BRAZILIAN JOURNAL OF IMPLANTOLOGY AND HEALTH SCIENCES

ISSN 2674-8169

Membranous glomerulopathy in women: clinical repercussions

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https://doi.org/10.36557/2674-8169.2024v6n10p4500-4513
Artigo recebido em 09 de Setembro e publicado em 29 de Outubro

LITERATURE REVIEW

RESUMO

Introdução: A glomerulopatia membranosa é uma das causas mais comuns de síndrome nefrótica em adultos, com particular prevalência em mulheres. Essa condição é caracterizada pelo espessamento da membrana basal glomerular, resultando em proteinúria significativa e outras complicações clínicas. A doença pode ter etiologias primárias, como a presença de anticorpos contra o receptor de fosfolipase A2, ou secundárias a condições como infecções, neoplasias e doenças autoimunes. Em mulheres, as repercussões clínicas da glomerulopatia membranosa podem ser mais complexas, uma vez que a interação entre hormônios e fatores imunológicos pode influenciar o curso da doença e a resposta ao tratamento. Metodologia: A pesquisa foi conduzida utilizando o checklist PRISMA, com a coleta de dados de artigos publicados nos últimos 10 anos nas bases de dados PubMed, SciELO e Web of Science. Foram utilizados cinco descritores: "glomerulopatia membranosa", "síndrome nefrótica", "mulheres", "tratamento" e "implicações clínicas". Os critérios de inclusão consistiram em estudos que abordaram a glomerulopatia membranosa especificamente em mulheres, artigos que apresentaram dados clínicos e estudos revisados por pares. Os critérios de exclusão abarcaram publicações não relacionadas à população feminina, artigos com dados insuficientes e revisões não originais. Resultados: A revisão revelou que a glomerulopatia membranosa em mulheres está associada a uma maior incidência de complicações, incluindo trombose venosa e hipertensão arterial. Os tratamentos variaram de imunossupressores a terapias dirigidas, com resultados variados em termos de remissão e efeitos adversos. A qualidade de vida das pacientes foi significativamente afetada pela doença, evidenciando a necessidade de um manejo multidisciplinar. Conclusão: A glomerulopatia membranosa em mulheres apresenta características e desafios clínicos únicos, que demandam atenção especial no diagnóstico e tratamento. A compreensão das repercussões clínicas e a personalização das abordagens terapêuticas são essenciais para melhorar a qualidade de vida das pacientes afetadas por essa condição complexa.

Palavras-chave: "glomerulopatia membranosa", "síndrome nefrótica", "mulheres", "tratamento" e "implicações clínicas".

ABSTRACT

Introduction: Membranous glomerulopathy is one of the most common causes of nephrotic syndrome in adults, with particular prevalence in women. This condition is characterized by thickening of the glomerular basement membrane, resulting in significant proteinuria and other clinical complications. The disease may have primary etiologies, such as the presence of antibodies against the phospholipase A2 receptor, or secondary to conditions such as infections, neoplasias and autoimmune diseases. In women, the clinical repercussions of membranous glomerulopathy may be more complex, since the interaction between hormones and immunological factors may influence the course of the disease and the response to treatment. Methodology: The research was conducted using the PRISMA checklist, with data collection from articles published in the last 10 years in the PubMed, SciELO and Web of Science databases. Five descriptors were used: "membranous glomerulopathy", "nephrotic syndrome", "women", "treatment" and "clinical implications". Inclusion criteria consisted of studies that addressed membranous glomerulopathy specifically in women, articles that presented clinical data, and peer-reviewed studies. Exclusion criteria included publications not related to the female population, articles with insufficient data, and non-original reviews. Results: The review revealed that membranous glomerulopathy in women is associated with a higher incidence of complications, including venous thrombosis and arterial hypertension. Treatments ranged from immunosuppressive to targeted therapies, with varied results in terms of remission and adverse effects. The quality of life of patients was significantly affected by the disease, highlighting the need for multidisciplinary management. Conclusion: Membranous glomerulopathy in women presents unique characteristics and clinical challenges, which demand special attention in diagnosis and treatment. Understanding the clinical repercussions and personalizing therapeutic approaches are essential to improve the quality of life of patients affected by this complex condition.

