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### Original Article

#### Non Invasive Assessment of Myocardial Perfusion After First Myocardial Infarction with Transthoracic Echocardiography

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#### Abstract:

**Background:** Standard methods for the measurement of myocardial perfusion are invasive and require cardiac catheterization or the use of radioisotope dyes. The coronary sinus blood flow (CSBF) is an appropriate criterion for the efficacy of myocardial perfusion. This study sought to measure CSBF via transthoracic echocardiography (TTE) in patients with acute myocardial infarction (AMI) and to assess its relation with left ventricular ejection fraction (LVEF), wall motion scoring index (WMSI), and in-hospital mortality.

**Methods:** This case-control study evaluated 20 patients (pts) with anterior AMI and 20 healthy individuals as controls over a 6-month period (in 2005) in Madani Heart Center in Tabriz (Iran). All the patients received the same drugs for AMI treatment (e.g. fibrinolytic). CSBF and WMSI, having been obtained via TTE, were compared between the two groups.

**Results:** Baseline variables were similar between the two groups ( $P>0.05$ ). CSBF in the AMI group was  $287.8\pm 128$  ml/min and in the control group was  $415\pm 127$  ml/min ( $P=0.001$ ). There was a significant correlation between CSBF and LVEF ( $r=0.52$ ,  $P=0.01$ ), between CSBF and WMSI ( $r=-0.77$ ,  $P=0.0001$ ), and between CSBF and in-hospital mortality ( $r=0.58$ ,  $P=0.03$ ).

**Conclusion:** Our study demonstrated a good correlation between CSBF measured with 2D-doppler TTE and LVEF, WMSI, and in-hospital mortality.

#### Keywords:

Acute myocardial infarction , Myocardial perfusion , Coronary sinus blood flow , Transthoracic echocardiography , Wall motion scoring index

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