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CLINICAL COURSE OF VIRUS-ASSOCIATED GLOMERULONEPHRITIS IN CHILDREN AND ADOLESCENTS

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Abstract
This article provides a review of the literature on the results of studies to identify etiopathogenetic factors, clinical course, features of diagnosis and treatment of glomerulonephritis in children. According to extensive literature, viral infections are temporarily associated with the onset of many glomerular diseases, especially in children. In other cases of glomerulonephritis, where the infection is clinically asymptomatic, viral syndromes may still be implicated as a trigger. However, convincing evidence for the viral etiology of most glomerular diseases is still lacking.

Keywords: Virus, glomerulonephritis, nephropathy, pediatrics, pathology, glomerular diseases, children, bacteria, nephrotic syndrome, urine test.

Introduction

Viral syndromes are often considered likely triggers of autoimmune diseases. Studies in pediatric cohorts also support this association in acute glomerulopathies. A prospective Canadian study linked 71% of nephrotic syndrome (NS) exacerbations to a specific viral respiratory infection. In this study, 32 children with UA were followed for two years with repeat cultures and daily urine tests. Within 10 days of many relapses, infections with respiratory syncytial virus (RSV), influenza, parainfluenza, varicella, or adenovirus were identified. Similarly, in a prospective cohort of ten children with hemolytic uremic syndrome (HUS), eight had evidence of adenovirus or enterovirus infection, and the other two had culture-positive family contacts. Although no strain of the virus causes any specific renal pathology, some glomerular diseases are associated with infection or antiviral responses of the host.

The purpose of this work is to present the available data on known viral pathogens that may be associated with the development or exacerbation of glomerulopathies in the native kidney, with an emphasis on data from children. Pediatric cases of human immunodeficiency virus (HIV) nephropathy will not be included as they have become rare in the era of highly active antiretroviral therapy and have recently been reviewed. A detailed review of viral nephropathies in patients with a transplanted kidney has already been published in the journal Pediatric Nephrology.

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Material and methods

This descriptive cross-sectional study of children admitted at a tertiary care hospital was done from May 2022 till May 2024. A census sampling method was used and sample of 54 children was taken. Detailed socio demographic data, clinical findings and laboratory investigations were done. Data analysis was done using SPSS software and the results obtained are shown in the form of frequencies along with percentages.

Results

Among 54 patients, the prevalence of acute post-infectious glomerulonephritis was found to be 33 (4.05%) (3.07-5.03 at 95% Confidence Interval). The mean age of the patients was 9.06±3.48 years. Antistreptolysin O titer was raised in 14 (54%) patients, while low serum C3 was observed in 39 (61.90%) patients with acute post-infectious glomerulonephritis.

Conclusion

Available data do not support separate treatment strategies for idiopathic and virus-associated glomerulopathies, with the exception of HIV infection, viral hepatitis, and CMV infections, for which antiviral drugs may be effective. Case reports of spontaneous recovery challenge the notion that all glomerular lesions require immunomodulatory treatment regardless of viral infection status. Additional prospective studies similar to the Nefrovir study should be performed to explore the role of new viruses. It is clear that viral syndromes act as a trigger for the onset and recurrence of NS, but in this case, it is important to distinguish between primary and secondary forms of glomerulopathy.

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