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Original Article

Management of Psoriatic Arthritis with Diabetic Neuropathy in a Tertiary-Level Hospital

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ABSTRACT

Introduction: Psoriatic arthritis (PsA) with diabetic neuropathy presents a complex therapeutic challenge because inflammatory joint disease and neuropathic complications require simultaneous and individualized management. Diabetes and its neurological complications may further influence treatment selection, symptom burden, functional status, and the need for foot care and multidisciplinary follow-up. This study aimed to assess the clinical characteristics and management practices of patients with coexisting psoriatic arthritis and diabetic neuropathy at a tertiary-level hospital. **Methods & Materials:** This cross-sectional observational study was conducted in the Department of Dermatology and Venereology at Monno Medical College & Hospital, a **tertiary-level hospital**, from July 2025 to June 2026. A total of 48 patients with coexisting psoriatic arthritis and diabetic neuropathy were enrolled using consecutive sampling. Data were entered and analyzed using Statistical Package for the Social Sciences (SPSS) version 26.0. **Results:** In this study, most had longstanding PsA and diabetes, with peripheral joint involvement predominant (56.3%). Numbness/tingling (77.1%) and reduced sensation (64.6%) were the most frequent neuropathic findings, while 60.4% had HbA1c ≥8.0%. NSAIDs (70.8%) and methotrexate (45.8%) were the most commonly used PsA treatments, whereas pregabalin (37.5%) was the leading neuropathic medication; biologic/targeted therapy was used in only 8.3%. Foot-care education was provided to 68.8%, and management intensity increased with greater neuropathy severity. **Conclusion:** The study showed that patients with coexisting psoriatic arthritis and diabetic neuropathy required integrated management of inflammatory disease, neuropathic symptoms, glycaemic control, and foot-related risks. Conventional DMARDs and NSAIDs predominated for PsA, while neuropathic agents and foot-care measures increased with neuropathy severity. Limited use of biologic therapy highlighted the need for individualized, multidisciplinary management.

Keywords: *Psoriatic Arthritis, Diabetic Neuropathy, Biologics*

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INTRODUCTION

Psoriatic arthritis (PsA) is a chronic immune-mediated inflammatory musculoskeletal disease associated with psoriasis and capable of causing persistent synovitis, enthesitis, dactylitis, axial disease, and progressive structural damage. A 2024 systematic review and meta-analysis estimated the worldwide prevalence of PsA at 112 per 100,000 adults, with a lower pooled estimate of 37 per 100,000 in population-based studies from Asia, underscoring the limited epidemiological evidence available from the region [1]. The clinical burden extends beyond joints and skin because PsA is frequently accompanied by metabolic and cardiovascular comorbidity. In a cohort of 1,305 patients, the age-standardized prevalence of diabetes was 1.43 times that of the Ontario general population, while greater long-term joint tenderness and inflammatory activity predicted incident diabetes [2]. Similarly, a UK population-based study of 6,783 incident PsA cases found a 40% higher adjusted risk of type 2 diabetes than the general population and a 53% higher risk than a psoriasis cohort [3]. US administrative-claims data have also demonstrated higher rates of diabetes, obesity, cardiovascular disease, and other comorbidities in PsA, with greater hospitalization burden than matched controls [4]. The coexistence of diabetes becomes particularly important when diabetic peripheral neuropathy (DPN) is present. DPN is a common chronic complication of diabetes and may produce burning pain, tingling, numbness, impaired balance and loss of protective sensation. A systematic review of 29 studies involving 50,112 people with diabetes estimated the pooled prevalence of peripheral neuropathy at 30%, increasing to 31.5% among patients with type 2 diabetes [5]. The 2025 American Diabetes Association standards emphasize that all people with type 2 diabetes should be assessed for DPN from diagnosis and at least annually, including sensory assessment and 10-g monofilament testing, because neuropathy may be asymptomatic and substantially increases the risk of foot injury, ulceration, and amputation [6]. In a patient simultaneously affected by PsA and DPN, musculoskeletal pain and neuropathic pain may overlap clinically, potentially obscuring assessment of inflammatory disease activity and functional disability. Diabetes also influences medication selection and monitoring because systemic corticosteroids can worsen insulin resistance, whereas treatment choices for PsA must account for infection, cardiovascular and metabolic risks [7]. Modern PsA care therefore emphasizes early disease control, domain-based treatment and individualized consideration of comorbidities. The TICOPA randomized trial showed that a tight-control strategy based on regular disease-activity assessment and treatment escalation improved joint and skin outcomes compared with standard care [8]. Current EULAR recommendations advise rapid initiation of conventional synthetic DMARDs, with methotrexate preferred for peripheral arthritis, and escalation to biologic DMARDs when treatment targets are not achieved; the 2023 update also stresses that relevant comorbidities should influence therapeutic choice [9]. GRAPPA likewise recommends selecting therapy according to active PsA domains while considering comorbidities, previous treatment, safety,

