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DIAGNOSIS OF KIDNEY DAMAGE IN HEART FAILURE

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Cardiovascular diseases (CVD) are the leading cause of death worldwide, from which an estimated 17.9 million people die every year. Together with diseases of the cardiovascular system, one of the most frequent manifestations is kidney pathology. Diagnostics remains one of the main tasks of doctors.

To assess the functional state of the kidneys in adults today, mainly 2 formulas are used: MDRD (Modification of Diet in Renal Disease) and CKD-EPI (Chronic Kidney Disease Epidemiology Collaboration), which allow you to determine the glomerular filtration rate, as well as the Cockcroft-Gault formula for calculating creatinine clearance. A recent study compared the above formulas in patients with chronic heart failure (CHF) with an isotopic method for determining the glomerular filtration rate (GFR).

The best results for comparability with the data of the reference method were shown by the formula CKD-EPI. Thus, for the diagnosis of chronic kidney disease (CKD) and its stages, it is advisable to use the CKD-EPI formula, at the same time it is impossible to abandon the Cockcroft-Gault formula, since in clinical trials of drugs, kidney function was usually assessed by creatinine clearance calculated using the Cockcroft-Gault formula. In this regard, the dose of the drug should be adjusted according to the official instructions, and if it refers to creatinine clearance, then the Cockcroft-Gault formula should be used. These seemingly "little things" should not be neglected, because the difference between the GFR calculated according to the formulas MDRD or CKD-EPI and creatinine clearance according to the Cockcroft-Gault formula can reach 20%. Approximately one third of patients with CHF have renal dysfunction.

At the same time, it is necessary to carefully interpret the decrease (GFR) in patients with exacerbation of CHF as a manifestation of chronic kidney disease, since one third of patients with acute decompensation of CHF develop acute kidney damage. It is not easy to distinguish between acute kidney injury (AKI) and CKD during hospitalization of a patient with acute decompensation of CHF. Diagnosis of AKI is based on an assessment of the dynamics of serum creatinine and diuresis and does not allow to diagnose AKI at the time of hospitalization. The use of AKI biomarkers, among which the most studied are lipocalin associated with neutrophil gelatinase (NGAL), interleukin 18 (IL-18), acute kidney injury molecule – 1 (KIM-1), is still difficult to apply in practical work due to the lack of generally accepted quantitative criteria of norm. Of course, We would like to have a reliable biomarker of AKI (like troponin in acute coronary syndrome), which would allow early diagnosis of AKI.

Our experience with the use of biomarkers indicates that they are more suitable for the diagnosis of AKI associated with pronounced structural changes in the kidneys, for example, with exogenous poisoning, drug effects. If AKI is caused mainly by hemodynamic disorders (acute cardiorenal syndrome), then the role of biomarkers is less obvious. In this regard, the possibility of using a laboratory panel of several biomarkers characterizing different levels of kidney damage is discussed. Theoretically, this approach is justified, but does it provide additional clinical benefits, not to mention the economic component? Modern cardiology has already passed this stage (the joint use of myoglobin and troponin), today troponin is used as a biomarker of myocardial necrosis. For acute heart failure or acute decompensation of CHF already at the stage of hospitalization, it is important to distinguish what takes place: CKD or AKI, which is not easy to do, since most AKI develops against the background of previous CKD. On the one hand, CKD predisposes to the development of AKI, on the other, AKI aggravates and accelerates the progression of CKD.

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