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Research Article
Arthritis

Psoriatic Arthritis in the Eastern Part of Uttar Pradesh

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Aim: This original research article aims to study Psoriatic Arthritis in the Eastern Part of Uttar Pradesh. **Material & Method:** Two hundred twenty-eight patients of psoriasis regardless of age, sex, religion, occupation, attending the skin, and V. D. outpatients Department, B.R.D. Medical College, Gorakhpur for were taken because of the subject of this study. The bulk of patients belonged to the Eastern U.P. and adjoining areas of Bihar and Nepal. The clinical criteria for diagnosis of psoriasis were the presence of Erythematous and papulosquamous lesions with loosely adherent silvery-white scales. The auspitz's sign was demonstrated all told the cases. The detailed clinical history and examination were recorded with Tests for Rheumatoid factor and serum uric acid, Radiographs of both hands and feet, Radiographs of the lumbosacral Spine and both sacroiliac joints and Radiographs of affected joints (if any). Each patient was categorised into mild to severe psoriasis. **Result:** The total number of psoriatic arthritis cases was found, 26 of which male were 17 and female were 9. The maximum number of Arthritis cases, 18.5%, were seen with severe disease (PASI score > 15) with higher occurrence in males. The maximum number of joints involved distal interphalangeal joint was 69.2 3%, and the minimum number of joints involved was significant joint 7.69%. **Conclusion:** Psoriasis care is unbalanced, with men being more likely to undergo specialist treatment than women, causing higher distal interphalangeal (D.I.P.) joint arthropathy.

Keywords: Psoriasis, Psoriatic Arthritis, PASI score, PsA Radiology

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Introduction

Psoriasis would be a typical, genetically determined chronic, relapsing, inflammatory disorder of the skin characterised by red, scaly, sharply demarcated plaques that typically exhibit silvery-white scales.

Psoriasis is one of the significant common chronic inflammatory diseases of the skin, affecting 2–3% of the population [1]. The authors defined PsA as " inflammatory arthritis associated with psoriasis and negative for serum autoantibody." Some scientists refused to accept this definition, believing that the condition can coexist with two diseases: Arthritis (rheumatoid) and psoriasis. Psoriatic arthritis is a disease during which the cutaneous manifestation of psoriasis coexists with arthritis, usually within the absence of autoantibody.

The estimated prevalence of atrophic arthritis among patients with psoriasis is 4–42% (typically 7–10%) [2]. in additional recent studies, the prevalence of PsA is more often reported to be approximately 30% among patients with psoriasis, giving an overall prevalence of 0.3–1.0% within the general population [3-5]. Different clinical classifications are proposed for PsA since the initial subtypes were described in 1973; however, the foremost recent was developed by a world multicentre study leading to the CASPAR criteria and has now been widely adopted [6].

Psoriatic Arthritis (PsA) could be chronic inflammatory arthritis of unknown etiology, and currently, the cellular and molecular interactions that dictate its pathogenesis remain elusive. A task of the interleukin-23 (IL-23)/IL-23R (IL-23 receptor) interaction within the development of psoriasis and PsA is well established. As IL-23 regulates the differentiation and activation of innate and adaptive immunity, it pertains to complex pathophysiology involving a plethora of effectors and transducers. The positive effect of treatment in PsA depends on its early initiation before progressive joint destruction occurs. Modern diagnostic imaging techniques play an outsized role, especially in mildly symptomatic cases.

This study was planned at the Department of Skin and V.D., BRD Medical College Gorakhpur because no study was available on this topic in the eastern part of Uttar Pradesh and this medical college located in the east part of Uttar Pradesh with a sufficient number of cases, reported in the O.P.D. of the department and has adequate infrastructure.

