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Gender differences in interconnections between the serum level of interleukin-18 and the renal function in patients with diabetes and early CKD

Ivan Pchelin, Alexander Shishkin

Department of Faculty Therapy, Saint Petersburg State University, Russia

Objectives: Interleukin-18 (IL-18) is involved in the pathogenesis of diabetic nephropathy. Experimental studies have also shown that female sex hormones are necessary for realization of some of the effects mediated by IL-18. In this study, we assessed serum levels of IL-18 and their clinical correlates in men and women with early diabetes-related CKD.

Methods: We investigated 65 patients with type 2 diabetes and CKD stages 1-3 (42 women and 23 men). eGFR was calculated using CKD-EPI formula. In addition to routine clinical tests, we assessed serum level of IL-18. Mann-Whitney U-test and Spearman's correlation coefficient (rs) were used for statistical analysis.

Results: The groups were comparable with regard to age, anthropometric data and parameters of renal function. Mean levels of IL-18 were similar in men and women: 278 ± 20 and 246 ± 17 pg/ml ($p=0.096$), respectively. A significant correlation between the levels of IL-18 and eGFR was observed only in women ($r_s = -0.354$, $p=0.024$), but not in men ($r_s = 0.216$, $p=0.347$). In contrast, a significant correlation between the concentration of IL-18 and the level of albuminuria was observed in men ($r_s = 0.480$, $p=0.032$), but not in women ($r_s = -0.087$, $p=0.605$). In both groups, the concentration of IL-18 was not interconnected with age, body mass index, and parameters of lipid and carbohydrate metabolism.

Conclusions: The results of the study suggest that men and women with type 2 diabetes and early CKD are characterized by different interrelationships between serum IL-18 and eGFR, as well as serum IL-18 and albuminuria. This may result from gender-specific effects of IL-18 and requires further investigation.