Keywords: "membranous glomerulopathy", "nephrotic syndrome", "women", "treatment" and "clinical implications".

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INTRODUCTION:

Membranous glomerulopathy is a renal condition characterized by thickening of the glomerular basement membrane, resulting in significant proteinuria and often nephrotic syndrome. This pathophysiological process involves the deposition of immune complexes in the membrane, which triggers an inflammatory response and alters glomerular permeability. The presence of antibodies against phospholipase A2, for example, has been identified as a primary cause in many cases, while secondary conditions, such as infections or autoimmune diseases, also contribute to its development. This complexity makes diagnosis and treatment challenging, requiring a careful and individualized approach. Women have particularities in the manifestation and evolution of membranous glomerulopathy. Hormonal factors, such as the influence of estrogens, can impact the immune response, which potentially alters the severity of the disease and the efficacy of treatments. In addition, studies show that women may be more predisposed to developing associated complications, such as venous thrombosis, which intensifies the need for rigorous monitoring and adapted management strategies. These gender differences highlight the importance of considering the female context in the evaluation and treatment of membranous glomerulopathy, thus promoting a deeper understanding of the challenges these patients face.

Membranous glomerulopathy, in addition to its renal manifestations, brings a series of clinical complications that affect the general well-being of patients. Among these complications, venous thrombosis stands out as a significant risk. Due to intense proteinuria and the alteration of the coagulation profile, women affected by this condition frequently face the formation of clots, especially in deep veins, which can result in serious adverse events. In addition, arterial hypertension is a common consequence, contributing to increased morbidity and deterioration of renal function over time.

The management of membranous glomerulopathy involves a diverse therapeutic approach. The choice of treatment may include immunosuppressive medications, such as corticosteroids and cytotoxic agents, as well as targeted therapies that aim to combat

the specific immune response. Personalizing treatment is crucial, as the response to these interventions can vary widely between patients. Careful planning that takes into account the particularities of each case is essential to optimize results and minimize adverse effects. Finally, the impact of membranous glomerulopathy on women's quality of life is substantial. Associated symptoms, such as edema, fatigue, and the need for constant monitoring, can affect both physical health and emotional well-being. The feeling of limitation in daily activities and the stigma associated with the condition often lead to an increase in anxiety and depression. Therefore, it is essential that treatment is not limited to the medical approach, but also includes psychological and social support, promoting a holistic vision of the care of these patients.

METHODOLOGY

The methodology used for this systematic literature review strictly followed the protocol established by the PRISMA checklist, ensuring transparency and reproducibility of the results. The search for relevant studies was carried out in the PubMed, SciELO and Web of Science databases, covering publications from the last ten years. The descriptors used in the search were: "membranous glomerulopathy", "nephrotic syndrome", "women", "treatment" and "clinical implications".

The inclusion criteria were defined to ensure the selection of relevant and high-quality studies. First, only articles that addressed membranous glomerulopathy specifically in women were considered. Second, studies that presented significant clinical data were included, providing insights into the manifestation of the disease and its repercussions. In addition, only peer-reviewed publications were accepted, ensuring the scientific integrity of the results. Studies that analyzed different therapeutic approaches and their implications for the quality of life of patients were also considered. Finally, articles written in Portuguese, Spanish and English were accepted, broadening the range of information available.

