ORIGINAL ARTICLE

Bali Medical Journal (*Bali Med J*) 2020, Volume 9, Number 1: 121-124
P-ISSN.2089-1180, E-ISSN: 2302-2914

Published by DiscoverSys

Extracutaneous manifestations of adult psoriatic patients attending Dermatology Teaching Center in Slemani, Iraq

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ABSTRACT

Background: Psoriasis is debilitating, albeit remained underdiagnosed and undertreated, disease typically known for its cutaneous manifestations. Recent evidence pointed towards multisystemic comorbidities that we aim to elucidate further in this study.

Methods: A cross-sectional descriptive study was conducted in Dermatology Teaching Center in Slemani city from April to September 2019. One hundred dermatologist-confirmed psoriasis patients aged 18 years old and above were subjected to structured interview, physical examination and blood investigations to determine the presence of psoriasis extracutaneous manifestations.

Results: There were a total of 100 patients with a mean age of 47.2 ± 15. Majority of the patients comprised of middle age group (42.0%), female (67.0%), with 10-20 years disease duration (36.0%). Only a few of them are currently smoking (16.0%) and consume alcohol (6.0%). Patients with extracutaneous involvement primarily had multiple (37.0%) as opposed to singular (24.0%). Metabolic syndrome was the most prevalent (30.0%) extracutaneous manifestation in this study.

Conclusions: Extracutaneous manifestations of psoriasis were ubiquitous and often coexisted. Emerging progressive comorbidities prompted greater recognition and integrated multidisciplinary approach.

Keywords: Psoriasis, Extracutaneous, Comorbidities, Prevalence.

Cite this Article: Mahmood, A.N., Saeed, M.Y. 2019. Extracutaneous manifestations of adult psoriatic patients attending Dermatology Teaching Center in Slemani, Iraq. *Bali Medical Journal* 9(1): 121-124. DOI: 10.15562/bmj.v9i1.1766

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Received: 2020-02-24
Accepted: 2020-03-02
Published: 2020-03-11

BACKGROUND

Psoriasis is a debilitating skin disorder typically characterised by erythematous papules and plaques with silvery scales.[1] It is more common with advancing age and prevalence in adult ranging from 0.91 to 8.5% across the world.[2] The 'equator effect' accounting for lower prevalence rates in accordance with shorter geographical distance from equator is not fully understood.[3] Despite being primarily clinically diagnosed, diagnosing psoriasis may pose greater challenge as it encompasses heterogeneous phenotypes in terms of efflorescence and anatomical sites of skin involvement.[4] Systemic inflammatory mechanism underlying psoriasis pathology give rise to multisystem comorbidities beyond cutaneous manifestations. Apart from classic comorbidities (i.e. arthritis, inflammatory bowel disease, uveitis, psychiatric) there is growing evidence linking psoriasis with higher risks of other diseases such as cardiometabolic diseases, gastrointestinal disease, kidney disease and malignancy, among others.[5,6]

Issues regarding underdiagnosis and undertreatment for psoriasis cases have even further implication on its comorbidities.[7,8] Although skin lesions predominantly precede systemic manifestations by years, in certain proportion of cases the latter progressed earlier thus are potentially overlooked.[9] Furthermore, having one comorbidity significantly increases the risk of having concurrent ones.[10] Its chronic-relapsing nature with changing treatment dynamics impair many areas of functioning (e.g. social, professional, psychological) and ultimately cause decline in quality of life.[11] These burden adds to the cost required for work-loss-related and healthcare cost exceeding $20,000 per patient annually in severe cases.[12] Mortality risk associated with variable disease severity was also found to be consistently increased in psoriasis.[13]

Preliminary descriptive study aids in estimating local disease burden and serves as a base for larger scale projection. Raising awareness of this complex disease is crucial to implement comprehensive management. This paper aims to elucidate extracutaneous manifestations of adult psoriatic patients attending Dermatology Teaching Center in Slemani, Iraq.

METHOD

This cross-sectional descriptive study was conducted in Dermatology Teaching Center in Slemani city from April to September 2019. Both verbal and written informed consents were obtained from 100 dermatologist-confirmed psoriasis patients aged 18 years old and above. Consecutively selected patients who agreed to participate were then assessed by thorough history taking, physical examination and blood investigations to determine the presence of psoriasis extracutaneous manifestations.

Patients were assigned to have mental illness, obstructive sleep apnea, uveitis, cardiovascular disease, chronic obstructive pulmonary disease (COPD), inflammatory bowel disease (IBD), non-alcoholic fatty liver disease (NAFLD), chronic kidney disease, psoriatic arthritis and cancer based on their previous confirmed diagnosis by relevant consultant. Chronic kidney disease and metabolic syndrome were assessed according to Kidney Disease Improving Global Outcomes (KDIGO) guideline and National Cholesterol Education Program Adult Treatment Panel III (NCEP ATP III) criteria explained in detail elsewhere.[14,15]

Table 1. Baseline characteristics

Characteristics		n	%
Age (years)	18-30	14	14.0
	31-45	34	34.0
	46-65	42	42.0
	>65	10	10.0
Sex	Male	33	33.0
	Female	67	67.0
Psoriasis duration at baseline (years)	<10	29	29.0
	10-20	36	36.0
	>20	35	35.0
Smoking	Current smoker	16	16.0
Alcohol consumption		6	6.0

Table 2. Prevalence of psoriatic extracutaneous manifestations

Manifestations	n	%
Metabolic syndrome	30	30.0
Psoriatic arthritis	15	15.0
Mental illness	15	15.0
Non-alcoholic fatty liver disease	11	11.0
Cardiovascular disease	10	10.0
Chronic kidney disease	10	10.0
Cancer	2	2.0

Lifestyle factors including smoking and alcohol consumption complied to well-described definition by Centers for Disease Control and Prevention (CDC) and Dietary Guidelines for Americans (DGA).[16,17]

Patients were required to answer structured interview concerning sociodemographic and disease characteristics prior to vital sign and anthropometric measurement. Blood samples were taken to evaluate for fasting plasma glucose, lipid profile, liver and renal function test, and electrolyte level. These primary data served as a confirmatory adjunct to secondary data provided in medical records. Descriptive statistical approach was employed to measure central tendency and dispersion for quantitative data along with frequency for qualitative data. We performed data analysis utilising SPSS version 22.0.