Material and Methods

This study was conducted at the O.P.D. of the Department of the skin and V. D. B.R.D. Medical College, Gorakhpur. The total duration of the study was 16 months, and this study was a Cohort study (prospective and observational). ; A systematic sampling method was followed for sample collections; the bulk of patients belonged to the Eastern U.P. and adjoining areas of Bihar and Nepal. The sample size was calculated using the online software available at www. clincalc.com; a total of two hundred twenty-eight psoriasis cases were identified for study.

Inclusion criteria for study followed:
Psoriasis regardless of age, sex, religion, occupation, medical conditions.

Exclusion criteria for the study: Psoriasis cases from Geographically other than North India, Unable to follow up, and any other dermatological disorder associated. Ethical consideration was obtained from the ethical committee of BRD Medical College Gorakhpur. Every patient was informed regarding the study, and the consent of each patient was submitted to the concerned authority. The clinical criteria for diagnosis of psoriasis were the presence of Erythematous and papulosquamous lesions with loosely adherent silvery-white scales. The auspitz's sign was demonstrated. The patients in whom joint involvement the diagnosis was made based totally on history, physical examination, the same old absence of R.F. (Rheumatoid factor), and radiological features.

The physical examination excludes assessment of number, location, as distribution of joints involved, together with the presence of psoriatic skin lesion, key signs and symptoms indicative of rheumatism include asymmetrical joint involvement, Enthesitis, dactylitis, distal inter phalange (D.I.P.), and proximal inter phalange (P.I.P.) involvement and spinal inflammation. The detailed clinical history and examination were recorded. Each patient was categorised into mild to severe psoriasis on PASI Score. A PASI score is a tool used to measure the severity and extent of psoriasis. PASI is an acronym for Psoriasis Area and Severity Index. A representative area of psoriasis is selected for each body region. The intensity of redness, thickness, and scaling of the psoriasis is assessed as none (0), mild (1), moderate (2), severe (3), or very severe (4).

The percentage area affected by psoriasis is evaluated in the four regions of the body. In each region, the area is expressed as nil (0), 1-9% (score 1), 10-29% (score 2), 30-49% (score 3), 50-69% (score 4), 70-89% (score 5) or 90-100% (score 6).

- Head and neck
- Upper limbs
- Trunk
- Lower limbs

Each patient has undergone the following investigation.

01. Routine blood tests
02. Liver function test, kidney function test (if required)
03. Skin biopsy
04. Tests for Rheumatoid factor and serum uric acid.
05. Radiographs of both hands and feet.
06. Radiographs of the lumbosacral Spine and both sacroiliac joints.
07. Radiographs of affected joints (if any).

Soft tissue shadowing with marginal erosion at the distal end of left index finger

Soft tissue shadowing with marginal erosion of left grate toe

Marginal erosion & Ankylosis of the lambrosacral spine

Observation

This study was conducted on 228 patients with psoriasis attending the Dermatology outpatient department of Nehru Hospital, B.R.D. Medical College, Gorakhpur, from July 2005 to October 2006.

Table 1: Age and Sex Distribution of the subjects

Age (Years)	Male		Female		Total	
	No	%	No	%	No	%
0-10	06	02.63	06	02.63	12	05.26
11-20	18	07.89	28	12.28	46	20.16
21-30	36	15.78	24	10.52	60	26.31
31-40	34	14.51	18	07.89	52	22.80
41-50	20	08.77	12	05.26	32	14.03
51-60	16	07.01	02	00.87	18	07.89
61-70	06	04.35			06	04.35
71-80	02	00.87			02	00.87
Total	138	100.0	90	100.0	228	100.0

The total numbers of cases studied were 228, of which were 138, and females were 90; the maximum numbers of patients were within the cohort of two 1-30 years. In males, most of the cases were within 21-30 years, while in females, 11 -20years (Table 1).

