

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



Aween Nawzad Mahmood,^{1*} Mohammad Yousif Saeed²

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. 2020. 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

¹Dermatology Teaching Center, College of Medicine, University of Slemani.

²Consultant Dermatologist at Dermatology Teaching Center, College of Medicine, University of Slemani.

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

*Correspondence to:
Aween Nawzad Mahmood,
Dermatology Teaching Center,
College of Medicine, University of
Slemani
aweenmirza86@gmail.com

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} 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 utilizing 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.

Table 1 Baseline characteristics

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

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

-

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.

REFERENCES

- Di Meglio P, Villanova F, Nestle FO. Psoriasis. *Cold Spring Harb Perspect Med*. 2014;4(8):a015354. doi:10.1101/cshperspect.a015354.
- Michalek IM, Loring B, John SM. A systematic review of worldwide epidemiology of psoriasis. *Journal of the European Academy of Dermatology and Venereology*. 2017;31(2):205-12. doi: 10.1111/jdv.13854.
- Parisi R, Symmons DP, Griffiths CE, Ashcroft DM. Global epidemiology of psoriasis: a systematic review of incidence and prevalence. *Journal of Investigative Dermatology*. 2013;133(2):377-85. doi: 10.1038/jid.2012.339.
- Kim WB, Jerome D, Yeung J. Diagnosis and management of psoriasis. *Can Fam Physician*. 2017;63(4):278-285. PMID: 28404701.
- Oliveira Mde F, Rocha Bde O, Duarte GV. Psoriasis: classical and emerging comorbidities. *An Bras Dermatol*. 2015;90(1):9-20. doi:10.1590/abd1806-4841.20153038.
- Elmets CA, Leonardi CL, Davis DMR, Gelfand JM, Lichten J, Mehta NN, et al. Joint AAD-NPF guidelines of care for the management and treatment of psoriasis with awareness and attention to comorbidities. *J Am Acad Dermatol*. 2019 Apr;80(4):1073-1113. doi: 10.1016/j.jaad.2018.11.058.
- Merola JF, Qureshi A, Husni ME. Underdiagnosed and undertreated psoriasis: Nuances of treating psoriasis affecting the scalp, face, intertriginous areas, genitals, hands, feet, and nails. *Dermatol Ther*. 2018;31(3):e12589. doi:10.1111/dth.12589.
- Duarte GV, Oliveira MF, Follador I, Silva TS, Carvalho EM Filho. Diagnosis and underdiagnosis of comorbidities in psoriasis patients - need for a multidisciplinary approach. *An Bras Dermatol*. 2016;91(6):743-747. doi: 10.1590/abd1806-4841.20164716.
- Torre Alonso JC, Rodriguez Perez A, Arribas Castrillo JM, Ballina Garcia J, Riestra Noriega JL, Lopez Larrea C. Psoriatic arthritis (PA): a clinical, immunological and radiological study of 180 patients. *Br J Rheumatol*. 1991 Aug;30(4):245-50. doi: 10.1093/rheumatology/30.4.245.
- Feldman SR, Zhao Y, Shi L, Tran MH, Lu J. Economic and comorbidity burden among moderate-to-severe psoriasis patients with comorbid psoriatic arthritis. *Arthritis Care Res (Hoboken)*. 2015;67(5):708-717. doi: 10.1002/acr.22492.
- Owczarek K, Jaworski M. Quality of life and severity of skin changes in the dynamics of psoriasis. *Postepy Dermatol Alergol*. 2016;33(2):102-108. doi: 10.5114/pdia.2015.54873.
- Pilon D, Teeple A, Zhdanova M, Ladouceur M, Ching Cheung H, Muser E. The economic burden of psoriasis with high comorbidity among privately insured patients in the United States. *J Med Econ*. 2019;22(2):196-203. doi: 10.1080/13696998.2018.1557201.
- Dhana A, Yen H, Yen H, Cho E. All-cause and cause-specific mortality in psoriasis: A systematic review and meta-analysis. *J Am Acad Dermatol*. 2019;80(5):1332-1343. doi: 10.1016/j.jaad.2018.12.037.
- Chapter 1: Definition and classification of CKD. *Kidney Int Suppl* (2011). 2013;3(1):19-62. doi: 10.1038/kisup.2012.64.
