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Detection of tubulo-interstitial fibrosis markers in chronic glomerulonephritis using mass spectrometry

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Objectives: The aim of this study is to find new markers of tubulo-interstitial fibrosis (TIF) in the urine with IgA - nephropathy and focal segmental glomerulosclerosis using protein mass spectrometry.

Methods: The study included 45 patients who have been admitted to the Department of Tashkent Medical Academy from 2016 to 2018 years. All patients have been sorted out according to the course of tubulo-interstitial fibrosis (TIF). Intravital morphological examination of kidney tissue, which determines the type of immune kidney damage was accomplished. Proteome analysis of urine to determine specific protein subunits characteristic of a certain type of immune damage to the kidneys was done

Results: The study showed that TIF occurred in 38% of cases with IgA nephropathy. In this group a reliable association of TIF with such proteins was established, as a protein binding to insulin-like growth factor (IGFBP) 83 which was detected in 35% of patients with TIF versus 15% without TIF, thymosin β 4 - in 28% against 12%, respectively. When analyzing the IgA-nephropathy group, the following proteins were identified - markers of TIF: cystatin B was detected in 52% of patients with TIF versus 32% without TIF, the α-collagen chain was detected in 33% versus 11%, respectively, and heparan sulfate in 45% versus 29% .

Conclusions: The data obtained allow us to conclude that there are relationships in the expression of protein with urine, the morphological form of nephritis and the formation of typhoid fever, which, in turn, are prerequisites for determining some proteins as markers of the development of typhoid fever in specific morphological variant of glomerulonephritis