Interpreting Changes in Troponin—Clinical Judgment Is Essential

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CASE 1

A 51-year-old woman with a history of mild hypertension and mild hyperlipidemia presented with a 2-h episode of substernal chest discomfort for the first time. She was receiving a statin but refused treatment for hypertension. She was an avid runner and had never had chest discomfort previously. The discomfort occurred at rest and radiated to her arms and her neck. Her electrocardiogram revealed minor ST-segment and T-wave changes in the inferior and lateral leads. Her initial cardiac troponin T (cTnT) concentration was 0.04 μg/L (99th-percentile upper reference limit, 0.01 μg/L) but increased to 0.32 μg/L and then to 0.76 μg/L. An emergent coronary angiogram was interpreted as normal with the exception of slow flow in the circumflex coronary artery. An echocardiogram was normal.

CASE 2

A 62-year-old woman was referred for evaluation of atypical chest pain and an equivocal stress test result. She had a history of hypertension and smoking for >25 years. Her chest discomfort was mild and radiated to the right shoulder. It occurred at rest and during exercise but had not changed in intensity or duration for >2 months. Her ECG was normal, and the cTnT concentration measured with the fourth-generation assay on the day of a computed tomography evaluation was <0.01 μg/L (99th-percentile upper reference limit, <0.01 μg/L). A cTnT concentration measured with a high-sensitivity cTnT assay of the same sample was mildly increased (15 ng/L; 99th-percentile value for women, 10 ng/L).

Questions to Consider
• How should acute myocardial infarction (AMI) be diagnosed according to the "universal MI" definition?
• Define the 2 subtypes of "spontaneous" MI.
• What additional testing might be performed for each patient?
• What change in cardiac troponin should be considered clinically important?

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Final Publication and Comments

The final published version with discussion and comments from the experts will appear in the January 2012 issue of *Clinical Chemistry*. To view the case and comments online, go to http://www.clinchem.org/content/vol58/issue1 and follow the link to the Clinical Case Study and Commentaries.

Educational Centers

If you are associated with an educational center and would like to receive the cases and questions 1 month in advance of publication, please email clinchem@aacc.org.

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