

Who has the leading role in acute myocardial infarction: troponin I or brain natriuretic peptide?

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Background: For the assessment of the left ventricular function and infarct size in acute myocardial infarction, brain natriuretic peptide (BNP) and cardiac troponin I (cTnI) are useful for the prediction of a prognosis. The aim of the present study was to correlate left ventricular function and infarct size to the level of cTnI and BNP in acute myocardial infarction.

Patients and Methods: We studied 40 patients (pts), with the first ST-segment elevation myocardial infarction (STEMI). We measured the level of BNP and cTnI on a single occasion at 96 hours after the onset of symptoms, and then compared it with echocardiography estimated systolic and diastolic ventricular function and infarct size — which was determined with numbers of ECG leads and classification into small and large infarct size (small infarct size 3-4 leads, large infarct size 6-9 leads).

Results: Distribution of data was estimated by using the Shapiro-Wilk test. The data do not have normal distribution, so they are representative as a median and range. We used

non-parametric statistic tests (Mann-Whitney tests) to compare and improve differences among the groups. For statistical correlation, we used the Spearman rank correlation. Data were analyzed using statistical program Arcus Quick Stat. There was significant inverse correlation between the level of BNP and EF ($r = -0.504$, $P = 0.0016$) and between BNP i E/A ($r = -0.290$, $P = 0.00705$). There was a strong inverse correlation between BNP and LV-EF in STEMI, such as between BNP and E/A, against cTnI no significant correlation with LV-EF and E/A in STEMI was found. There is no significant statistical difference between BNP and cTnI in small and large infarct size.

Conclusion: A single BNP value at 96 hours after the onset symptoms of myocardial infarction proved useful for the estimation of LV systolic and diastolic function. In a direct comparison BNP disclosed a better performance for the estimation of LV-EF and E/A against cTnI. cTnI is useful for diagnosing early myocardial damage in acute myocardial infarction, suggesting an implementation of dual marker strategy in acute myocardial infarction for diagnostic and prognostic work-up.

KEYWORDS: brain natriuretic peptide, cardiac troponin I, left ventricular systolic function, left ventricular diastolic function, ST-segment elevation myocardial infarction.

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