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Biochemical markers of endothelial dysfunction in children with Henoch-Schönlein purpura.

Introduction: Henoch-Schönlein purpura (HSP) is a leader in the structure of systemic vasculitis in children.

The **aim** of the study was to investigate biochemical markers of endothelial dysfunction in children with HSP.

Material and methods: 60 children aged 1 to17 years old (35 males, 25 females) with HSP were examined among them 8 (13,3%) patients with skin form (1^{st} group), 24 (40%) patients with skin-articular form (2^{nd} group), 19 (31,6%) patients with mixed form (skin-articular and abdominal syndrome) HSP (3^{rd} group) and 9 (15%) patients had mixed form with renal syndrome (4^{th} group). The control group included 17 healthy children. The serum levels of NO_2, NO_3 and S-nitrosothiols were determined spectrophotometrically. Serum MCP-1 was measured at enrollment using a sensitive ELISA assay. The levels of Von Willebrand factor (vWF) were determined in plasma by ahrehometric method. The data were analysed with StatSoft STATISTICA Version 8 (Tulsa, OK). Statistical significance was derived using non-parametric tests (Mann-Whitney test and Kruskal-Wallis test).

Results: The results of Kruskal-Wallis test for all parameters are significant, namely: NO_2 – H=18,7, p=0,0009, NO_3 – H=27,3, p=0,0000, S-nitrosothiol – H=29,7, p=0,0000, vWF – H=49,8, p=0,0000, MCP-1 – H=50,1, p=0,0000. As follows, statistical characteristics of indicators of different groups are statistically different, and the levels of parameters which were investigated, depend on form HSP. The serum levels nitric oxide metabolites levels (NO_2, NO_3, S-nitrosothiol) were significantly diminished in the patients of the 4^{th} group (p_{c-4}=0,0000, p_{c-4}=0,0000, p_{c-4}=0,0000, respectively) compared with controls. The serum levels of nitric oxide metabolites were increased in the patients of 1^{st} 2^{nd} and 3^{rd} groups compared with controls. The serum levels of vWF and MCP-1 were higher in the patients of all groups in comparison to the control children. (p_{c-1}=0,0000, p_{c-2}=0,0000, p_{c-3}=0,0000, p_{c-4}=0,0000; p_{c-1}=0,0000, p_{c-2}=0,0000, p_{c-3}=0,0000, p_{c-4}=0,0000, respectively).

Conclusion. Biochemical markers of endothelial dysfunction in children depend of form HSP. The reduced levels nitric oxide metabolites levels in children with HSP may be early marker of kidney injury.