Laboratory Testing Update

Change in Troponin T Cut Off Level

Effective December 21st, 2015, the troponin T cut off level and interpretation will change to be in compliance with the JACC Expert Consensus opinion. This change is important for optimal patient care and in order for St. Elizabeth to obtain Chest Pain Accreditation status.

Old cutoff level: < 0.03 ng/mL
New cutoff level: < 0.01 ng/mL

New interpretation statement: Values > or =0.01 ng/mL have been shown to have prognostic value.

Educational Information:

The upper limit for normal individuals is <0.01 ng/mL (undetectable by this method). The reference range will be listed as <=0.00. Any value greater than or equal to 0.01 ng/mL will flag as H (high).

For patients who present with acute coronary syndromes, troponin T values > or =0.01 ng/mL that are rising make the diagnosis of cardiac injury. Decreasing values are indicative of recent cardiac injury.

Troponin T values > or =0.01 ng/mL are a prognostic sign in patients with ischemic heart disease and most other situations. Clinical judgment is necessary to distinguish patients who have ischemic heart disease from those who do not. However, all patients with > or =0.01 ng/mL troponin T are at increased risk for cardiac events relative to patients with undetectable troponin T.

Patients with low level elevations of troponin T and diagnostic uncertainty for acute coronary syndrome should be evaluated by repeat measurements at 2 and 6 hours including the degree of change (delta) between these time points to determine whether this is an acute or more chronic elevation. However, all patients with > or =0.01 ng/mL troponin T are at increased risk for cardiac events relative to patients with undetectable troponin T.

As with all markers of cardiac injury, elevations of troponin T do not in and of themselves indicate the presence of an ischemic mechanism. Many other disease states are associated with elevations of troponin T via mechanisms different from those that cause injury in patients with acute coronary syndromes. These include trauma (e.g. contusion, ablation, or pacing), congestive heart failure, hypertension, hypotension (often with arrhythmias), pulmonary embolism, renal failure, and myocarditis.

Various cutoffs have been proposed to identify patients with acute coronary syndromes and those at risk for future cardiac events. The cutoff used in earlier clinical studies (receiver operator curve cutoff) was around 0.10 ng/mL troponin T. This cutoff misses many patients at risk for short- or long-term adverse outcomes. The cutoff currently used at St. Elizabeth, 0.03 ng/mL, was based on the analytical performance of existing methodology for troponin T, and was chosen to approximate the level that could be measured with <10% imprecision. More recent recommendations suggest that a level of troponin T that exceeds the 99th percentile of values found in a healthy population optimizes identification of patients at risk of cardiac events. Levels seen in the normal population are undetectable (<0.01 ng/mL) by the current troponin T assay (Roche Troponin T Electrochemiluminescent Immunoassay).

Please call Dr. Pemberton at (859) 301-2357, with any questions.

References: