FP768 CYSTATIN C IN CKD1-3 STAGES IN CHILDREN

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INTRODUCTION AND AIMS: Determination of diagnostic values of cystatin C serum concentration in combination with the estimated glomerular filtration rate (eGFR) gives clinicians an advantage in clearly delineating the stages of chronic kidney disease (CKD) in children. The aim of the study was to determine the diagnostic values of Cystatin C serum concentration with the eGFR for the differentiation of CKD I-III stages in children.

METHODS: In 119 children aged 2 to 17 years (7.3 ± 0.3 years), diagnostic values of Cystatin C serum levels were determined to clarify CKD I-III stages. eGFR based on the serum concentration of cystatin C, using the equations: F. J. Hoek, M. Zappitelli, Pediatric GFR Calculator-NKF.

RESULTS: In children with CKD I stage serum concentration of cystatin C was 0.77 ± 0.01 mg/l, which is significantly lower than the corresponding values in patients with CKD II stage (1.0 ± 0.01 mg/l) and III stage (1.58 ± 0.06 mg/l) (p < 0.05). The mean value of the concentration of cystatin C in the blood serum was 0.77 ± 0.01 mg/l in patients with CKD corresponded to the eGFR on the basis of cystatin C 100.2 ± 1.6 ml/min/1.73 m², determined according to the equation F. J. Hoek, 103.6 ± 1.9 ml/min/1.73 m² - according to the equation M. Zappitelli and 90.4 ± 1.5 ml/min/1.73 m² by the Pediatric GFR Calculator-NKF. The average value of the concentration of cystatin C in the blood serum was 1.0 ± 0.01 mg/l in patients with CKD of the II stage corresponded to the eGFR on the basis of cystatin C 77.5 ± 0.87 ml/min/1.73 m² according to the equation F. J. Hoek, 77.6 ± 0.97 ml/min/1.73 m² according to the equation M. Zappitelli and 71.9 ± 0.7 ml/min/1.73 m² by the Pediatric GFR Calculator-NKF. The mean values of the eGFR based on cystatin C, calculated by Pediatric GFR Calculator-NKF, significantly differed from the results of the two previous equations (p < 0.05).

Values of cystatin C concentration in the blood serum 1.58 ± 0.06 mg/l, obtained in patients with CKD III stage, corresponded to an almost identical eGFR on the basis of cystatin C, determined from three different equations.

CONCLUSIONS: The data obtained and the results of several studies confirm that in children cystatin C better correlates with the eGFR than serum creatinine. Diagnostically significant values are linked to CKD I-III stages delineation. The informative value of the equations for eGFR based on cystatin C was estimated (F. J. Hoek, M. Zappitelli, Pediatric GFR Calculator-NKF).