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CIRCULATING CARDIAC-ASSOCIATED MICRORNAS AS NOVEL BIOMARKERS IN PATIENTS WITH ACUTE MYOCARDIAL INFARCTION

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Objectives Recent studies have shown that circulating microRNAs (miRNAs) might be useful novel biomarkers for the diagnosis of acute myocardial infarction (AMI). The aim of this study is to evaluate the expression of cardiac-specific miRNAs (miR-1, -133a, -208b, and -499) in AMI and compare their diagnostic values with that of cardiac troponin T (cTnT).

Methods Sixty-seven plasma samples obtained from patients with AMI and thirty-two plasma specimens collected from healthy volunteers were analysed in this study. The levels of cardiac-specific miRNAs (miR-1, -133a, -208b, and -499) were measured by quantitative reverse transcription-PCR (qRT-PCR), and the concentrations of plasma cTnT were measured using electrochemiluminescence-based methods on the Elecsys 2010 Immunoassay Analyzer.

Results The levels of plasma miR-1, -133a, -208b, and -499 were significantly increased in AMI patients ($p < 0.001$) compared with healthy volunteers. The expression of the cardiac-specific miRNAs in AMI patients decreased to close to the baseline at the time of hospital discharge ($p > 0.05$). There was no correlation between the levels of the four circulating miRNAs and the clinical characteristics of the study population ($p > 0.05$). Furthermore, receiver operating characteristic (ROC) curve analyses showed that the four plasma miRNAs were not superior to cTnT for the diagnosis of AMI.

Conclusions Our results demonstrated that the circulating miRNAs miR-1, -133a, -208b, and -499 may be useful biomarkers for AMI but are not superior to cTnT for the diagnosis of AMI.