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The Mayo Clinic consensus report on membranous nephropathy; a promising step toward better treating the disease

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ABSTRACT

Membranous nephropathy is an immune complex disease caused by subepithelial deposits. The pathological manifestations of membranous nephropathy are considered by the creation of immune complexes in the epithelial cells of the glomerular basement membrane. The established pathologic features of primary membranous nephropathy include subepithelial immune deposits, thickening of the glomerular basement membrane, and podocyte foot process effacement. The clinical implications of pathological features of primary membranous nephropathy include male gender, age, persistent heavy proteinuria, decreased glomerular filtration rate on presentation, and tubulointerstitial fibrosis. Membranous nephropathy is diagnosed through a kidney biopsy, confirming subepithelial immune deposits, thickening of the glomerular basement membrane, and podocyte foot process effacement.

News and Views

Implication for health policy/practice/research/medical education:
The Mayo Clinic consensus statement on membranous nephropathy suggests a new classification system for this condition. The new classification system is based on the presence or absence of certain features, such as immune deposits, glomerular basement membrane thickness, and the presence of certain genetic mutations. This new classification system aims to improve the diagnosis and therapy of this disease.

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Introduction

Membranous nephropathy is a glomerulopathy characterized by thickening and inflammation of the glomerular basement membrane following immune complex deposition at this region, which can lead to proteinuria and impaired kidney function (1). The classification of membranous nephropathy has evolved over time to understand its underlying causes better and guide treatment decisions. Currently, membranous nephropathy is classified based on its histopathological features, which include the presence of immune complexes (proteins that trigger an immune response) and the extent of glomerular injury (2). However, there is a need for a more precise and clinically relevant classification system that can guide treatment decisions and predict outcomes. The previous classification categorizes membranous nephropathy into four stages based on the histological appearance of kidney biopsy samples

1. Stage I: Subepithelial immune deposits without significant structural changes
2. Stage II: Subepithelial immune deposits with thickening of the glomerular basement membrane
3. Stage III: In addition to subepithelial immune deposits and basement membrane thickening, there is also infiltration of immune cells in the glomerulus
4. Stage IV: Advanced stage with global

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glomerulosclerosis (scarring) affecting more than 50% of glomeruli.

This classification system helps determine the severity and prognosis of membranous nephropathy and guides treatment decisions (3).

Recently, Sethi et al published a consensus statement on membranous glomerulopathy proposing a new classification system. This disease is a feature of glomerular damage caused by autoantibodies binding to specific target antigens, across with a deposit of immune complexes in the glomerular basement membrane. The proposed classification system is based on the target antigens involved in membranous nephropathy and includes the following categories as 1) Primary membranous nephropathy. This is the furthermost popular form of membranous nephropathy and is caused by autoantibodies against the phospholipase A2 receptor (PLA2R) or the thrombospondin type 1 domain-containing 7A (THSD7A) antigen. 2) Secondary membranous nephropathy. This form of nephropathy is associated with underlying systemic diseases such as lupus, hepatitis B or C, or malignancies. 3) Antibody-negative membranous nephropathy. The absence of detectable autoantibodies against PLA2R or THSD7A detects this form of membranous nephropathy. The proposed classification system is intended to guide therapy and monitor responses to the treatment. The report emphasizes the importance of accurate diagnosis and standardized glomerulonephritis reporting. The guidelines for the report format, light microscopy, immunofluorescence microscopy, electron microscopy, and ancillary investigation are also provided (4).

Conclusion

The Mayo Clinic consensus statement on membranous glomerulopathy proposes a novel classification system based on three key factors: the underlying cause of the disease, the stage of glomerular injury, and the presence or absence of specific biomarkers. This classification system aims to provide a more personalized approach to treatment and improve patient outcomes. Overall, the proposed classification system is still being studied and refined, however, it represents a promising step toward better understanding and treating membranous nephropathy.

Authors' contribution

Conceptualization: Samaneh Zandifar, Azadeh Khayyat, Leila Alem.
Data curation: Samaneh Zandifar, Leila Alem.
Investigation: Azadeh Khayyat.
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Conflicts of interest

The authors declare that they have no competing interests.

Ethical issues

The authors have completely observed ethical issues (including plagiarism, data fabrication, and double publication).

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