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and patient preference [10]. Despite these advances, evidence describing how PsA is actually managed when established diabetic neuropathy coexists is limited, particularly in tertiary-care settings where patients often present with longstanding disease, multiple medications, and complex comorbidity profiles. This study aimed to assess the clinical characteristics and management practices of patients with coexisting psoriatic arthritis and diabetic neuropathy at a tertiary-level hospital.

METHODS & MATERIALS

This cross-sectional observational study was conducted in the Department of Dermatology and Venereology at Monno Medical College & Hospital, a tertiary-level hospital, from July 2025 to June 2026. A total of 48 patients with coexisting psoriatic arthritis and diabetic neuropathy were enrolled using consecutive sampling, whereby all eligible patients attending the study hospital during the study period were recruited until the required sample size was achieved. Patients with a clinically established diagnosis of psoriatic arthritis and diabetes mellitus with evidence of diabetic peripheral neuropathy were included, while patients with other causes of peripheral neuropathy, major neurological disorders, or incomplete clinical information were excluded. Data were collected through a structured questionnaire and clinical assessment covering sociodemographic characteristics, duration and pattern of PsA, duration of diabetes, psoriasis severity, neuropathy symptoms and severity, glycaemic status, foot examination findings, and current pharmacological and non-pharmacological management. PsA disease manifestations were assessed clinically, while diabetic neuropathy was evaluated from neurological symptoms, sensory examination and protective sensation testing. Relevant investigations, including HbA1c and other available clinical records, were reviewed. Information regarding NSAIDs, conventional synthetic DMARDs, biologic/targeted therapies, corticosteroids, neuropathic medications, glycaemic treatment adjustment, foot-care education, and specialist co-management was recorded. Data were entered and analyzed using Statistical Package for the Social Sciences (SPSS) version 26.0. Categorical variables were expressed as frequencies and percentages. Appropriate statistical tests were applied to assess the percentages of clinical characteristics, neuropathy severity, and management patterns. Ethical approval was obtained from the institutional authority, and informed written consent was obtained from all participants

RESULTS

The study population was predominantly middle-aged, with 35.4% aged 50–59 years and 27.1% aged ≥60 years. Most participants had established disease, as 70.9% had PsA for at least 5 years, while 79.2% had diabetes for 5 years or more. Peripheral joint involvement was the predominant PsA phenotype, affecting 27 (56.3%) patients, whereas 14 (29.2%) had mixed peripheral and axial disease. Moderate psoriasis represented the most frequent skin disease severity (45.8%) (*Table I*).

Table I
Sociodemographic and clinical characteristics of the study participants (*n*=48).

Characteristic	Category	n (%)
Age	<40 years	6 (12.5)
	40–49 years	12 (25.0)
	50–59 years	17 (35.4)
	≥60 years	13 (27.1)
Sex	Male	31 (64.6)
	Female	17 (35.4)
Duration of PsA	<5 years	14 (29.2)
	5–10 years	20 (41.7)
	>10 years	14 (29.2)
Duration of diabetes	<5 years	10 (20.8)
	5–10 years	21 (43.8)
	>10 years	17 (35.4)
PsA clinical pattern	Peripheral predominant	27 (56.3)
	Axial predominant	7 (14.6)
	Mixed peripheral and axial	14 (29.2)
Psoriasis severity	Mild	18 (37.5)
	Moderate	22 (45.8)
	Severe	8 (16.7)

Neuropathic symptoms were common, with 37 (77.1%) patients reporting numbness or tingling and 29 (60.4%) reporting burning pain. On clinical assessment, 21 (43.8%) patients had moderate neuropathy, followed by mild neuropathy in 19 (39.6%) and severe neuropathy in 8 (16.7%). Glycaemic control was frequently suboptimal; 20 (41.7%) patients had HbA1c ≥8.0%, whereas only 13 (27.1%) achieved HbA1c <7.0%. Reduced protective sensation was identified in 31 (64.6%) patients, and 5 (10.4%) reported a previous diabetic foot ulcer (*Table II*).

Table II
Characteristics of diabetic neuropathy and glycaemic status (*n*=48).