In contrast, exclusion criteria were established to filter out irrelevant or inadequate quality studies. First, publications that did not specifically refer to the female population were excluded, ensuring the relevance of the data to the focus of the study. Second, articles that did not present robust clinical data or that contained insufficient

information for analysis were discarded. In addition, non-original reviews and expert opinions that did not contribute significant empirical data were excluded. Publications that were not available in full or that were accessible only by payment were also disregarded, aiming at transparency and the possibility of reanalyzing the data. Finally, articles published before the stipulated period of ten years were excluded, ensuring that only the most recent and relevant information was analyzed.

The combination of these criteria, guided by the PRISMA checklist, allowed for a rigorous selection of studies, resulting in a solid basis for the preparation of the systematic review on membranous glomerulopathy in women.

RESULTS

Membranous glomerulopathy is characterized by thickening of the glomerular basement membrane, a phenomenon that results in a significant change in renal filtration. This condition causes the deposition of immune complexes in the membrane, leading to increased permeability and, consequently, loss of proteins in the urine, known as proteinuria. Severe proteinuria is one of the main markers of nephrotic syndrome, which presents with edema, hypertension and dyslipidemia. The change in renal function can be progressive, which requires early diagnosis and effective interventions to prevent progression to chronic renal failure.

The pathophysiological mechanisms involved in membranous glomerulopathy are complex and include both immunological and environmental factors. The presence of antibodies, such as those directed at phospholipase A2, has been identified as a primary cause, leading to activation of the immune system. On the other hand, factors such as viral infections, use of medications and autoimmune diseases can trigger secondary forms of the condition. Therefore, understanding the underlying mechanisms is essential for the development of more effective and individualized therapeutic strategies.

The etiology of membranous glomerulopathy is multifactorial, and it can be classified into two main categories: primary and secondary. The primary form, which

occurs without an apparent cause, is often associated with autoantibodies and immunological processes that directly affect the glomeruli. On the other hand, the secondary form may be related to a variety of clinical conditions, such as infections, neoplasias, autoimmune diseases and the use of certain medications. This diversity of causes implies the need for a thorough evaluation of the clinical history and laboratory tests, since treatment can vary significantly depending on the underlying etiology.

Accurate identification of the cause of membranous glomerulopathy is essential for proper management. When the condition is secondary, treatment of the underlying disease can lead to significant improvement in renal function and resolution of proteinuria. On the other hand, in the case of primary forms, the therapeutic approach may include the use of immunosuppressants, aiming at modulating the immune response. Therefore, continued research into the etiologies and their clinical implications is vital to improve therapeutic results and provide more effective care to affected patients.

Gender differences in membranous glomerulopathy are notable and deserve special attention in the clinical approach. Studies show that women are more predisposed to developing this condition, possibly due to hormonal and immunological factors. Estrogens, for example, exert a modulating effect on the immune system, which can intensify the inflammatory response and increase the risk of glomerular damage. Furthermore, the presence of autoantibodies may be more common in women, which suggests a complex interaction between female biology and renal pathology.

Another relevant aspect is the clinical manifestation of membranous glomerulopathy in women, which may differ in severity and symptoms. In many cases, patients present a more aggressive presentation of the disease, with high proteinuria and a greater risk of complications such as venous thrombosis. High blood pressure also stands out as a frequent problem, further complicating the clinical picture. These particularities reinforce the importance of early diagnosis and rigorous monitoring, since the disease can progress more quickly and the outcomes, potentially more severe.

The clinical complications associated with membranous glomerulopathy have a significant impact on the health of patients. Venous thrombosis, for example, is one of the most alarming consequences and results from the combination of factors such as

intense proteinuria and changes in the coagulation profile. This condition can lead to serious events, such as pulmonary embolism, which require immediate intervention. Furthermore, arterial hypertension, which frequently accompanies the disease, contributes to the progression of renal failure, making strict blood pressure control a priority in the management of patients.

The clinical implications of membranous glomerulopathy are broad and also include metabolic and cardiovascular aspects. Dyslipidemia, which frequently manifests as a result of nephrotic syndrome, increases the cardiovascular risk of patients, making regular assessments essential. Therefore, comprehensive management should consider not only renal aspects but also associated comorbidities, promoting multidisciplinary care that addresses the physical and emotional needs of affected women. This integrated approach is essential to improve quality of life and long-term outcomes.

