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Current knowledge of IgA nephropathy: epidemiology and big data analysis

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IgA nephropathy (IgAN) is the most common primary glomerulonephritis globally, characterized by the deposition of IgA1 in the glomerular mesangium, leading to progressive kidney dysfunction in a significant portion of patients. The epidemiology of IgAN varies widely across different populations, with higher prevalence in East Asia and lower prevalence in Western countries. Recent advancements in big data and large-scale registries have enabled a more comprehensive understanding of IgAN's epidemiological patterns, genetic predispositions, and clinical outcomes. Big data analysis has facilitated the identification of potential biomarkers and risk factors associated with disease progression, improving predictive models for individual prognosis. Additionally, the integration of large datasets from diverse populations has allowed for the identification of regional differences in disease manifestations and response to treatment, which may guide the development of targeted therapeutic strategies. This review summarizes the current knowledge of IgAN, emphasizing recent insights from epidemiological studies and big data analyses, and highlights the potential for precision medicine approaches in the management of IgAN.