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The role of cell signaling molecules in the pathogenesis of glomerulonephritis in children

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Abstract

Background: Cytokines are functional class of tiny proteins and glycoprotein and fundamentally they are monomers that function as soluble mediators in an autocrine or paracrine manner. Cytokines are produced by a number of cell types, predominantly leukocytes, and their targets implicate both immune and non-immune cells.

Material and methods: This study was performed on 75 children with glomerulonephritis (GN), aged from 2 up to 17 years. There were 20 children with steroid-sensitive nephrotic syndrome (SSNS), 15 children with steroid-resistant nephrotic syndrome (SRNS), 20 children with chronic glomerulonephritis (CGN) nephrotic form and 20 children with CGN mixed form. This study was performed on patients experiencing disease relapse and clinical remission. The control group consisted of 20 healthy children.

Results: The results of this study demonstrated increased levels of cell signaling molecules (IL-8, TNF- α , MCP-1, MIP-1 α) in the urine during clinical manifestations, valuable result due to their major role in the immunopathogenic mechanism of proteinuria in nephrotic syndrome.

Conclusions: Determination of urinary concentrations of cellular signaling molecules may be useful as a predictive non-invasive method for estimating disease activity, monitoring disease progression, differentiating steroid-sensitive nephrotic syndrome from steroid-resistant nephrotic syndrome, and assessing the effectiveness of treatment in children with different variants of GN.

Key words: cytokine, chemokine, nephrotic syndrome, glomerulonephritis.

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