- Grundty SM, Cleeman JI, Daniels SR, Donato KA, Eckel RH, Franklin BA, et al. Diagnosis and management of the metabolic syndrome: an American Heart Association/National Heart, Lung, and Blood Institute Scientific Statement. *Circulation*. 2005 Oct 25;112(17):2735-52. doi: 10.1161/CIRCULATIONAHA.105.169404.
- Centers for Disease Control and Prevention. (2017). National Health Interview Survey - Adult tobacco use information - Glossary. [online] Available at: https://www.cdc.gov/nchs/nhis/tobacco/tobacco_glossary.htm [Accessed 4 Mar. 2020].
- U.S. Department of Health and Human Services and U.S. Department of Agriculture. 2015-2020 Dietary guidelines for Americans. 8th Edition. December 2015. Available at <http://health.gov/dietaryguidelines/2015/guidelines/>.
- Ni C, Chiu MW. Psoriasis and comorbidities: links and risks. *Clin Cosmet Investig Dermatol*. 2014;7:119-132. doi: 10.2147/CCID.S44843.
- Naldi L, Mercuri SR. Epidemiology of comorbidities in psoriasis. *Dermatol Ther*. 2010;23(2):114-8. doi: 10.1111/j.1529-8019.2010.01304.x.
- Gisondi P, Fostini AC, Fossà I, Girolomoni G, Targher G. Psoriasis and the metabolic syndrome. *Clin Dermatol*. 2018;36(1):21-28. doi: 10.1016/j.clindermatol.2017.09.005.
- Takeshita J, Grewal S, Langan SM, et al. Psoriasis and comorbid diseases: Epidemiology. *J Am Acad Dermatol*. 2017;76(3):377-390. doi: 10.1016/j.jaad.2016.07.064.
- Ogdie A, Weiss P. The epidemiology of psoriatic arthritis. *Rheum Dis Clin North Am*. 2015;41(4):545-568. doi:10.1016/j.rdc.2015.07.001.
- Binus AM, Han J, Qamar AA, Mody EA, Holt EW, Qureshi AA. Associated comorbidities in psoriasis and inflammatory bowel disease. *J Eur Acad Dermatol Venereol*. 2012;26(5):644-50. doi: 10.1111/j.1468-3083.2011.04153.x.
- Carvalho AV, Romiti R, Souza CD, Paschoal RS, Milman LM, Meneghelli LP. Psoriasis comorbidities: complications and benefits of immunobiological treatment. *An Bras Dermatol*. 2016;91(6):781-789. doi: 10.1590/abd1806-4841.20165080.
- Onumah N, Kircik LH. Psoriasis and its comorbidities. *J Drugs Dermatol*. 2012 May;11(5 Suppl):s5-10.
- Armstrong EJ, Harskamp CT, Armstrong AW. Psoriasis and major adverse cardiovascular events: a systematic review and meta-analysis of observational studies. *J Am Heart Assoc*. 2013;2(2):e000062. doi: 10.1161/JAHA.113.000062.
- Kirk EP, Klein S. Pathogenesis and pathophysiology of the cardiometabolic syndrome. *J Clin Hypertens (Greenwich)*. 2009;11(12):761-765. doi: 10.1111/j.1559-4572.2009.00054.x.
- González-Parra E, Daudén E, Carrascosa JM, Oliveira A, Botella R, Bonanad C, et al. Kidney disease and psoriasis. A new comorbidity? *Actas Dermosifiliogr*. 2016;107(10):823-829. doi: 10.1016/j.ad.2016.05.009.
- Kerschbaumer A, Fenzl KH, Erlacher L, Aletaha D. An overview of psoriatic arthritis - epidemiology, clinical features, pathophysiology and novel treatment targets. *Wien Klin Wochenschr*. 2016;128(21-22):791-795. doi: 10.1007/s00508-016-1111-9.
- Alinaghi F, Calov M, Kristensen LE, Gladman DD, Coates LC, Jullien D, et al. Prevalence of psoriatic arthritis in patients with psoriasis: A systematic review and meta-analysis of observational and clinical studies. *J Am Acad Dermatol*. 2019;80(1):251-265.e19. doi: 10.1016/j.jaad.2018.06.027.
- Ferreira BI, Abreu JL, Reis JP, Figueiredo AM. Psoriasis and associated psychiatric disorders: a systematic review on etiopathogenesis and clinical correlation. *J Clin Aesthet Dermatol*. 2016;9(6):36-43. PMID: 27386050.
- Wu JJ, Feldman SR, Koo J, Marangell LB. Epidemiology of mental health comorbidity in psoriasis. *J Dermatolog Treat*. 2018;29(5):487-495. doi: 10.1080/09546634.2017.1395800.
- Alinaghi F, Tekin HG, Burisch J, Wu JJ, Thyssen JP, Egeberg A. Global prevalence and bidirectional association between psoriasis and inflammatory bowel disease - A systematic review and meta-analysis. *J Crohns Colitis*. 2019 Aug 30. pii: jjz152. doi: 10.1093/ecco-jcc/jjz152.
- Shalom G, Dreier J, Cohen A. Psoriasis and obstructive sleep apnea. *Int J Dermatol*. 2016 Nov;55(11):e579-e584. doi: 10.1111/ijd.13367.



This work is licensed under a Creative Commons Attribution