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Psoriatic-nephropathy; an under-noticed disease

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ABSTRACT

Psoriasis is a persistent inflammatory skin illness which involves nearly 2-3% of the populace worldwide. This disease known to have systemic effects on various organs, comprising the kidneys. Psoriatic nephropathy is a condition in which individuals with psoriasis may experience kidney dysfunction. Several studies suggest a relationship amongst psoriasis and a raised risk of kidney dysfunction, chronic renal insufficiency, and end-stage kidney failure. The prognosis for psoriatic-associated nephropathy is not well-established. However, the intensity of this disease, the existence of arthritis, early detection and monitoring, and the presence of comorbidities may impact the prognosis for patients with psoriasis and renal involvement.

Keywords: Chronic kidney disease, Psoriasis, Psoriasis vulgaris, Psoriatic nephropathy, End-stage renal disease

Mini-Review

Implication for health policy/practice/research/medical education:
Psoriatic-nephropathy is a condition in which individuals with psoriasis experience kidney dysfunction. Individuals with psoriasis had a greater risk of extending renal dysfunction and showed subclinical glomerular dysfunction compared to non-psoriatic individuals.

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Introduction

Psoriasis is a persistent autoimmune illness which principally influences involves the skin, triggering red, scaly patches to develop (1). Though psoriasis mainly impacts skin tissue it may develop kidney system effects as part of overall disease progression. The relationship between psoriasis and kidney disease occurs from continued inflammation caused by T-cells and cytokines (2). In this disease, the chronic inflammatory state can result to endothelial dysfunction and atherosclerosis too (3). People with psoriasis develop a strengthen risk of extending both serious chronic renal failure and end-stage kidney failure than regular populations. People with severe psoriasis experience more kidney insufficiency problems and reach end-stage kidney failure sooner (4). Older age is a risk factor for chronic kidney damage in psoriasis individuals (5). Renal manifestations associated with psoriasis are regarded as psoriatic nephropathy. Psoriatic nephropathy refers to kidney damage caused by psoriasis and is believed to be related to immune system dysfunction and inflammation (5,6). Previous authors reported that the most common histological changes observed in the kidneys of individuals with psoriasis vulgaris were mesangial expansion, glomerular sclerosis, and interstitial fibrosis (7). Individuals with psoriasis have strengthened risk of both kidney disease and related health problems including high cholesterol levels and diabetes (8). People with moderate to severe psoriasis could develop kidney damage when using nonsteroidal anti-inflammatory drugs. (9). Some genetic factors may contribute to both psoriasis and renal disease (10). The following factors may be considered in the diagnosis of psoriatic nephropathy. Individuals with psoriasis across with kidney dysfunction, such as proteinuria, hematuria, or decreased renal function, may raise a suspicion for psoriatic nephropathy (11). Routine assessments, comprising renal function tests, complete blood count, liver tests across with fasting and post-prandial sugar, and also assessment of inflammatory parameters like hs-CRP (high-sensitivity C-reactive protein), may be performed to evaluate kidney function and inflammation (6). A histopathological examination of kidney tissue may be performed to assess any specific changes or abnormalities associated with psoriatic nephropathy (12). This mini-review sought to present an impression of the renal manifestations of psoriasis, including its epidemiology, etiology, morphology, clinical presentation, diagnosis and management.

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Search strategy

We conducted our mini-review research by using search tools such as Directory of Open Access Journals (DOAJ), Embase, EBSCO, Scopus, Google Scholar, PubMed and Web of Science combined with keywords like psoriasis, kidney disease, end-stage renal disease, psoriasis vulgaris, autoimmune disorders, end-stage kidney failure, psoriatic kidney disease, interstitial tissue damage, cytokines, kidney protein leakage, blood in urine and glomerulonephritis.

Common types of kidney disease that are associated with psoriasis

The typical forms of kidney problems that develop alongside psoriasis are either chronic kidney disease or last-stage kidney failure (4). The prior study conducted by Wan et al identified that psoriasis patients experience a greater chance of developing chronic renal failure and ending up with complete kidney failure (9).

Several studies have detected a relationship among psoriasis and chronic renal failure merely in individuals with more critical forms of psoriasis (4).

For example, the study by Chiu et al from Taiwan demonstrated individuals with psoriasis had a strengthened risk of emerging glomerulonephritis and chronic renal failure (13). Diverse types of glomerulonephritis were found to take place in people with psoriasis who have had the condition for many years. Jiao and colleagues discovered that mesangial proliferative glomerulonephritis shows up most frequently in patients who have psoriasis vulgaris but may exist without IgA depositions (14). Other authors like Hiki et al and Yamamoto et al, described the association of IgA nephropathy with psoriatic arthritis (15,16).

