PTH AND FIBROBLAST GROWTH FACTOR 23 AS EARLY MARKERS OF MINERAL AND BONE DISORDERS IN CHRONIC KIDNEY DISEASE PATIENTS

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Introduction. Many systems such as the skeletal system, known as CKD- MBD. It remains an actual problem to look for early markers of CKD-MBD development. The aim of the study was to evaluate serum concentrations of c-terminal FGF-23, PTH, Ca, P, and to establish relationships between FGF-23, PTH and GFR.

Materials and methods. The study involved 106 patients with CKD stages from 1 to 4, 47 women (44) aged from 35 to 72, mean (49.6± 13.9) years. The C-terminal FGF-23 fragment and PTH were determined using a set of reagents for the enzyme immunoassay Biomedica». The glomerular filtration rate (GFR) was calculated using the CKD EPI formula (KDIGO 2012).

Results. A progressive increase in PTH levels was observed simultaneously with GFR decrease in patients with CKD. Starting from CKD stage III, a significant increase above the normal range in the level of PTH ((85.79 ± 29.3) pg / ml) was observed ($p < 0.05$). A progressive increase in the serum concentration of the C-terminal fragment of FGF-23 in patients with CKD was observed accordingly GFR fall. Statistically significant increase of FGF-23 concentration was observed in CKD stage II ((1.29 ± 0.08) pmol / L) compared to CKD I ((0.76 ± 0.07), pmol / L,) ($p < 0.05$). A strong negative association was found between FGF-23 and GFR ($r = -0.87$, $p < 0.05$) in CKD patients. The existence of a strong direct association ($r = 0.84$, $p < 0.05$) between the level of PTH and FGF-23 in CKD was established.

Conclusions. Growth of the level of FGF-23 outstrips the increase in PTH in the time interval starting from 2 stage of CKD. C-terminal FGF-23 can be used as an early marker of the development of mineral disturbances in patients with CKD.