RESULT

There were a total of 100 patients with a mean age of 47.2 ± 15 (Table 1). Majority of the patients comprised of middle age group (42.0%), female (67.0%), with 10-20 years disease duration (36.0%). Only a few of them are currently smoking (16.0%) and consume alcohol (6.0%). Patients with extracutaneous involvement primarily had multiple (37.0%) as opposed to singular (24.0%), whilst 39.0% had none of the manifestations being studied (data not presented in table).

Metabolic syndrome was the most prevalent extracutaneous manifestation in this study (Table 2). No case of obstructive sleep apnea, COPD, IBD and uveitis was identified.

DISCUSSION

Inherent contribution of systemic inflammation coupled with genetics and environmental factors predispose psoriatic patient to different comorbidities.[18,19] Reported prevalence of psoriasis-related diseases by individual studies varied widely,[20] yet it was rarely investigated simultaneously. Similarly, while there are exhaustive reviews pertaining to increased risk of comorbidities,[18,21] the risk of multiple concomitant comorbidities is seldom assessed.[10,22,23] Prevalence of psoriatic comorbidity in this study was 61.0% and mostly presenting as multiple. This could be attributed to longer disease duration (10-20 years) in the population, though its confirmation warrants further analysis.

Previous researches highlighted cardiometabolic disease as a prominent associated comorbid disease,[24,25] supporting current finding of more than half (51.0%) patients suffering from

cardiometabolic disease with metabolic syndrome as the most prevalent comorbid (30.0%). Disease severity corresponded to the cardiovascular disease risk increment in psoriasis,[18] and hence the mortality rate.[26] In-depth discussion regarding cardiometabolic disease pathogenesis in psoriasis is beyond the scope of this study. However, its clinical importance in psoriasis disease progression supports the rationale behind shifting focus towards this emerging comorbidity of psoriasis.[5] Cardiometabolic disease consists of cardiovascular disease as well as underlying risk factors (metabolic syndrome) and its hepatic manifestation (NAFLD).[27] Overlapping inflammatory and cytokine-mediated mechanisms, especially T-cell mediated with consequent overproduction of tumor necrosis factor (TNF)-α and vascular endothelial growth factor (VEGF), played crucial role in the development of both psoriasis and cardiometabolic disease.[18,20]

Consideration of chronic kidney disease as emerging comorbidity was well-grounded, based on the evidence of its association with severe psoriasis and indirect causal relationship of kidney as a target organ for cardiovascular risk factors. Other contributing factors including glomerular impairment secondary to autoimmune disorder and nephrotoxic side-effects of the treatment.[28] Chronic kidney disease was reported to be as common as cardiovascular disease in current study (10.0%) accordingly.

Psoriatic arthritis (PsA) had been extensively studied as it is one of the classic comorbidities.[5] Due to its diverse manifestations and classification criteria,[29] there was heterogeneity in PsA epidemiologic estimate figures. A meta-analysis found PsA pooled proportion (95% confidence interval [CI]) of 19.7% (95% CI, 18.5%-20.9%) among psoriasis patients,[30] which was similar to our proportion (15.0%). Application of most commonly used Classification of Psoriatic Arthritis (CASPAR) criteria in addition to establishment of more ideal criteria are expected to generate better estimates.

Psychiatric disorders implicated in psoriasis include both psychotic and neurotic spectrum, while the most common ones were sleep and sexual disorders. Vicious cycle involving biological and psychological components in form of hypothalamic-pituitary-adrenal axis dysregulation and stressful life events add up to the comorbidity of the disease.[31] Mental manifestations were more frequent in this study population (15.0%) than in a larger scale case-control study (3.1%).[32] Cause of the higher number might point back to the difference in cutaneous manifestation and severity, coexisting comorbidity, or psychological problem.

Comparable low proportions of neoplasm, uveitis, obstructive sleep apnea, COPD and IBD in psoriasis were also demonstrated in previous studies.[5,33,34] It is noteworthy that discrepancy between the prevalences of two related diseases could be derived from a single study population in a bidirectional manner of inference.[33]

This brief study is subject to study design related pitfalls, particularly in terms of individual outcome measurement. Variety in diagnosis criteria used by respective researches might render results uncomparable. Larger sample size is needed for the study population to better represent less frequently diagnosed diseases.

CONCLUSION

Extracutaneous manifestations of psoriasis were ubiquitous and often coexisted. Cardiometabolic disease was the leading comorbidity inflicting more than half of the patients. Emerging progressive comorbidities prompted greater recognition and integrated multidisciplinary approach.

CONFLICT OF INTEREST

The authors declare no conflict of interest.

FUNDING

These authors have no support or funding to report.

ACKNOWLEDGEMENT

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ETHICAL CONSIDERATIONS

Our research protocol was approved by ethical and scientific committees of Kurdistan Board for Medical Specialties. Written approval from respondents was included in the structured questionnaires' informed consent form used in the interview.

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