

EDITORIAL

UNDERSTANDING TROPONINS: HOW IMPORTANT IT IS

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Troponins (TnT & CTnI) as cardiac biomarkers found to be superior to creatinine Kinase – MB (CK – MB) as indicators of myocardial damage.¹ They have proven to be useful in diagnosis and risk satisfaction of patients presenting with acute chest pain in emergency room.² Troponins are released as a result of myocardial damage regardless of etiology. Other than ischemia there are myriad conditions that may cause elevation of troponin levels.

Normal findings mentioned in the literature are cardiac troponins T:<0.1ng/ml, cardiac troponin I:<0.03ng/ml & high sensitivity troponin T<14ng/l for women & <22ng/l for men.³

There is a difference in the rise and fall pattern with old generation and modern assays. With the older generation assays elevated troponin levels can be detected 6-12 hours after onset of myocardial injury peaking at 24 hours with a decline up to 2 weeks. With modern assays elevation is detected in 3-4 hours after onset of myocardial injury. Its recommended to recheck troponins at 6-12 hours and up to 24 hours after symptoms onset² & Non-ST segment myocardial infarction can be detected earlier i.e. at 3-4 hours after symptoms onset.⁴

The important point clinician should be aware is to know abnormal reference range for the assays used in practice, causes of troponin elevation other than myocardial infarction.⁵⁻⁹

Next important step is collection of blood sample for troponins. It is collected as whole blood through venipuncture. No fasting and no special preparation are needed and can be collected at any time of the day. Troponin T requires heparinized test tubes while EDTA or heparinized tubes for troponin.^{10,11} The turnaround time for troponin measurement in setting of chest pain should be 60 minutes and all laboratories to achieve this time.¹²

In patients with borderline elevation of troponins need for seminal testing is important. The initial recommendations were to check the markers every 6 hours until expected peak was reached. Now more sensitive assays are available and very low concentration of elevated cardiac markers can be detected and evidence has demonstrated that checking

troponins 3-4 hours after initial draw can help in early diagnosis.¹³ Last but not the least analytical factors that may lead to falsely elevated troponins results include incompletely clotted specimen,¹⁴ Heterophile antibodies¹⁵ Rheumatoid factor¹⁶ elevated bilirubin levels¹⁷ immune complex formation¹⁸ markedly elevated alkaline Phosphates levels¹⁹ and analyzer malfunction.²⁰

In conclusion, levels of troponins should be interpreted in relation to history and ancillary tests. False-positive results should be kept in mind in decision making, if elevated, troponins will provide a visa to take these patients to catheterization laboratory unnecessary.

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