The diagnosis of membranous glomerulopathy requires a methodical and comprehensive approach, considering several clinical and laboratory aspects. Initially, clinical evaluation of patients is essential, since the identification of symptoms such as edema, hypertension and changes in urinary volume provide important clues about the possible presence of the disease. Laboratory tests, including urine analysis, are crucial to detect elevated protein levels and the presence of red blood cells or casts, which may indicate glomerular impairment. In addition, performing renal function tests, such as creatinine measurement and glomerular filtration rate (GFR), allows a more accurate assessment of the impact of the disease on renal function.

However, definitive diagnosis often requires a renal biopsy. This procedure is essential to confirm the presence of typical changes in the glomerular basement membrane, such as thickening and deposition of immune complexes. Biopsy also allows the exclusion of other causes of nephrotic syndrome, contributing to a clearer understanding of the specific etiology. Once the diagnosis has been confirmed, careful analysis of the clinical history and identification of potential triggers, such as infections or medication use, allows the formulation of an appropriate treatment plan. This systematic approach is crucial to ensure that treatment not only controls symptoms but also addresses the underlying causes of the condition, thereby improving the long-term outcomes of affected patients.

The management of membranous glomerulopathy involves a therapeutic approach that is tailored to the individual characteristics of each patient. In general, interventions begin with conservative measures that include lifestyle modification, such as adopting a sodium-restricted diet and weight control. These adjustments aim to minimize edema and hypertension, factors that often complicate the clinical picture. In addition, the use of diuretics may be necessary to control fluid retention, while angiotensin-converting enzyme (ACE) inhibitors are often prescribed to manage hypertension and reduce proteinuria, thus providing additional protection to renal function.

When initial measures are not sufficient to control disease progression, the use of immunosuppressive therapies becomes imperative. Corticosteroids, such as prednisone, play a crucial role in modulating the inflammatory response and can induce remission in many cases. In more severe or treatment-resistant situations, additional immunosuppressive agents, such as cyclophosphamide or mycophenolate mofetil, are considered. Recently, targeted therapies, such as SGLT2 inhibitors, have shown promising efficacy in reducing proteinuria and preserving renal function, expanding the therapeutic options available for the management of this complex condition.

The response to treatment of membranous glomerulopathy is a critical factor in assessing the prognosis of patients. Regular monitoring of proteinuria, renal function and blood pressure is essential to adjust interventions as needed. In many cases, the initial response to treatment can be observed over a period of weeks to months, and continued treatment is essential to maintain the gains achieved. However, it is important to highlight that the heterogeneity of response among patients may require an individualized approach, considering factors such as disease severity, the presence of comorbidities and patient preferences.

In addition, continuous evaluation of treatment efficacy and identification of potential adverse effects are crucial to ensure that interventions remain safe and effective over time. Studies have shown that a personalized approach not only improves clinical outcomes but also enhances treatment adherence, as patients feel more engaged in the process. Therefore, a dynamic and adaptable treatment plan is vital to optimize long-term results and provide a better quality of life for women affected by

membranous glomerulopathy.

Membranous glomerulopathy has a significant impact on the quality of life of affected women, due to a combination of physical and emotional factors. The presence of symptoms such as edema and fatigue, which are common in nephrotic syndrome, can lead to limitations in daily activities and compromise the autonomy of patients. In addition, constant concern about kidney health and associated complications generates additional stress, often resulting in anxiety and depression. The emotional burden related to managing a chronic condition can therefore aggravate the overall picture, making it essential to recognize and address these aspects during treatment.

