JOURNAL CLUB

Brain natriuretic peptide
Potential marker for the acute coronary syndrome

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Brain natriuretic peptide (BNP) is a cardiac hormone synthesized by the ventricles in response to ventricular stress, being involved in cardiac homeostasis and cardiac and vascular myocyte growth. It is now already recognized as a marker of acute and chronic left ventricular dysfunction and as a prognostic marker of left ventricular dysfunction following an acute myocardial infarction. ❑

There have also been published reports showing that BNP is expressed in ischemic human myocardium, with raising plasma levels in the setting of an acute coronary syndrome. However, it is not yet clear if BNP should be useful to *exclude* the suspicion of acute coronary syndrome presented in an emergency department. Since the determination of troponin is relevant only after several hours, identifying BNP as an earlier marker to exclude or to confirm the diagnosis should be very useful.

In a "Best evidence topic report" from May 2006, the authors made an extensive database research and found 8 relevant papers about BNP's predictive value in acute myocardial syndromes from Medline, Embase and Cochrane, well summarized in a table. A negative predictive value of 94.8% was found for the diagnosis of acute myocardial infarction (AMI), meaning that after a negative test the probability of an AMI would be 5.2%, an unacceptable high proportion of missed cases. In the same time, for every true positive diagnosis, the test would give three false positive results. When combined with CK-MB and troponin I, the sensitivity of BNP ameliorates, but the positive predictive value still remains low and 3% of all AMI will be missed using this strategy.

The authors' conclusion is that BNP could be useful as an early marker in acute coronary syndromes when included in a multimarker strategy of diagnosis. Yet, at this moment, either alone or combined with other markers, BNP value cannot be judged as a unique criterion for excluding AMI. On the other hand, there are evidences concerning the prognostic value of BNP, identifying the subgroups of patients at high risk of developing sub clinical or overt heart failure, having a particular benefit from ACE inhibitors. This marker is therefore helpful in early risk stratification. ❑

Brain natriuretic peptide as a potential marker of acute coronary syndromes
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