Troponin I Assay to Replace Troponin T Assay

Effective December 18, 2007 the current troponin T assay will be replaced with a new troponin I assay. The change to the new troponin I (TnI) assay is associated with both laboratory and clinical issues, which are addressed below. We are also updating our reference range to reflect consensus guidelines on the interpretation of troponin results.

Laboratory Issues:
The consensus guidelines issued by the National Academy of Clinical Biochemistry, International Federation of Clinical Chemistry, American College of Cardiology, and American Heart Association recommend that the 99th percentile of any troponin assay be used as a decision limit. Any value above the 99th percentile cut-off should be considered abnormal and suggestive of myocardial injury. We therefore established the 99th percentile of TnI values in our population of normal, healthy individuals without a known history of heart disease. In concordance with other laboratories, we determined the 99th percentile to be 0.04 ng/mL. Any value > 0.04 ng/mL is therefore considered abnormal.

Clinical Issues:
Cardiac troponin is the established biomarker that should be used to diagnose an acute coronary syndrome (ACS). Troponin should be measured in all patients presenting with symptoms suggestive of ACS. The detection of elevated troponin 4 to 6 hours after the onset of chest pain, a peak at 12 to 16 hours, and a subsequent fall is typical for ACS. The new TnI assay is more sensitive than the troponin T assay. Consequently, minor elevations in troponin I levels will occur more frequently. Although any troponin concentration above the 99th percentile of the reference range is indicative of myocardial injury, it may be difficult to determine the cause and clinical significance of analytically significant yet clinically minor troponin elevations. A slightly elevated troponin I level may indicate early myocardial injury from ACS (that might have been missed by the previous assay), or it may indicate the presence of a non-ACS process. Conditions other than ACS that result in myocardial cell damage include demand ischemia (sepsis, tachyarrhythmias), direct myocardial damage (myocardial contusion, DC cardioversion, myocarditis, cardiac surgery), and myocardial strain (heart failure, pulmonary hypertension, pulmonary embolism).

When the initial TnI value is minimally elevated (0.05-0.06 ng/mL), it may be valuable to repeat the TnI assay to determine if the concentration is rising. A 3 hour interval is recommended although a 1 hour interval may be sufficient if the specimen is collected more than 6 hours after onset of symptoms. An increase of at least 20% is significant at the above concentrations.

Troponin I Assay
VPLS Test Code: TRI
Specimen Requirements: Heparin Plasma - Light Green PST Tube
Reference Range: < 0.05 mg/mL
Test Performed: 24/7 – may be ordered STAT
CPT Code: 84484

Detailed test information, including scientific references, is available on-line at: www.labVU.com or contact the VPLS Business Office at 1-800-551-5227, x3