Variable	Category	n (%)
Neuropathy symptoms	Numbness/tingling	37 (77.1)
	Burning pain	29 (60.4)
	Reduced sensation	31 (64.6)
	Night pain	24 (50.0)
Neuropathy severity	Mild	19 (39.6)
	Moderate	21 (43.8)
	Severe	8 (16.7)
HbA1c	<7.0%	13 (27.1)
	7.0–7.9%	15 (31.3)
	≥8.0%	20 (41.7)
Foot examination	Intact protective sensation	17 (35.4)
	Reduced protective sensation	25 (52.1)
	Markedly impaired/absent	6 (12.5)
Previous foot ulcer	Yes	5 (10.4)
	No	43 (89.6)

NSAIDs were the most frequently used pharmacological treatment, prescribed in 34 (70.8%) patients. Among conventional synthetic disease-modifying antirheumatic drugs, methotrexate was most commonly used (45.8%), followed by leflunomide (22.9%) and sulfasalazine (14.6%). Oral corticosteroids were used in 16.7% of patients, while only 4 (8.3%) were receiving biologic or targeted therapy. Non-pharmacological management was also documented, with 21 (43.8%) receiving physiotherapy or structured exercise advice (*Table III*).

Table III
Pharmacological management of psoriatic arthritis (*n*=48).

Treatment modality	n (%)
NSAIDs	34 (70.8)
Methotrexate	22 (45.8)
Leflunomide	11 (22.9)
Sulfasalazine	7 (14.6)
Oral corticosteroids	8 (16.7)
Biologic/targeted therapy	4 (8.3)
Topical antipsoriatic treatment	29 (60.4)
Physiotherapy/exercise advice	21 (43.8)

For symptomatic diabetic neuropathy, pregabalin was the most commonly prescribed agent (37.5%), followed by duloxetine (18.8%) and gabapentin (12.5%). Nearly one-third of the patients (31.3%) were not receiving specific pharmacological treatment for neuropathic symptoms. Adjustment of diabetic therapy was undertaken in 27 (56.3%) patients. Foot-care education was provided to 33 (68.8%), while 31 (64.6%) were advised to undergo regular foot examination. Co-management with a medicine or endocrinology service was documented in 22 (45.8%) patients (*Table IV*).

Table IV
Management of diabetic neuropathy and associated diabetes care (*n*=48).

Management	n (%)
Pregabalin	18 (37.5)
Duloxetine	9 (18.8)
Gabapentin	6 (12.5)
Combination neuropathic analgesics	5 (10.4)
No specific neuropathic medication	15 (31.3)
Glycaemic treatment adjustment	27 (56.3)
Foot-care education	33 (68.8)
Regular foot examination advised	31 (64.6)
Referral/co-management with medicine/endocrinology	22 (45.8)

Management intensity increased with greater neuropathy severity. Neuropathic medication use was reported in 52.6% of patients with mild neuropathy, increasing to 71.4% with moderate and 87.5% with severe neuropathy. Similarly, glycaemic treatment adjustment increased from 42.1% among patients with mild neuropathy to 75.0% among those with severe neuropathy. Foot-care education was also more frequent in patients with greater neurological impairment, rising from 57.9% in mild disease to 87.5% in severe neuropathy (*Table V*).

Table V
Overall management approach according to neuropathy severity (*n*=48).

Management component	Mild neuropathy n=19	Moderate neuropathy n=21	Severe neuropathy n=8
NSAID use	13 (68.4)	15 (71.4)	6 (75.0)
csDMARD use	10 (52.6)	13 (61.9)	5 (62.5)
Neuropathic analgesic use	10 (52.6)	15 (71.4)	7 (87.5)
Glycaemic treatment adjustment	8 (42.1)	13 (61.9)	6 (75.0)
Foot-care education	11 (57.9)	15 (71.4)	7 (87.5)
Specialist co-management	6 (31.6)	10 (47.6)	6 (75.0)