Table 2: Age and Sex Distribution of Psoriatic Arthritis

Age (Years)	Male		Female		Total	
	No	%	No	%	No	%
0-10	-	-	-	-	-	-
11-20	01	05.88	01	11.11	02	07.69
21-30	02	11.76	01	11.11	03	11.53
31-40	02	11.76	03	33.33	05	19.23

41-50	05	29.41	02	22.22	07	26.92
51-60	03	17.64	02	22.22	05	19.23
61-70	03	17.64	-	-	03	11.53
71-80	01	05.80	-	-	01	07.69
Total	17	100.0	9	100.0	26	100.0

Table 2 shows that the total number of psoriatic arthritis cases was found 26, in which males were 17 and females were 9. The maximum number of cases was in the age group 41-50 in male, while in female 31- 40 years.

Table 3: Correlation of Psoriatic Arthritis with Psoriasis

The severity of Psoriasis (PASI Score)	Total Psoriatic cases				Total No of Psoriatic cases	Total No of Arthritis cases	% of arthritis
	Psoriasis in Male	Arthritis in male	Psoriasis in female	Arthritis in female			
0-3 mild	32	02	20	01	52	02	03.84
4-15 moderate	63	07	41	03	104	11	11.57
> 15 severe	43	08	29	05	72	13	18.05
Total	138	17	90	09	228	26	

Table 3 shows a maximum number of arthritis cases of 18.05% were seen with severe disease (PASI score > 15) in both male and female groups. Minimum numbers of arthritis cases 3.89 % were seen with mild disease (PASI score 0-3).

Table 4: Joint Involvement

Joint Involvement	No of Patients	Percentage (%)
Distal inter phalangeal	18	69.23
Proximal inter phalangeal	03	11.53
Sacroiliac joint	04	15.38
Spine	04	15.38
Major joint (Knee elbow)	02	07.69

Table 4 shows the maximum number of joints involved distal interphalangeal joint 69.2 3% and the minimum number of joints involved it was significant joint 7.69%.

Table 5: Radiological changes in upper and lower limb

	No of Patients	Percentage (%)
Marginal erosion	06	23.17
Increase joint space	01	03.84
Periosteal new bone formation	05	19.23
Calcaneum spur	01	03.84
Deformity (Pencil in a cup)	02	07.69

Table 5 shows maximum radiological changes were seen in marginal erosion of distal interphalangeal joint 23.1 7%, and calcaneum spur was seen in 3.84 %.

Table 6: Radiological changes of Sacroiliac joint and Spine

	No of Patients	Percentage (%)
Asymmetrical Joint Involvement	06	23.07
Erosion	04	15.38
Hazy joint margin	05	19.23
Narrowing of joint space	03	11.53
Ankylosis	02	07.69

Table 6 shows that asymmetrical joint involvement was 23.07%. Where marginal erosions were seen in 15.38 % and ankylosis was seen in 7.69% cases.

Discussion

Spondyloarthritis disorders are generally diagnosed more often in men than in women [7]. In relevancy the foremost representative quite these disorders, autoimmune disorder, three male cases are documented for every female patient [7]. PSA appears to be more frequent in men than women, particularly in its axial presentations [8].

Previous studies have shown that specialist treatment in psoriasis care is unbalanced, with men being more likely to undergo expert treatment than women [9]. Within the PsoReg, approximately 60% of registered patients are men. Most other European Registries for systemic psoriasis treatment show a more considerable dominance of enlisted men: Denmark 66%, Germany 60%, Italy 67%, Netherlands 68%, and Spain 63% [10]. In our present study, the total number of rheumatism cases was found, 26 of which male were 17 and female were 9. the maximum number of cases was within the cohort 41-50 in male, while in female 31-40 years.

This support the previous study, that male are more in affected group, but little is assumed of the differential clinical expression of PsA between males and females. The explanation for these differences isn't clear, and also the participation of multifactorial parameters cannot be discarded.

Distal interphalangeal (D.I.P.) joint arthropathy is characteristic of both rheumatism (PsA) and osteoarthritis (O.A.), PsA is also distinguished from O.A. on the premise of more severe inflammation within the collateral ligaments and also the extensor tendons and more severe changes at the corresponding D.I.P. joint entheseal insertions. Swelling related to D.I.P. PsA usually affects the whole finger or toe. It's asymmetric, meaning it affects only one side of the body, which means that if all the joints in one hand are affected, the opposite hand might not be affected in the slightest degree, or four or fewer digits are involved.

