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IgA nephropathy-associated familial Mediterranean fever

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ABSTRACT

Familial Mediterranean fever is an autosomal recessive autoinflammatory disorder characterized by recurrent episodes of fever, inflammation, and serositis. Individuals with Familial Mediterranean fever (FMF) are at an increased risk of developing various renal diseases, comprising IgA nephropathy. IgA nephropathy is one of the most frequently reported non-amyloid renal diseases observed in the familial Mediterranean fever. The mechanism linking this disorder and IgA nephropathy related to the chronic inflammatory state associated with familial Mediterranean fever.

Keywords: Amyloidosis, IgA nephropathy, Familial Mediterranean fever, Glomerular disease, End-stage renal disease

Implication for health policy/practice/research/medical education:
Amyloidosis is the primary renal complication of familial Mediterranean fever that can lead to end-stage renal disease by causing proteinuria and nephrotic syndrome. However, other non-amyloid renal manifestations of familial Mediterranean fever include glomerular diseases like IgA nephropathy and tubulointerstitial nephritis.

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Epidemiology and Prevention

Introduction

Familial Mediterranean fever (FMF) is an autosomal recessive autoinflammatory disorder characterized by recurrent episodes of fever, inflammation, and serositis (1). This disease can lead to significant renal involvement. The major renal manifestation of FMF is the development of amyloidosis, which primarily affects the kidneys and could lead to end-stage renal disease (1,2). The renal amyloidosis can cause proteinuria which finally leads to end-stage renal disease (3). Other renal manifestations of FMF include non-amyloid glomerular diseases such as mesangial proliferative glomerulonephritis/IgA nephropathy, membranous glomerulonephritis, IgM nephropathy, Henoch-Schönlein purpura, and polyarteritis nodosa or tubulointerstitial nephritis (4,5). IgA nephropathy is a common glomerular disease throughout the world (6). IgA nephropathy is also one of the most frequently reported non-amyloid renal diseases observed in the FMF population (4-7). The underlying mechanism linking FMF and IgA nephropathy attributed to the chronic inflammatory state in FMF (4,8). Patients with FMF and IgA nephropathy typically present with microscopic hematuria, proteinuria, and sometimes nephrotic syndrome (7). Proper diagnosis and differentiation of the underlying renal disease in FMF patients is crucial, since it determines the appropriate treatment approach (9). For example, patients with FMF-associated amyloidosis usually respond well to colchicine, while those with IgA nephropathy or other vasculitides may require corticosteroids or other immunosuppressive therapies (4).

Search strategy

For this study, we searched PubMed, Web of Science, EBSCO, Scopus, Google Scholar, Directory of Open Access Journals (DOAJ) and Embase, using different keywords like; Amyloidosis, IgA nephropathy, familial Mediterranean fever, glomerular disease and end-stage renal disease.

A literature review on IgAN in FMF

The exact prevalence of IgA nephropathy in FMF patients is not well-established, as most studies are based on case reports or small case series. The previous study by Alzyoud et al from Jordan showed that about half of the renal involvement in FMF was non-amyloid, with IgA nephropathy being one of the most frequently reported non-amyloid renal diseases in the FMF population (10).

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Two case reports by Zakharova et al describe patients with a long-standing history of FMF who were found to have both microscopic hematuria and proteinuria, with kidney biopsies confirming IgA nephropathy (11). Additionally, the case report by Chbihi et al describes a pediatric patient with FMF who developed IgA nephropathy (12).

Conclusion

The major renal involvement in FMF is the development of amyloidosis, which can lead to proteinuria and kidney failure. However, FMF can also cause non-amyloid glomerular diseases. IgA nephropathy is a well-recognized glomerular complication associated with familial Mediterranean fever. Patients with FMF and IgA nephropathy typically present with microscopic hematuria, proteinuria, and sometimes nephrotic syndrome. Clinicians should be aware of this association and monitor these patients for signs of renal involvement regarded to IgA nephropathy, counting microscopic hematuria, which may indicate the development of IgA nephropathy.

Authors' contribution

Conceptualization: Sousan Mohammadi Kebar, Saeed Hoseininia.
Data curation: Sousan Mohammadi Kebar, Saeed Hoseininia.
Investigation: Sousan Mohammadi Kebar, Saeed Hoseininia.
Resources: Sousan Mohammadi Kebar, Saeed Hoseininia.
Supervision: Sousan Mohammadi Kebar.
Validation: Sousan Mohammadi Kebar, Saeed Hoseininia.
Visualization: Sousan Mohammadi Kebar.
Writing–original draft: Sousan Mohammadi Kebar, Saeed Hoseininia.
Writing–review and editing: Sousan Mohammadi Kebar, Saeed Hoseininia.

Conflicts of interest

The authors declare that they have no competing interests.

Ethical issues

Ethical issues (including plagiarism, data fabrication, double publication) have been completely observed by the authors.

Declaration of generative AI in the writing process

During the preparation of this work, the authors utilized Perplexity to refine grammar points and language style in writing. Subsequently, the authors thoroughly reviewed and edited the content as necessary, assuming full responsibility for the publication's content.

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