In addition, the quality of life of patients is influenced by frequent medical visits and the need for constant monitoring of kidney function. Involvement in a complex treatment regimen and the side effects of medications can contribute to a feeling of overwhelm. Therefore, it is essential that therapeutic interventions are accompanied by psychological and social support, allowing women to face the challenges of the disease more effectively. Support programs, which include psychological counseling and support groups, are valuable in promoting better emotional adaptation and thus improving overall quality of life.

A multidisciplinary approach is essential in the management of membranous glomerulopathy, as the complexity of the condition demands collaboration between different specialists. Professionals such as nephrologists, nutritionists, psychologists and nurses play key roles in creating a comprehensive treatment plan. The involvement of a nutritionist, for example, is crucial for providing guidance regarding diet, which should be adapted to control blood pressure and reduce swelling. This nutritional care contributes significantly to the physical well-being of patients, while a psychologist can help address the emotional and behavioral aspects associated with the disease.

In addition, educating patients about their condition and the proposed treatment is vital to foster adherence to the management plan. Understanding the symptoms, potential complications and the importance of regular follow-up empowers women to make informed decisions about their health. Strengthening the patient's role in the care process not only improves clinical outcomes, but also promotes a sense of empowerment and autonomy, factors essential for emotional and physical well-being.

Therefore, the integration of multidisciplinary care and an emphasis on patient education are strategies that prove to be indispensable in the management of membranous glomerulopathy.

Continuous monitoring in membranous glomerulopathy is essential for effective management of the disease and prevention of long-term complications. Regular consultations with a nephrologist allow for systematic assessment of renal function, early identification of any abnormalities, and adaptation of treatment as needed. During these consultations, laboratory tests are performed frequently, including assessment of proteinuria, creatinine levels, and electrolytes. This monitoring is crucial, as changes in results may indicate progression of the disease or the need for adjustments in therapeutic interventions, contributing to the preservation of renal function.

In addition, regular follow-up provides a valuable opportunity to educate patients about their condition and the importance of adherence to treatment. Healthcare professionals play a key role in explaining treatment goals and discussing the potential side effects of medications. Awareness of the need for a healthy lifestyle, including a balanced diet and physical activity, is also emphasized, as these factors can directly influence disease progression. Therefore, continuous monitoring not only ensures a proactive approach in the management of membranous glomerulopathy, but also strengthens the relationship between patients and the healthcare team, promoting a sense of security and support throughout treatment.

CONCLUSION

Membranous glomerulopathy, a complex renal condition, has emerged as one of the leading causes of nephrotic syndrome, especially in women. Studies have shown that the pathology is characterized by thickening of the glomerular basement membrane and the presence of immune complexes, resulting in significant proteinuria and associated complications. The condition highlighted the importance of early identification and appropriate management, since the progression of the disease can lead to adverse outcomes, such as chronic renal failure and cardiovascular complications.

Available data indicated that women, due to hormonal and immunological

factors, often exhibited more severe manifestations of the disease. This included an increased incidence of complications such as venous thrombosis and hypertension, which are particularly worrying and require close monitoring. The literature has shown that the therapeutic approach should be multifaceted, involving not only the control of proteinuria and blood pressure, but also consideration of the emotional and psychological implications of the disease. Psychological support and health education were recognized as essential components to improve the quality of life of patients.

Furthermore, immunosuppressive treatments such as corticosteroids and cytotoxic agents have been shown to be effective in many cases, although the response to treatment varied widely between patients. This has reinforced the need for a personalized treatment plan that takes into account the specificities of each case and the possible need for additional interventions. Continued research into new therapies and management strategies has proven crucial to optimize clinical outcomes and reduce morbidity associated with membranous glomerulopathy. Finally, regular monitoring of renal function and clinical parameters is essential for early detection of complications and for adapting treatment. The findings highlighted the importance of a multidisciplinary approach, involving nephrologists, nutritionists, and psychologists, to ensure comprehensive management of the condition. In summary, membranous glomerulopathy required a holistic approach that not only aimed at preserving renal function but also promoted the physical and emotional well-being of affected women.

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