Recently, El-Reshaid et al studied a total of 21 individuals, with long-term and extensive psoriasis. Of them, 2 cases had nephrotic syndrome along with renal failure. A kidney biopsy showed Congo-red positive nodular glomerulosclerosis with the absence of immune deposits indicative of amyloidosis (17). Medical reports documented both nephropathy and end-stage kidney disease in people experiencing active forms of psoriasis like erythrodermic psoriasis and generalized pustular psoriasis (18). At age 57 Ellis et al studied a man who developed kidney failure alongside uric acid crystals distributed throughout his body tissues which show uric acid crystal induced kidney damage (19). Moreover, several other population-based investigations detected a strengthen risk of ESRD and chronic renal failure in individuals with this disease (20). Histopathological changes observed in the kidneys of individuals with psoriasis vulgaris and psoriatic nephropathy may include mesangial expansion, glomerular sclerosis, interstitial fibrosis, and mesangial proliferation (7,14). Meanwhile, psoriasis patients may have a strengthen probability of renal stones compared to the general population. Meanwhile, renal stones can cause severe pain and urinary obstruction (21). Prior studies have shown hypertension is a common comorbidity associated with psoriasis. Uncontrolled hypertension can lead to kidney damage over time (22). Consequently, NSAIDs (nonsteroidal anti-inflammatory drugs) have been connected with strengthen risk of kidney injury in cases with severe form of this disease (23). Additionally, drugs administered in the systemic therapy of psoriasis, like methotrexate and cyclosporine, may cause kidney damage (24). Multiple factors are believed to cause kidney harm from methotrexate treatment according to medical research. (25,26). Likewise, the nephrotoxic effects of cyclosporine through its acute or chronic side effects can aggravate the renal function in psoriatic individuals (27). Illnesses like metabolic issues develop alongside psoriatic arthritis. The condition relates to problems with insulin resistance, blood pressure regulation, diabetes, and high uric acid. High levels of uric acid build-up during purine breakdown become the main cause of gout. Recent studies emphasize hyperuricemia as a significant heart disease risk factor. Research indicates that individuals with psoriasis or psoriatic arthritis often exhibit higher serum uric acid levels, and this condition may exacerbate the severity of clinical symptoms and inflammation in patients suffering from psoriatic arthritis (28). Hyperuricemia is also increasingly recognized for its association with kidney involvement; while elevated serum uric acid value could resulted to the development of uric acid kidney stones and contribute to CKD by causing damage to renal tubules and impairing kidney function. Moreover, conditions such as hypertension and diabetes are often linked with elevated uric acid levels, which can exacerbate kidney dysfunction. Studies indicate that cases with hyperuricemia have a considerably greater risk of emerging chronic renal failure (28-30).

The prognosis for psoriatic nephropathy

The intensity of psoriasis may be connected with strengthened probability of kidney dysfunction parallel with a subclinical nephropathy (20). Individuals with serious psoriasis may have a worse prognosis versus those with milder presentation of the disease (31). Likewise, individuals with psoriatic arthritis may be more tending to have disturbed kidney function versus cases with psoriasis lonely. Furthermore, the presence of psoriatic arthritis may be a negative prognostic impact for cases with psoriasis and kidney involvement (11).

Clinical presentation

The clinical presentation of kidney involvement in this disease can be diverse and ill-defined. Usual symptoms comprise anorexia, weight loss, fatigue, weakness and edema. Nevertheless, some cases may be asymptomatic or have atypical presentations such as delirium, confusion or falls (32).

Diagnosis of psoriatic nephropathy

Diagnosis of kidney involvement in this disease necessitates a complete assessment which comprises a full medical history, physical assessment, laboratory evaluations, and imaging tests. This assessment should also contain an evaluation of functional status and cognitive activity. The identification of chronic kidney failure is based on the presence of persistent renal dysfunction, as evidenced by disturbed renal function tests or imaging procedures (5).

Management

The objectives of treatment comprise decelerating the progression of chronic renal failure, treating comorbidities, and ameliorating the quality of life. These modalities contain lifestyle alterations, drug therapy, and kidney replacement therapy like dialysis or renal transplantation. However, the decision to initiate kidney replacement therapy in individuals with this disease should be personalized and based on the overall health status of the patients and their life expectancy (33,34).

Conclusion

Psoriasis is a persistent autoimmune illness which involves skin across with joints. This condition is across with various comorbidities, counting metabolic syndrome, heart disease, and kidney dysfunction. This disease is concomitant with kidney structural changes too. The mechanisms underlying these comorbidities are assumed to be associated with oxidative stress along with chronic inflammation.

Conflicts of interest

The author declares that she has no competing interests to disclose.

Statement of generative AI and AI- supported skills in the writing process

The authors used Perplexity to improve their writing style and simplify grammar during the development of this project. They revised every part of their content which received a grammar edit and accepted any responsibility for what appeared in print.

Ethical issues

The author maintained professional ethical conduct by staying away from plagiarism and other forms of research misconduct.

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