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HYPERHOMOHOMOCYSTEINEMIA AS A RISK FACTOR OF CARDIOVASCULAR PATHOLOGY IN PATIENTS WITH CHRONIC KIDNEY DISEASE. MODERN VIEW OF THE PROBLEM

ГІПЕРГОМОГОМОЦИСТЕЇНЕМІЯ ЯК ФАКТОР РИЗИКУ СЕРЦЕВО-СУДИННОЇ ПАТОЛОГІЇ У ХВОРИХ З ХРОНІЧНОЮ ХВОРОБОЮ НИРОК. СУЧАСНИЙ ПОГЛЯД НА ПРОБЛЕМУ

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Problem statement. Chronic kidney disease (CKD) is a significant problem today. The presence of renal dysfunction is a powerful, independent risk factor for the development of cardiovascular complications [2, p. 7]. About 60% of patients with end-stage renal failure die within a year from

acute myocardial infarction [1, p. 1066], and the risk of further cardiovascular complications is directly proportional to the progression of renal dysfunction. One of the "unconventional" risk factors for the accelerated development of cardiovascular pathology in severe stages of CKD is hyperhomocysteinemia (HHC). Although a sufficient number of scientific studies have been devoted to the problem of HCC in chronic renal failure [3, p. 1525; 4, p. 255], a number of questions still remain insufficient clarified. The frequency of HHG depending on the stage of chronic renal failure is unknown. It has not been established to what extent HCG in patients with CKD is associated with other laboratory manifestations of renal failure, as well as how it correlates with the state of the cardiovascular system, including endothelial dysfunction.

The aim of the work is to estimate the frequency of HHC in patients with different degrees of CKD and to study the relationship with endothelial dysfunction and the structural and functional state of the heart.

Methods and Materials. 148 people with CKD who were on inpatient and/or outpatient treatment at the Vinnytsia Regional Clinical Hospital named after M. I Pyrogov. Chronic glomerulonephritis was diagnosed in 99(%) and chronic pyelonephritis in 49(%). Among the examined were 77(%) women and 71(%) men. The selected patients were divided into two groups: the first group included patients in whom the course of the main disease was accompanied by a decrease in the glomerular filtration rate (GFR) – 113, and the second – 35 patients without a violation of GFR (CKD-I). Among the group of patients with impaired GFR, CKD II degree was diagnosed in 31 patients, III stage – in 43, IV stage – in 14 patients, CKD V stage. (terminal) – in 25 patients. The age of patients in the group with reduced GFR ranged from 18 to 60 years, the average age was 39.6±1.13 years. The control group was an age-representative group of practically healthy persons in the number of 30 (14 men and 16 women), aged from 21 to 57 years (average age 40.6±2.38). The stage of CKD was determined according to the classification adopted by the II National Congress of Nephrologists of Ukraine (2005).

The level of total HHC in the blood plasma was determined for the patients using the immunoenzymatic method using the set of the company “Axis-Shield (UK)” on the immunoenzymatic analyzer “Santinaile”. All subjects were subjected to an echocardiographic (EchoCG) study with the determination of the intima-media complex (IM) of the carotid artery on the ultrasound system “ACUSON 128 XP/10” (Japan) using a linear sensor with a frequency of 7.5 MHz with a phased grating according to with the recommendations of the American Society of Echocardiography. Endothelial dysfunction was determined using the method described by D. Celermajer,

1986. Mathematical processing of the obtained data was performed using the STATISTICA application program package (StatSoft, USA, v6.0).

The non-parametric Mann-Whitney test was used to assess the difference between groups, Pearson's correlation analysis was used to determine relationships between indicators, and Fisher's test was used to compare the frequency of changes. A difference of $P<0.05$ was considered significant.

Results. It was established that in patients with chronic renal failure, a normal level of HHC is found in 26 (21.1%), subnormal in 34 (27.7%), mild HC in 30 (24.4%), average HHC in 33 (26.8%) of cases, that is, the total number of patients with an elevated level of HHC was 88.9%. It should be noted that in the groups of patients with CKD of the fourth stage and in dialysis patients, not a single patient with a normal level of HHC was found. The increase in the level of HHC in the blood plasma of patients was practically proportional to the severity of renal failure, which, in addition, led to a shift in the number of cases towards higher ranking indicators of the level of HHC. In particular, if among the patients with CKD-I there was not a single patient with HHC, then in the group with CKD-V there were more than 50% of such patients. It was found that a decrease in the contractile capacity of the myocardium and echocardiographic markers of left ventricular hypertrophy found in patients with CKD are closely associated with the concentration of HHC in the blood plasma. The data presented by us clearly demonstrate that indicators of endothelial dysfunction show a strong inverse correlation with the level of HHC. Thus, endothelium-dependent vasodilatation of the brachial artery in patients with CKD-IV compared to controls and the group with CKD-III was lower by 3.8 and 1.5 times, respectively, and endothelium-independent by 2.4 and 1.9 times. Using correlation analysis, it was found that violations of endothelium-dependent and endothelium-independent dilation with high statistical reliability (in all cases $t>3$) are inversely correlated with the level of HHC in the blood plasma.

Conclusions. The population of patients with CKD is characterized by a high frequency of HCG, which is closely related to lesions of the cardiovascular system (dysfunction of the endothelium, structural and functional remodeling of the myocardium) and can act as an important risk factor for the development of vascular lesions. We believe that adequate correction of HCG, in particular the prescription of patients with CKD.

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FEATURES OF METABOLIC ASSOCIATED FATTY LIVER DISEASE DIAGNOSTIC CRITERIA IN CHILDREN

ОСОБЛИВОСТІ ДІАГНОСТИЧНИХ КРИТЕРІЇВ МЕТАБОЛІЧНО-АСОЦІЙОВАНОЇ ЖИРОВОЇ ХВОРОБИ ПЕЧІНКИ У ДІТЕЙ

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