

POSTER PRESENTATION

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Biomarkers of hemodynamic stress and aortic stiffness post-STEMI: a cross-sectional analysis

Sebastian J Reinstadler^{1*}, Hans-Josef Feistritzer¹, Gert Klug¹, Luc Huybrechts¹, Angelika Hammerer-Lercher², Johannes M Mair¹, Wolfgang-Michael Franz¹, Bernhard Metzler¹

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Background

We aimed to evaluate the association between biomarkers of hemodynamic stress and aortic stiffness assessed at a chronic stage after ST-segment elevation myocardial infarction (STEMI).

Methods

Fifty-four patients four months after acute STEMI were enrolled in this cross-sectional, single-center study. N-terminal pro B-type natriuretic peptide (NT-proBNP), mid-regional pro-A-type natriuretic peptide (MR-proANP) and mid-regional pro-adrenomedullin (MR-proADM) levels were measured by established assays. Aortic stiffness was assessed by the measurement of pulse wave velocity using velocity-encoding, phase-contrast cardiovascular magnetic resonance imaging.

Results

NT-proBNP, MR-proANP and MR-proADM concentrations were all correlated with aortic stiffness in univariate analysis ($r = 0.378$, $r = 0.425$, $r = 0.532$, all $p < 0.005$, respectively). In multiple linear regression analysis, NT-proBNP ($\beta = 0.316$, $p = 0.005$) and MR-proADM ($\beta = 0.284$, $p < 0.020$) levels were associated with increased aortic stiffness independently of age, blood pressure and renal function. In receiver operating characteristic analysis, NT-proBNP was the strongest predictor for high aortic stiffness (area under the curve: 0.82, 95% CI 0.67 - 0.96).

Conclusions

At a chronic stage after STEMI, concentrations of biomarkers for hemodynamic stress, especially NT-proBNP, are positively correlated with aortic stiffness. These biomarkers

might also be useful as predictors of high aortic stiffness post-STEMI.

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Authors' details

¹University Clinic of Internal Medicine III, Cardiology and Angiology, Medical University Innsbruck, Innsbruck, Austria. ²Central Institute for Medical Laboratory Diagnostics, Medical University of Innsbruck, Innsbruck, Austria.

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¹University Clinic of Internal Medicine III, Cardiology and Angiology, Medical University Innsbruck, Innsbruck, Austria
Full list of author information is available at the end of the article