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Clinical and functional characteristics of chronic kidney disease in residents of urban and rural areas in the Kyrgyz Republic

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Abstract

To study the clinical and functional characteristicsof chronic kidney disease (CKD) among residents of urban and rural areas in the Kyrgyz Republic.Material and methods. The work examined the data of 1403 patients with CKD. Depending on the living conditions, all participants were divided into residents of urban (n = 1082) and rural (n = 321) areas. All participants underwent general clinical and laboratory studies. Glomerular filtration rate(GFR) was calculated using the formula using serum creatinine CKD-EPI (chronic kidney disease, epidemiology), MDRD (diet modification for kidney disease), and creatinine clearance according to the Cockcroft-Gault method. Steps (C) are established in accordance with the recommendations of the NKF / KDOQI (National Kidney Organization / Kidney Disease Outcomes Initiative) proposed in 2009. Risk factors for the development and progression of CKD were analyzed. Overweight (BMI) was determined with a body mass index (BMI) of 25–29.9 kg / m2; obesity - with a BMI of ≥30 kg / m2. Persons with an increase in heart rate (HR) > 80 beats / min at rest were distinguished. For arterial hypertension, a level of systolic and / or diastolic blood pressure greater than or equal to 140/90 mm Hg was taken. In each group, anemia was detected in the study participants (hemoglobin <120 g/l in women, <130 g/l in men), hyperuricemia (uric acid concentration in the blood > 0.35 mmol / l in women, > 0.42 mmol / l in men), hypercholesterolemia - GHS (total cholesterol> 5.01 mmol / l) and proteinuria (pathological protein excretion in daily urine and / or single morning urine).

Results. In urban and rural residents, the estimated GFR values according to the formulas CKD-EPI and MDRD did not significantly differ. Cockcroft-Gault creatinine clearance showed higher GFR values especially in the early stages of CKD in both populations. The median of serum creatinine was significantly higher in urban residents at stage 5 of CKD ($p < 0.05$). The prevalence of BMI at stage 1 among urban residents was significantly higher (27.5% versus 14.7%), and among rural residents at stage 4 CKD (40.0% versus 28.2%; $p < 0.05$). At stages 1 and 2 of CKD, obesity was significantly more frequently detected in rural residents. The proportion of study participants with an increase in heart rate of more than 80 beats / min was significantly higher among rural residents with stage 1 CKD (31.1 vs 19.5%; $p < 0.05$). In urban areas, there was a high prevalence of anemia (84.0 vs 69.8%; $p < 0.05$), HCS (63.1 vs 13.9%; $p < 0.05$), hyperuricemia (76.9 vs 21,5%; $p < 0.05$) and proteinuria (44.2 vs 7.5%; $p < 0.05$) compared with rural residents.

Conclusion. In patients with CKD - residents of urban and rural areas in the Kyrgyz Republic, the estimated GFR values according to the formulas CKD-EPI and MDRD at different stages of the disease do not significantly differ. Cockcroft-Gault creatinine clearance yields higher GFR values especially in the early stages of CKD in both populations. In urban dwellers, CKD is significantly more often associated with ISM (1 stage), anemia (5 stage), HCS (5 stage), hyperuricemia (4 and 5 stage) and proteinuria (5 stage). People with CKD living in rural areas have a higher prevalence of obesity (1 and 2 stage), BMI (4 stage), increased heart rate > 80 beats / min (1 stage) and proteinuria (3b stage).

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