How to Approach Elevated NT-pro BNP Level on Admission to Prevent Left Ventricular Aneurysm Following Acute ST-Segment Elevation Myocardial Infarction

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I have read with great interest the article written by Celebi and colleagues,[1] demonstrating that elevated plasma N-terminal pro-B-type natriuretic peptide (NT-pro BNP) level on admission is a significant predictive biomarker of development of left ventricular aneurysm following acute ST-segment elevation myocardial infarction (STEMI) in the current era.

Keywords

Heart Failure/physiopathology; Natriuretic Peptide, B-Type; ST Elevation Myocardial Infarction; Coronary Aneurysm/complications; Stroke Volume; Indicators of Morbidity and Mortality.

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Their findings are straightforward and would lead us the next concerns. The first concern is reversibility of NT-pro BNP and its impact on post-STEMI outcomes. Is the reduction of NT-pro BNP following STEMI associated with a lower rate of left ventricular aneurysm formation?

Another concern is the methodology to improve NT-pro BNP. The uses of several medications including P2Y12 inhibitors were associated with the avoidance of left ventricular aneurysm. However, given the retrospective nature of their study, they cannot exclude the confusion between the use of medications and the severity of STEMI. Prospective studies are warranted to investigate the implication of aggressive interventions using mechanical cardiac unloading (for example, Impella) or medical cardiac unloading (for example, aggressive dose-titration of beta-blocker) on the prevention of left aneurysm formation post-STEMI.

Reference

1. Celebi S, Celebi OO, Cetin S, Cetin HO, Tek M, Gokaslan S, et al. The usefulness of admission Plasma NT-pro BNP Level to Predict Left Ventricular Aneurysm Formation after Acute ST-Segment Elevation Myocardial Infarction. Arq Bras Cardiol. 2019;113(6):1129-37.

Reply

Dear Editor,

We would like to thank the authors for their interest in our study.

The authors raised important future aspects about the findings of our study.[1] Regarding our study results, there is a relationship between N-terminal pro-B-type natriuretic peptide (NT-pro BNP) level and LV (left ventricular) aneurysm formation. However, further studies are needed to address the details of this relationship.

Our study did not include serial measurement of NT-pro BNP.[1] Therefore, we do not have any relevant answer for the reversibility of NT-pro BNP. However, this may be an interesting approach during myocardial infarction regarding LV aneurysm formation.

Medical or mechanical interventions on the prevention of LV aneurysm are another debate. In the IABP Shock trial, the authors did not determine a significant difference between the groups treated with IABP and without IABP concerning NT-pro BNP levels.[2] In contrast, they determined a significant improvement of B-type natriuretic peptide (BNP) levels using IABP. We agree that further prospective trials are needed to determine the association between the methods of reducing NT-pro BNP or BNP and LV aneurysm formation.

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Letter to the Editor

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