesions or unexpected flare-ups at times when patients least expect it can cause a considerable amount of stress and anxiety.

Despite advancements in understanding pathogenesis and treatment options, psoriasis still remains a rather elusive and even enigmatic disease. Better clinimetrics of disease severity are needed that take into account the many influences of the disease on the patient's life. Once developed, measures should be applied in long-term prognostic and interventional studies.[28]

CONCLUSION: The present study was undertaken to assess the clinical profile of psoriasis in which total 342 cases (207 males and 135 females) attending in the dermatology outpatient department of B.R.D. Medical College, Gorakhpur were enrolled for the study.

The mean age of onset was quite early in female than male. The disease onset was also early in patients with positive family history. The disease was more common in house hold workers. The trauma and mental stress were the major provocative factors. Climate was found to be one of the important factors affecting the course of disease. In majority of cases, hot weather had beneficial effect, while worsening of disease was seen in cold weather. Pregnancy had variable effect on the course of disease. Psoriasis may be present on a particular site or can involve whole of the body. The most frequent site of involvement was scalp. Involvement of nail was seen in about 10% psoriatic patient and finger nails were more frequently involved than toe nails.

REFERENCES:

1. Gupta SK, Singh KK, Lalit M. Comparative therapeutic evaluation of different topicals and narrow band ultraviolet B therapy combined with systemic methotrexate in the treatment of palmoplantar psoriasis. Indian J Dermatol 2011; 56:157-62.
2. Kaur I, Kumar B, Sharma VK, Kaur S. Epidemiology of psoriasis in a clinic from north India. Indian J Dermatol Venereol Leprol 1986; 52:208-12.
3. Farber EM, Nall L. Epidemiology: natural history and genetics. In: Roenigk Jr HH, Maibach HI, editors. Psoriasis. New York: Dekker; 1998. p. 107-57.
4. Swanbeck G, Inerot A, Martinsson T, Wahlstrφm J. A population genetic study of psoriasis. Br J Dermatol 1994; 131:32-9.
5. Bedi TR. Clinical profile of psoriasis in North India. IJDVL. 1995; 61:202-05.

6. Sehgal VN, Roge VL, Kharangate VN. An interrogative study of 142 psoriasis patients. The J Dermatology. 1974; 1:52.
7. Sharma BP, Sepaha GC. Psoriasis-A clinical study. IJDVL. 1964; 30:191.
8. Bedi TR. Clinical profile of psoriasis in North India. Indian J Dermatol Venereol Leprol 1995; 61:202-5.
9. Kaur I, Handa S, Kumar B. Natural history of psoriasis: a study from the Indian subcontinent. J Dermatol 1997; 24:230-4.
10. Zawahry MF. Psoriasis: The atypical clinical varities. IJDVL. 1967; 13:37.
11. Kaur I, Saraswat A, Kumar B. Nail changes in psoriasis: a study of 167 patients. Int J Dermatol 2001; 40:601-3.
12. Ghosal A, Gangopadhyay D, Chanda M, Das N. Study of nail changes in psoriasis. Indian J Dermatol 2004; 49:18-21.
13. Okhandiar RP, Banerjee BN. Psoriasis in the tropics: An epidemiological survey. J Indian Med Assoc 1963; 41:550-6.
14. Braun-Falco O, Burg G and Farber EM. Psoriasis: Line Fragebogen studie bei 536 patients. Munchen Med Wochenschr. 1972; 114:1-15.
15. Tervaert WCC, Esseneld H. A study of the incidence of haemolytic streptococci in the throat in patients with psoriasis vulgaris, with reference to their role in the pathogenesis of this disese. Dermatologica. 1970; 140:282-90.
16. Braun-Falco O, Schmoeckel C. The dermal inflammatory reaction in initial psoriatic lesions. Arch Dermatol Res. 1977; 258:9-16.
17. Dunna SF, Finlay AY. Psoriasis improvement during and worsening after pregnancy. Br J Dermatol. 1989; 120:584.
18. Pinkus H, Mehregan AH. The primary histologic lesion of seborrhoeic dermatitis and psoriasis. J Invest Dermatol. 1966; 46:109-16.
19. Talbot JH. In: Hill AGS, ed. Modern Trends in Rheumatology London: Butterworth. 1966; 270.
20. Leczinsky CG. The incidence of arthropathy in a ten years series of psoriasis cases. Acta Derm Venereol. 1948; 28:483-7.
21. Moll JM, Wright V. Psoriatic arthritis. Semin Arthritis Rheum 1973; 3:55-78.
22. Gladman DD, Rahman P. Psoriatic arthritis. In: Ruddy S, Harris ED, Sledge CB, editors. Kelly's textbook of Rheumatology. 6th ed. Vol.2. Philadelphia W.B Saunders Company; 2001. p. 1071-9.
23. Wilczek A, Sticherling M. Concomitant psoriasis and bullous pemphigoid: coincidence or pathogenic relationship? Int J Dermatol 2006; 45:1353-7.
24. Yasuda H, Tomita Y, Shibaki A, Hashimoto T. Two cases of subepidermal blistering disease with anti-p200 or 180-kD bullous pemphigoid antigen associated with psoriasis. Dermatology 2004; 209:149-55.
25. Inamadar AC, Sampagavi VV, Athanikar SB, Patil MN, Deshmukh NS. Vitiligo and psoriasis: coexistence with colocalization. Indian J Dermatol Venereol Leprol 2001; 67:214-5.
26. Dhar S, Malakar S, Dhar S. Colocalization of vitiligo and psoriasis in a 9-year old boy. Pediatr Dermatol 1999; 1:242-3.
27. Sandhu K, Kaur I, Kumar B. Psoriasis and vitiligo. J Am Acad Dermatol 2004; 51:149-50.

28. Naldi L. Scoring and monitoring the severity of psoriasis. What is the preferred method? What is the ideal method? In PASI passé? Facts and controversies. Clinics in Dermatology 2010; 28:67-72.

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