Correspondence

Letter by Lippi and Cervellin Regarding Article, “High-Sensitivity Troponin T Concentrations in Acute Chest Pain Patients Evaluated With Cardiac Computed Tomography”

To the Editor:

The crucial question that underlies the use of the novel high-sensitivity troponin assays is more philosophical than practical: What is this test used for? For ruling out or for making a diagnosis of acute myocardial infarction and acute coronary syndrome?

According to the expert consensus document of the Joint ESC/ACCF/AHA/WHF Task Force, myocardial infarction is diagnosed when blood levels of either troponin I or T are increased in the clinical setting of acute myocardial ischemia, in which an increased value is defined as a measurement exceeding the 99th percentile of a normal reference population. According to the specific kinetics of these markers, the measurement of cardiac troponins is therefore mostly useful for diagnosing rather than for ruling out an acute coronary syndrome. The results reported in the article by Januzzi et al should be discussed accordingly: The negative predictive value of the new high-sensitivity troponin T assay was reported as excellent (96%), but the positive predictive value was very modest (38%). Most would agree that physicians traditionally use laboratory testing for diagnosing rather than ruling out pathological findings. The positive predictive value indicates the probability of disease given a positive result in examination, and it is often considered the physician’s “gold standard” in that it reflects the probability that a positive test result identifies the underlying condition for which the test is being conducted. Given the modest positive predictive value, it is therefore conceivable that an elevation of high-sensitivity troponin T might identify not only patients with acute coronary syndrome and significant structural heart disease but also those with nonpathological increases, because troponin is released by the myocardium without apparent irreversible cardiac injury in a variety of other conditions besides ischemia and necrosis (eg, sepsis and moderate to strenuous physical exercise), which may lead to a rather different clinical or therapeutic management approach. Although the exceptional negative predictive value of the novel high-sensitivity troponin assays would make them useful for ruling out myocardial injury, their overall modest positive predictive value would imply a strong revision of the current protocols for diagnosing acute coronary syndrome and acute myocardial infarction, in which major attention should be focused on the history, the clinical presentation, and the potential comorbidities of the patients to avoid overdiagnosis of both acute coronary syndrome and acute myocardial infarction.

Disclosures

None.

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References

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