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## **THE HS-CTN LABORATORY VALUE RELEVANCE IN DIAGNOSING EARLY STAGES OF AMI**

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Acute coronary syndrome (ACS) is a major cause of death and disability worldwide. It includes unstable angina pectoris (AU), non-ST-segment elevation myocardial infarction (NSTEMI), and ST-segment elevation myocardial infarction (STEMI). Annually more than 10% of patients, brought to the emergency department, show ACS symptoms.

Due to the high risk of death and ischemic complications, rapid and accurate detection of ACS is critical for life-saving therapy initiation. Many studies recommended determining cardiac biomarkers, especially cardiac troponins (cTn), in addition to ECG. The analytical sensitivity (SE) of cTn tests was progressively improved. The development of high-sensitivity troponin (hs-cTn) tests allows to measure cTn concentrations by about 10 to 100 times lower than conventional tests, and a faster diagnosis of AMI. The positive results, detected in various non-ischemic acute or chronic cardiac and extra-cardiac diseases (pericarditis, myocarditis, tachyarrhythmia, heart failure, pulmonary embolism, stroke and sepsis), have confirmed the utility of serial measurements at 0, 1 and 2 hours after presentation in order to observe the dynamics of hs-cTn.

According to the diagnostic criteria for an AMI, the hs-cTnT level > the 99th percentile (0.014 ng/mL) had a sensitivity, specificity, negative predictive value, and positive predictive value of 95%, 80%, 99%, and 50% respectively, while for standard troponin T assay values were 72%, 97%, 94% and 85%. Our data denotes that the diagnostic accuracy of hs-cTnT assay in AMI is significantly higher compared to the standard ones, being similar in patients with NSTEMI and STEMI.

The published results prove that hs-cTn assays have substantially improved the early diagnosis of myocardial infarction. The identification of hs-cTn facilitates the reliable "exclusion" of AMI in a much shorter period, reduces number of patients that requires ECG monitoring, and allows rapid triage of patients with suspected acute myocardial infarction.