

26. ISCHEMIA MODIFIED ALBUMIN – A CURRENT MARKER OF MYOCARDIAL ISCHEMIA IN ACUTE CORONARY SYNDROME

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Introduction. Ischemic heart disease remains the leading cause of mortality worldwide. One of the clinical manifestations of ischemic heart disease is the acute coronary syndrome (ACS). It is caused by the atherosclerotic plaque rupture or endothelial erosion associated with coronary thrombosis, leading to ischemia, myocardial necrosis (AMI), and a possible risk of sudden cardiac death. Ischemia modified albumin (IMA) is proposed to be used to identify myocyte ischemia in early stages.

Aim of study. To elucidate the role of IMA as a marker of oxidative stress-induced myocardial ischemia and to evaluate the relationship between serum cardiac troponin T (cTnT) levels and IMA in ACS patients.

Methods and materials. Critical analyses of scientific publications data (2006-2019) from PubMed, Medline, Medscape, Hinari databases.

Results. Ischemia modified albumin (IMA) is a relatively new marker for the evaluation of patients with ACS who present to the emergency department with clinical chest pain, but normal ECG and cardiac troponin levels. IMA is produced during myocardial ischemia, due to structural changes at the N-terminal end of serum albumin, resulting in decreased ability to bind Co²⁺ and Ni²⁺. Serum IMA levels rise within 6-10 minutes of the onset of ischemia, peaking at 6 hours and return to baseline values within 12-24 hours. Plasma IMA content changes faster than cTnT and cTnI, CK-MB, ANP, and BNP, thus providing higher sensitivity and a greater negative predictive value for the diagnosis of ACS, but lower specificity and positive predictive value compared to the above-mentioned markers. There is a significant relationship between cTnT and IMA, suggesting that both markers might be useful for the detection of myocardial damage in patients with suspected ACS. If cTnT reflects myocardial necrosis, then IMA is thought to be a marker of cardiac ischemia and/or reperfusion injury. The ability to detect ischemia before myocyte necrosis will improve the early management of suspected patients.

Conclusion. Cardiac ischemia causes modifications of serum levels of IMA. The data findings suggest the utility of IMA as a contemporary biomarker of myocardial ischemia induced by oxidative stress. IMA might be used with cTnT and ECG to triage patients presenting to the emergency department with ACS symptoms.