

Current Utilization and Clinical Implications of High-Sensitivity Cardiac Troponins Measurements in Hospitalized Medical Patients

Gideon Stein^{1,2}, Danny Alon^{1,2}, Roman Kornfeld^{1,2}, Shmuel Fuchs^{1,2}

¹*Internal Medicine "B", Rabin Medical Center, Israel*

²*Sackler Medical School, Tel Aviv University, Israel*

Background:

High-sensitivity cardiac troponin (hs-Tn) is mostly used to identify patients with ischemic myocardial injury. Nevertheless, multiple non-ischemic medical conditions are associated with elevated hs-Tn levels and hence, may impose a clinical diagnostic and therapeutic challenge. In the current study we evaluated the levels and dynamics of hs-Tn and their association with cardiac and non-cardiac diagnosis in a large cohort of hospitalized medical patients.

Methods and results:

We evaluated demographics, discharge diagnosis, absolute and dynamics of hs-Tn levels in all patients hospitalized in 8 medical wards in Rabin Medical Center, Israel between January 1 and December 31, 2011. At least one hs-Tn measurement was obtained in 5,696 of 18,830 admissions. Hs-Tn level was above the 99th percentile in 61.6% of the measurements and dynamic change of >20% was noted in 40% of the patients with serial hs-Tn measurements. Acute diagnosis of chest pain/acute coronary syndrome (ACS) was made in only 29.7% of admissions. Five acute medical conditions were identified of being associated with elevated of hs-Tn: renal failure COPD, anemia, heart failure and pulmonary emboli. Of note, both age and creatinine levels correlated, regardless of acute diagnosis, with both absolute and dynamic change in hs-Tn levels. Multivariate analysis identified hs-Tn levels higher than the 99th percentile, but not dynamic change, as a strong predictor for a 30-day mortality (OR 4.56 [2.79, 7.45]).

Conclusions:

Hs-Tn levels above the 99th percentile as well as its significant rise/fall are common in hospitalized medical patients, mostly related to non-ischemic conditions and significantly affected by age and renal failure. Any elevation of hs-Tn, independent of the underlying cause, is associated with substantially higher mortality. Thus, utilization of hs-Tn should be tailored to address the high frequency of its elevation and its importance as a prognostic marker of short-term mortality among hospitalized medical patients.