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Psoriasis and Risk of Migraines in Patients Reporting to a Tertiary Care Setup in Pakistan: A Cross-Sectional Study

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ABSTRACT

Objective: To look for migraine headaches and associated factors in patients being managed for psoriasis at a tertiary healthcare setup in Rawalpindi, Pakistan.

Study Design: Comparative cross-sectional study.

Place and Duration of Study: Department of Dermatology, Pak Emirates Military Hospital, Rawalpindi Pakistan, from Mar 2021 to Feb 2022.

Methodology: One hundred and forty patients of psoriasis being managed at our Dermatology Unit were included in the analysis. All patients were screened with the Migraine Screen Questionnaire (MS-Q), and those having scores equal to or more than four were evaluated by medical specialists, and diagnosis of migraine was established based on the International Classification of Headache Disorders diagnostic criteria for migraine. An association of relevant risk factors was established with migraine among these patients.

Results: Out of 140 patients with psoriasis, 75(53.4%) were male, while 65(46.6%) were female. Eighty-five (60.7%) patients had migraine confirmed by clinical criteria, while 55(39.3%) had no migraine. Statistical analysis revealed that more body surface area involvement and longer duration of psoriasis had a statistically significant relationship with migraine among the study participants (p-value <0.05).

Conclusion: The study showed that patients with psoriasis had an approximately 3-fold increased risk of migraine headaches compared to the normal population. Most of the patients had migraine without aura. Patients with longer duration of psoriasis and those with more surface area of the body affected with psoriasis were at an increased risk of migraines compared to other patients.

Keywords: Migraine, Psoriasis, Risk factors

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INTRODUCTION

Psoriasis is one of these chronic conditions with a high relapse rate in patients.[1,2] Overall health-related quality of life of the patients gets grossly compromised during relapse of psoriasis.[3] Primary or secondary Headaches are a big reason for disability in individuals of all ages.[4,5] Mechanism of primary headaches is usually poorly understood. However, their co-existence with multiple infective, immune-based and vascular conditions gives clues to clinicians and researchers regarding the aetiopathogenesis of these headaches or craniofacial pains.[6,7] Migraine is a commonly diagnosed primary headache in various clinical settings, and multiple comorbid medical conditions have been reported in these patients.[8]

Psoriasis is routinely managed in dermatology departments of our country, and usually, the dermatology team manages these patients. Psoriatic arthritis sometimes warrants the involvement of a rheumatology team.[9] Neurological manifestations of this chronic relapsing condition are not studied extensively in our population. A recent local study evaluated sinonasal abnormality associations with headaches and craniofacial pains, but limited local data has been generated regarding the association of psoriasis and migraines.[10] We planned this study to look for migraine headaches and associated factors in patients being managed for psoriasis at a tertiary healthcare hospital in Rawalpindi, Pakistan.

METHODOLOGY

The comparative cross-sectional study was conducted at the Dermatology Department of a Tertiary Healthcare Hospital of Rawalpindi Pakistan, from March 2021 to February 2022. Ethical Approval (letter no: A/28/EC/257/2021 dated 25 February 2021) was sought prior to the commencement of this study. Non-probability consecutive sampling technique was used to gather the sample for this study. Sample size

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calculation used the population proportion of migraine in psoriasis as 4.8%.[11]

Inclusion Criteria: Patients of either gender aged 18-60 years diagnosed with psoriasis and being managed at Dermatology Department were included in the study.

Exclusion Criteria: Patients diagnosed with migraine or primary headaches before the onset of psoriasis were excluded. Patients with any benign or malignant condition of the head and neck region were excluded as well. Patients with any causes of secondary headaches were also not made part of the study. Those with unclear diagnosis of psoriasis were excluded as well. Pregnant or lactating women were also part of the exclusion criteria.

Psoriasis was diagnosed by a consultant dermatologist based on history and clinical examination. In cases where the diagnosis was unclear or agreed upon, a lesion biopsy was carried out and sent to the laboratory for histo-pathological examination and confirmation of the diagnosis.

Migraine screening was done by using the Migraine Screen Questionnaire (MS-Q),[12,13] and those having a score equal to or more than four were further evaluated by a medical specialist and diagnosis of migraine was confirmed based on the International Classification of Headache Disorders diagnostic criteria for migraine. Classification of Headache Disorders diagnostic criteria for migraine is a comprehensive and most widely used criterion for diagnosis of migraine and was used in our study to diagnose migraine.[14]

After applying the criteria, all patients with psoriasis diagnosed and managed in our department during the study period were included. Patients were first screened by the dermatology team with a Migraine Screen Questionnaire (MS-Q), and patients who scored more than or equal to four were then referred to the medical department, where a designated senior registrar evaluated them for the presence of migraine with or without aura. Relevant socio-demographic factors were gathered via detailed history and physical examination and were recorded on a questionnaire designed for this study by the research team when planning the research. Age, gender, duration of psoriasis and body surface area involved were the factors assessed among the study participants.

All statistical analysis was performed using Statistics Package for Social Sciences version 23.0 (SPSS-23.0). Percentage and frequency were calculated for qualitative variables. Pearson chi-square was applied to ascertain the association between various risk factors and migraine among patients with psoriasis. The *p*-values which were ≤0.05 were considered significant.

RESULTS

Out of 140 patients with psoriasis, 75(53.4%) were male, while 65(46.6%) were female. The mean age of the patients included in the study was 39.69±8.89 years. Of the total patients, 93(66.4%) were screened positive by MS-Q and referred to a medical specialist for clinical evaluation. Out of those patients screened by the dermatology team, 85(60.7%) had migraines confirmed by clinical criteria, while 55(39.3%) had no migraine diagnosed. Further evaluation revealed that 72(51.4%) had migraine without aura, whereas 13(9.2%) had migraine with aura (Table-I).

Table-I: Characteristics of Study Participants Diagnosed with Psoriasis (n=140)

Study Parameters	n(%)
Age (years)	
Mean±SD	39.69±8.89 years
Range (min-max)	20-54 years
Gender	
Female	65(46.4%)
Male	75(53.4%)
Migraine	
No migraine	55(39.2%)
Migraine with aura	13(9.2%)
Migraine without aura	72(51.4%)
Body Surface Area with Psoriasis	
10 % or less	102(72.8%)
More than 10%	38(27.2%)
Medical Comorbid Conditions	
Diabetes mellitus	20(14.2%)
Asthma	15(3%)
Hypertension	13(10.7%)
Obesity	10(7.1%)
Others	4(2.8%)

About of 20(14.2%) patients had type 2 DM, 15(3%) had asthma, 13(10.7%) had hypertension, and 10(7.1%) patients had obesity. 102(72.8%) had 10% or less area involved with psoriasis, while 38(27.2%) patients had more than 10% of body surface area involved. It was also revealed that more body surface area involved by psoriasis (*p*-value <0.001) and longer duration of disease (*p*-value -0.001) had a statistically significant relationship with the presence of migraine among the study participants (Table-II).

Table-II: Factors Associated with Presence of Migraine among Patients of Psoriasis (n=140)

Socio-Demographic Factors	No Migraine	Migraine	*p*-value
Age			
40 year or less	34(61.8%)	55(64.7%)	0.729
40-60 years	21(38.9%)	30(35.3%)	
Gender			
Male	25(45.4%)	50(58.8%)	0.121
Female	30 (54.6%)	35 (41.2%)	
Duration of Psoriasis			
Less than 2 years	49(89.1%)	55(64.7%)	0.001
2 years or more	06(10.9%)	30(53.3%)	
Body Surface Area			
10% or less	49(89.1%)	53(62.3%)	<0.001
More than 10%	06(10.9%)	32(37.7%)	

DISCUSSION

Immune-based disorders are generally multi-system and need thorough assessment. Sometimes, adverse effects of medications may prone individuals to disorders of other systems. Thorough clinical assessment is the key.[11,12] Migraine is a common condition, but the exact mechanism is still not understood, and vascular or immune-based theories are widely discussed. Dermatological conditions are also sometimes manifestations of some underlying systemic disease process and usually have extra skin manifestations. Psoriasis primarily involves the skin but is not confined to the skin only in a considerable number of patients.[13,14] Limited work has been available regarding the co-existence of these two conditions, so we conducted this study intending to look for migraine headaches and associated factors in patients being managed for psoriasis at a tertiary healthcare setup in Rawalpindi, Pakistan.

Shreberk-Hassidim *et al*. revealed that contact dermatitis, hyperhidrosis, obesity, hypercholesterolemia and arthritis were seen more in these patients than in the general population.[15] The increased risk of migraine in patients with psoriasis was assessed in a large Danish cohort study published in 2015. It was concluded that psoriasis was associated with disease severity dependent increased risk of migraine.[16] Herekar *et al*. did a nationwide survey in Pakistan, published in 2017, to study the prevalence of primary headache disorders in the general population of Pakistan. They concluded that migraine was present in 22.5% of the general population, with slight female predominance.[17]

Mathieu *et al.* studied the prevalence of migraine and neuropathic pain in rheumatic diseases in 2020. They concluded that migraine (two-fold) and neuropathic pain (three-fold) are more prevalent in patients suffering from various rheumatic diseases than in the general population.[18] We studied only statistics regarding migraines in patients with psoriasis. We found an approximately three-fold increased risk of migraine in patients with psoriasis compared to otherwise healthy individuals. Capo *et al.* studied the Italian population for the prevalence of migraine with and without aura among patients with psoriasis. They revealed that migraine, especially migraine with aura, is more prevalent among psoriasis patients. They stated that some common underlying mechanism may be responsible for this co-occurrence.[19] In our study, 85(60.7%) patients out of 140 had migraine, and out of these, 13(9.2%) had migraine with aura, whereas 72(51.4%) had migraine without aura.

LIMITATIONS OF STUDY

It is difficult to conclude with a single cross-sectional study that migraine and psoriasis are interrelated or may have a common aetiology. The history of migraine also could not be incorporated into the design due to several biases. Case-control or cohort study designs with larger sample sizes may better understand the epidemiological and etiopathological relationship between two common conditions.

CONCLUSION

This cross-sectional study showed that patients with psoriasis had an approximately 3-fold increased risk of migraine headaches compared to the normal population. Most of the patients had migraine without aura. Patients with longer duration of psoriasis and those with more surface area of the body affected with psoriasis were at an increased risk of migraines compared to other patients.

Conflict of Interest: None.

Authors Contribution:

Following authors have made substantial contributions to the manuscript as under:

UAA & NI: Conception, study design, drafting the manuscript, approval of the final version to be published.

MMM & UB: Data acquisition, data analysis, data interpretation, critical review, approval of the final version to be published.

SSM & IA: Critical review, data acquisition, drafting the manuscript, approval of the final version to be published.

Authors agree to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.

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