



# Increased level of high-sensitivity cardiac troponin T in a geriatric population is determined by comorbidities compared to age

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The introduction of high-sensitivity cardiac troponin (hs-cTn) and its analytical superiority translated within the last years into a clinical superiority in the early diagnosis of acute myocardial infarction (AMI) [1–3]. This superiority allows, the rapid identification of AMI especially among groups of patients with atypical signs and symptoms as elderly. In patients presenting with suspected AMI, beyond the presence or absence of MI, four clinical variables seem to impact on hs-cTn concentrations: age, sex, renal dysfunction, and time from chest pain onset [4–10]. Current guidelines still recommend the use of one uniform cutoff level for all patients [1]. However, the diagnostic accuracy of hs-cTn in the elderly is uncertain, as elevated levels of hs-cTn were found in up to 50% of patients at the emergency department (ED) with diagnosis other than AMI, making the appropriate interpretation of hs-cTn among these patients even more challenging [7].

Reasons for higher hs-cTn levels among elderly include acute and chronic disorders also associated with low-level myocardial necrosis, since rhythm disorders, heart failure, and impaired renal function are very common among these patients [7].

In this issue of the *Journal*, the important observations reported by Mahdi Sedeghi and colleagues [11] are yet another important piece in the puzzle of hs-cTn among elderly. Among this large cohort ( $n = 6977$ ) of patients over 65 years old presenting to the ED with suspected AMI and having different diagnoses other than acute coronary syndromes (ACS), hs-cTn levels and clinical data were collected. Their analyses found that the likelihood of increased hs-cTnT levels was related to

the presence of pre-existing comorbidities, independently of age. Overall, these novel insights suggest that among elderly increased hs-cTnT levels without AMI should encourage us to search for the etiology.

Until the moment most studies where elderly presented without AMI and elevated hs-cTn levels, the advanced age has been considered the main reason, although most of patients presented with comorbidities [7,8,12,13]. On the other hand, similarly to the current one only few studies have suggested the fact that independently of age, co-morbidities are the reason for the hs-cTn elevations [14].

Obviously, additional analyses from high-quality diagnostic and prognostic studies are necessary to better quantify this hypothesis in the community and acute hospitalized populations.

It is of paramount importance to highlight that, although elderly without AMI present frequently with higher hs-cTn levels, also among them hs-cTn have shown an excellence diagnostic accuracy for AMI [7] and it's the proper interpretation of hs-cTn levels and their dynamic which plays an essential role.

Besides, there is overwhelming consensus that independently of age, sex, renal function and chest pain onset, patients with elevated hs-cTn have a worse prognosis. Many hypotheses have been raised to explain this prognostic accuracy, including the fact that the acute rise of cardiac troponin might be rather a marker of CAD severity, but not a predictor of occurrence of future coronary instability, which potentially could explaining the association of troponin rise with co-morbidities [15].

As studies continue to investigate the relationship of age and hs-cTn concentrations, it will be interesting to gauge which prognostic implications should have the detection of elevated hs-cTn in elderly patients presenting to the ED with other diagnoses other than an AMI.

## Disclosures

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