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Urinary cytokines as non-invasive biomarkers of IgA nephropathy.

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Objectives:

Immunoglobulin A nephropathy (IgAN) is the most common primary glomerulonephritis worldwide. Although renal biopsy is the gold standard of diagnosis, accessibility in clinical practice is poor because its procedure is invasive with a risk of complications. Therefore, need for development of non-invasive biomarkers has emerged. In this study, we investigated the clinical relevance of urinary cytokines in patients with IgAN.

Methods:

The levels of 22 urinary cytokines from 130 biopsy-proven IgAN patients and 20 healthy controls were measured using multiplex assays. Samples were collected from the first spot urine of the morning on the day of renal biopsy. To account for variations in urine concentration, urinary cytokine level was normalized to urine creatinine. We analyzed the correlations of urinary cytokines with clinical and pathological parameters in IgAN patients. The predictive value of urinary cytokines for renal outcome was also investigated using receiver operating characteristic (ROC) curve analysis

Results:

C-C motif chemokine ligand 2 (CCL2), endocan, endostatin, growth differentiation factor 15 (GDF-15), interleukin 6, mannan-binding lectin (MBL), and transferrin R showed significant correlation with estimated glomerular filtration rate (eGFR). Urinary protein excretion was correlated significantly with endocan, GDF-15, and interleukin 6. CCL2, interleukin 6, BML, and transferrin R showed moderately predictive value in ROC curve analysis (area under the curve > 0.7).

Conclusions:

Urinary cytokines have potential as useful non-invasive biomarkers of IgAN. Further large and prospective studies of extended duration are needed.