104. SPECIFIC CARDIAC AND RENAL MARKERS OF ACUTE CARDIORENAL SYNDROME

Author: Adelina Dogari

Scientific adviser: Valeriu Cobeț, DHM, Associate professor, Department of Pathology, *Nicolae Testemitanu* State University of Medicine and Pharmacy, Chisinau, Republic of Moldova.

Introduction. Cardiorenal syndrome either acute or chronic means a primary disorder of the heart followed by renal failure, and vice versa. This combined pathological support markedly increases prognosis and the risk of complications. The estimation of specific cardiac and renal markers could be an important tool of early assessment of vital organ dysfunction, driving also optimization of treatment.

Aim of study. Revealing the main specific markers of cardiac and renal disorders in patients with acute cardiorenal syndrome.

Methods and materials. The material reflected in 20 recent articles found in scientific databases PubMed and MEDLINE was analyzed.

Results. Acute cardiorenal syndrome derives from primary acute heart failure or primary acute renal failure followed respectively by acute renal injury or acute heart failure. The chronic cardiorenal syndrome respects the same algorithm of dependence, but in a set-up of chronic fashion. A series of specific markers of acute heart failure which reflect myocardial necrotic damage which happens in acute myocardial infarction, are: (i) increase of serum level of troponins (I and T) higher than the 95th-percentile, raise of creatine kinase MB and H-FABP (fatty acid binding protein of the heart) after 1-3 hours since ischemic impact; (ii) the appearance in the blood of the protein of sarcoplasmic reticulum pump of calcium (Ca-ATPase), SERCA2a, which is considered as most specific hallmark to heart maker of myocardial injury; (iii) elevation of NT-proBNP, a marker of peripheral hemodynamic disorder due to cardiac pump function failure. Basic markers of acute kidney injury or kidney attack are: (i) marked reduced urine output (<0.5 mL/kg/h for 6h); (ii) markers of glomerular filtration disorders exhibited by elevated blood levels of creatinine (>0.3 mg/dL within 48h), and cystatin C, the presence of microalbuminuria (30-300 mg/24 hours), and decline of glomerular filtration rate <60 ml/min/1,73m2; (iii) markers of renal tubular damage, such as monomeric neutrophil gelatinase associated lipocalin (NGAL), Dickkopf-3 (DKK3) and kidney injury molecule-1 (KIM-1) expressed mainly in distal and proximal tubular epithelial cells; (IV) hepatocyte growth factor (HGF), a biomarker upregulated in interstitial cells in response to kidney injury.

Conclusions. Specific markers of acute heart failure are elevated levels of troponin I and T >95th-percentile, creatine kinase MB, H-FABP and sarcoplasmic reticulum Ca-ATPase. Specific markers of acute kidney injury are oliguria, decline of glomerular filtration rate <60 ml/min/1,73m2, blood creatinine and cystatin C, as well as the markers of tubular injury: NGAL, DKK3 and KIM-1.

Keywords. Acute cardiorenal syndrome, cardiac markers, renal markers.

https://doi.org/10.66603/medespera2026.635