However, research shows PsA can even be symmetrical, involving the joints on either side of the body.2 Moreover, D.I.P. PsA occurs more frequently within the toes [11]. Previously many authors [12,13] reported Distal interphalangeal (D.I.P.) joint arthropathy is highest among other joints. Our findings support the previous study because the maximum number of joints involved distal ginglymus was 69.2 3%, and also the minimum number of joints involved had been significant joint 7.69%. D.I.P. rheumatism also causes Enthesitis, inflammation at the places where ligaments and tendons meet at the bones. The kind of swelling and inflammation can erode the joints and result in deformity and loss of function.

Bone erosions were smitten by age and disease duration of PsA. Erosions reflect accumulating mechanical and inflammatory damage within the joints. In accordance, erosive damage was most significant in patients with PsA. No difference was found between healthy controls and patients with PSO. a noteworthy finding was that with an increase in age, bone erosions failed to only increase in patients with PsA, but also in patients with PSO and healthy controls. While individuals without inflammatory joint disease (healthy controls and patients with psoriasis) ;presumably accrue damage because of mechanical triggers, in patients with PsA the extra inflammatory trigger appears to hurry up erosions.

Hence, the common 20 to 40-year old patient with PsA already exhibits a burden of bone erosions, which equals that of a private who is over 60 years old and doesn't have inflammatory joint disease. These findings also indicate that judgement on the burden of erosive bone damage in private with PsA must consider age as a significant influencing factor.

The influence of inflammation as an enhancer of the progression of bone erosions is additionally supported by the notion that the duration of PsA is related to the burden of bone erosions [14].

Early erosive changes are quite common in PsA – they develop in 15–47% of patients within the first two years of disease [15]. Early erosions, like in R.A., are marginal and well-defined. Still, because the disease progresses, they become irregular and ill-defined thanks to the periosteal bone formation adjacent to erosions, which can make erosion of a speculated appearance, particularly towards its margin [16,17]. In our study maximum, radiological changes were seen in the marginal decline of distal hinge joint 23.1 7%, and calcaneum spur was seen in 3.84 %.

Asymmetric and bilateral involvement of the sacroiliac joints is typical, yet unilateral may occur moreover. Both synovial and syndesmotic parts are additionally engaged (like in autoimmune disorder and remaining spondyloarthritis). The iliac side is initially involved, presumably thanks to mechanical factors and anatomic features [18, 19]. Our finding shows that asymmetrical joint involvement was 23.07%. Where marginal erosions were seen in 15.38% and ankylosis was seen in 7.69% cases.

Conclusion

Psoriasis care is unbalanced, with men being more likely to undergo specialist treatment than women, causing higher distal interphalangeal (D.I.P.) joint arthropathy with early erosive changes in long bones of the limb with/without asymmetric and bilateral involvement of the sacroiliac joints.

By investigating the sex differences within the severity of psoriasis using the gold standard of severity measurement—the PASI score—and the distinct elements of the PASI score. Further research is required to substantiate this finding in numerous populations.

The outcome of this study

This is the first study under the above parameters in the eastern part of Uttar Pradesh, which shows 69.23% of Distal interphalangeal involvement, 23.07% asymmetrical joint involvement and 23.17% marginal erosion.

Authors contribution

Dr Kamlesh Kumar Bhaskar: Major contribution and performed all methods as a junior resident in this study.

Dr Rakesh Kumar Shukla: Major contribution and wrote the manuscript.

Dr. Rajesh Kumar Rai: Statistical analysis and data interpretation.

Dr Archana Mishra: Data Analysis and Review

Dr Kavita Chawla: Data Analysis and Review

Disclosure

The authors declare that there is no conflict of interest.

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