

Multimarker Approach to Risk Stratification

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Cardiac troponins I and T (cTnI anti cTnT) have been established as definite markers for cell injury allowing risk stratification in patients with acute coronary syndromes (ACS). Elevations of cTnI and cTnT in patients with unstable angina (UA) are associated with increased risk for severe cardiac events. These markers are also of great interest for identifying groups of patients for whom the selected treatments will be the most beneficial. In the recent years, the acute-phase reactant C-reactive protein (CRP) has been found to be elevated across the clinical spectrum of atherosclerotic coronary artery diseases. Furthermore, increased concentrations of CRP are predictive for higher risk for long-term cardiovascular morbidity and mortality in ACS patients. B-type natriuretic peptide (BNP), the active neurohormone and the remaining part of the prohormone, NT-proBNP can be measured by immunoassay. The BNP related peptides are secreted into circulation from the ventricular muscle in response to myocyte stretch. BNP and proBNP have been proposed as markers for the severity of heart failure. Recently, it has been demonstrated that a single measurement of NT-proBNP improved the early risk stratification of ACS patients with or without ST segment elevation. In these patients, NT-proBNP levels seem independently associated with prognosis.

These three types of biomarkers assess different pathophysiological mechanisms in myocardial ischemia: elevation of cTnI or cTnT indicate myocyte necrosis, CRP is a marker of inflammation, and BNP or NT-proBNP are elevated in response to left ventricular overload. Recent data suggest that simultaneous assessment of these three markers would allow clinicians to stratify risk among ACS patients more effectively than cardiac troponins alone.