DISCUSSION

The study population showed a male predominance, with 31 (64.6%) males and 17 (35.4%) females. In contrast, Keskin et al., in a Turkish nationwide cohort of 961 patients with PsA, reported 615 (64%) females and 346 (36%) males, demonstrating that sex distribution can vary substantially between clinical populations [11]. The higher percentage of men in our cohort may reflect differences in referral patterns and the tertiary-care setting rather than the epidemiology of PsA itself. Regarding clinical characteristics, 62.5% of our patients were aged 50 years or older, while 70.9% had PsA for at least 5 years and 79.2% had diabetes for ≥5 years. The predominance of longstanding disease is clinically important because Dal Bello et al. reported that diabetes occurs in 6.1–20.2% of patients with PsA and is particularly associated with more severe disease and metabolic comorbidity [7]. Charlton et al., studying 6,783 incident PsA patients, found a 40% higher risk of type 2 diabetes than the general population and a 53% higher risk than patients with psoriasis [3]. Similarly, Kaine et al., among 14,898 PsA patients, found an incidence rate of diabetes of 2.37 per 100 person-years, versus 1.57 in matched controls, corresponding to a hazard ratio of 1.51 (95% CI 1.40–1.64) [4]. Thus, the substantial burden of longstanding diabetes in our selected cohort is consistent with the recognized metabolic burden accompanying PsA. The neurological findings were prominent in our study: numbness or tingling occurred in 77.1%, reduced sensation in 64.6%, and burning pain in 60.4%; moderate neuropathy constituted 43.8% and severe neuropathy 16.7%. Sun et al., in a meta-analysis of 29 studies involving 50,112 patients with diabetes, estimated an overall diabetic peripheral neuropathy prevalence of 30% (95% CI 25–34%) [5]. The considerably higher proportion in our cohort is expected because our study specifically enrolled patients who already had diabetic neuropathy rather than an unselected diabetic population. Importantly, 64.6% of our patients had reduced or absent protective sensation and 10.4% had previous foot ulceration. The 2025 ADA Standards emphasize that annual 10-g monofilament testing is essential because peripheral neuropathy is the major component cause of diabetic foot ulceration, and patients with sensory loss require intensified foot surveillance [6]. The treatment pattern in our study showed NSAIDs as the most frequently used PsA therapy (34, 70.8%) and methotrexate as the predominant csDMARD (22, 45.8%), whereas biologic or targeted therapy was used in only 4 (8.3%) patients. Walsh et al., in a real-world US claims analysis of 1,235 patients with PsA receiving biologic therapy, found that 44.5% remained on their initial biologic for at least 12 months, while 22.9% switched to another biologic and 26.8% discontinued without switching or restarting. During follow-up, 45.6% of persistent biologic users also received at least one adjunctive medication, including corticosteroids (22.0%) and NSAIDs (12.9%) [12]. In a Japanese hospital claims study, oral NSAIDs were used by 61.7%, csDMARDs by 55.1%, corticosteroids by 35.1%, and biologic DMARDs by 32.2%, while methotrexate was used by 34.0% [13]. Our greater reliance on NSAIDs but much lower biologic use (8.3%) may reflect the additional therapeutic constraints imposed by diabetes, neuropathy, comorbidity burden, cost, and access to advanced therapies. The low biologic use in our cohort is clinically notable because treatment escalation can improve disease control. In the TICOPA randomized trial involving 206 patients, tight disease control increased the odds of achieving ACR20 to 1.91, ACR50 to 2.36, and ACR70 to 2.64 compared with standard care [8]. Current GRAPPA recommendations consequently advocate domain-based treatment selection while explicitly considering comorbidities and treatment safety [10]. In this study, only 8.3% received biologic/targeted therapy, suggesting that conventional treatment remained dominant despite the established nature of the disease. Management of neuropathy followed recognized therapeutic principles. Pregabalin was used in 37.5%, duloxetine in 18.8%, and gabapentin in 12.5% of patients. ADA recommendations specifically identify gabapentinoids and serotonin-norepinephrine reuptake inhibitors among recommended initial pharmacological options for painful diabetic neuropathy [6].

LIMITATIONS

The study was conducted in a single hospital with a small sample size. So, the results may not represent the whole community.

CONCLUSION

The study demonstrated that management of patients with coexisting psoriatic arthritis and diabetic neuropathy required a multidimensional approach, with NSAIDs and conventional DMARDs, particularly methotrexate, being the principal therapies for PsA, while pregabalin, duloxetine and gabapentin were used for neuropathic symptoms. A substantial proportion had longstanding diabetes, poor glycaemic control, moderate-to-severe neuropathy and reduced protective sensation, highlighting the need for integrated management of inflammatory disease, neuropathy, glycaemia and foot-related risks. Despite established disease, biologic or targeted therapy was used in only a small proportion of patients.

RECOMMENDATIONS

Integrated multidisciplinary care should be adopted for patients with coexisting psoriatic arthritis and diabetic neuropathy, with regular assessment of disease activity, glycaemic control, neuropathy severity, and foot health. Appropriate escalation of PsA therapy and timely neuropathic pain management should be considered according to individual clinical needs.

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CONFLICT OF INTEREST

None declared.

ETHICAL APPROVAL

The study was approved by the Institutional Ethics Committee.

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