

# High sensitivity troponin assays and the importance of risk stratification: A case of non-cardiac troponin elevation

Yasmeen Mustafa, Aisha Sultana Shaik, Utsav Aiya, Martin J O’Riordan  
Division of Internal Medicine & Cardiology, Mercy Fitzgerald Hospital, Darby, PA

## Introduction

Cardiac troponins (cTn) are typically used in the diagnosis and prognosis of acute coronary syndrome (ACS) but are elevated in several other clinical conditions. Workup associated with differentiating cardiac versus non-cardiac causes of elevated cTn can be burdensome for patients if not evaluated carefully. Here we describe a case of a non-cardiac troponin elevation.

## Case

A 71-year-old female with a history of hypertension, hyperlipidemia, and diabetes was brought to the emergency department following a fall. She reportedly fell asleep while watching television, slid from her couch to the floor, and remained down for several hours before being discovered by her family. On evaluation she denied any head trauma but reported injury to her left arm. Initial labs revealed a maximum high sensitivity cTn elevation of 7,000 ng/L and CPK of 21,509 U/L.

## References

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## Case (continued)

An EKG showed prolonged QT interval with normal sinus rhythm. Two-dimensional echocardiogram revealed an ejection fraction of 60-65% with no wall motion abnormalities. CTA coronary revealed moderate coronary artery disease, with the most advanced disease in the left anterior descending artery, resulting in midportion stenosis ranging from 50 to 69%. Cardiac MRI revealed normal-appearing heart morphology and function. Cardiology was consulted and advised no further workup, attributing her elevated cTn to the fall and prolonged stasis. She was managed conservatively, cTn and CPK levels trended down to 308 ng/l and 560 U/L, respectively, and she was discharged home.

## Conclusion

High-sensitive cTn assays enable earlier and accurate diagnosis of ACS at the cost of clinical specificity. This case highlights the importance of correctly interpreting cTn findings and the importance of including non-cardiac etiologies, such as skeletal injury, in the differential. This can mitigate undue stress, cost and morbidity associated with an extensive diagnostic workup.

## Discussion

This case describes an elderly woman with a history of fall and significant increase in cTn. Despite low suspicion for STEMI or NSTEMI on initial evaluation, the marked rise in cTn resulted in a more detailed workup. While the introduction of highly sensitive cTn assays has enabled earlier and more accurate diagnosis of ACS, the tradeoff has resulted in decreased specificity as seen in the case described here. Skeletal myopathies have been suggested as a non-cardiac cause of troponin elevation and should be included in the differential; other etiologies such as physical strain, stress, sepsis, renal failure, pulmonary embolism, and congestive heart failure should also be considered in the appropriate clinical setting.

## Learning Objectives

- 1 High-sensitive cTn assays can enable earlier diagnosis of ACS at the cost of clinical specificity.
- 2 Non-cardiac causes of troponin elevation should be considered in the appropriate clinical setting.
- 3 Recognizing non-cardiac etiologies of troponin elevation can mitigate stress, cost, and morbidity associated with an extensive workup.