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**Monocitary chemoattractant protein and vascular endothelium growth factor  
as predictors of diabetic nephropathy development in children and  
adolescents**

**Sayidkhujabek Hoshimov**

Department of Urology, Tashkent Medical Academy, Uzbekistan

**Objectives:** Determine the role of monocytic chemoattractant protein (MCP-1) and vascular endothelial growth factor (VEGF) as markers for the early diagnosis of diabetic nephropathy in children with type 1 diabetes.

**Methods:** The study involved 60 children with type 1 diabetes mellitus aged 1 to 7 years, the control group consisted of 60 children without diabetes under the age of 7 years. Clinical and laboratory diagnostic methods corresponded to the standard for examining children with diabetes mellitus, an in-depth examination of the urinary system was also carried out, including: determining glomerular filtration rate (GFR), analyzing daily urine for protein, microalbuminuria, ultrasound examination of the kidneys, dopplerographic examination of renal vessels, scintigraphy ; quantitative analysis of MCP-1 and VEGF biomarkers in serum of venous blood and morning urine using an enzyme-linked immunosorbent assay.

**Results:** An assessment of metabolic disorders found that the median of glycated hemoglobin in children with type 1 diabetes was 8.95 (7.67; 10.82). In 4 (10%) children, microalbuminuria was detected. No proteinuria has been identified in any child. 8 (20%) children showed a decrease in GFR (<80 ml / min / 1.73 m<sup>2</sup>). In 32.5% of all examined children with diabetes mellitus, in comparison with the control group, analysis of biomarkers revealed an increase in the level of MCP-1 and VEGF both in blood serum and in the morning portion of urine without clinical signs of DN

**Conclusions:** An increase in the levels of the studied MCP-1 and VEGF biomarkers in children with diabetes mellitus confirms the presence of tubulointerstitial inflammation and endothelial dysfunction of the microvasculature. The absence of correlation between the degree of compensation of metabolic processes and the level of microalbuminuria may indicate that these biomarkers are prognostically significant independent signs of the development of DN in children with type 1 diabetes.