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### Original Article

Could Mean Platelet Volume Predicts Impaired Reperfusion and In-Hospital Major Adverse Cardiovascular Event in Patients with Primary Percutaneous Coronary Intervention after ST-Elevation Myocardial Infarction?

Hossein Vakili, MD<sup>\*</sup>, Roozbeh Kowsari, MD, Mohammad Hasan Namazi, MD, Mohammad Reza Motamedi, MD, Morteza Safi, MD, Habibollah Saadat, MD, Roxana Sadeghi, MD, Sanaz Tavakoli, MD

Cardiovascular Research Center, Shahid Beheshti University of Medical Sciences, Tehran, Iran.

#### Corresponding Author:

**Hossein Vakili**, Associate Professor of Cardiology, Shaheed Beheshti University of Medical Sciences, Modarres Hospital, Tehran, Iran.  
Tel: +98 21 22083106. Fax: +98 21 22083106. E-mail: Hosavak@yahoo.com.

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#### Abstract:

**Background:** Due to the positive relation between platelet size and platelet reactivity, a high value of the mean platelet volume (MPV) is an independent risk factor to predict acute myocardial infarction (AMI) and its adverse outcome. Few data are available to determinate the prognostic value of MPV in ST-elevation myocardial infarction (STEMI) patients treated with percutaneous coronary intervention (PCI).

The primary purpose of this study was to evaluate the clinical value of MPV to predict impaired reperfusion and in-hospital major adverse cardiovascular events (MACE) in acute STEMI treated with primary PCI.

**Methods:** This study included 203 STEMI patients referring for blood sampling before primary PCI to estimate MPV and determine the thrombolysis in myocardial infarction (TIMI) flow grade, corrected TIMI frame count (CTFC), and in-hospital MACE.


**Results:** The frequency of in-hospital MACE in the group of patients with a high MPV ( $\geq 10.3$  ng/dl) was significantly more than that of the group with a low MPV ( $< 10.3$  ng/dl) (37.8% vs. 4.4%,  $P < 0.001$ ). The no-reflow phenomenon was more frequent in the patients with a high MPV than that of the patients with a low MPV (17.8% vs. 1.9%,  $P < 0.001$ ). The mean MPV in the group of patients with  $CTFC \geq 40$  was significantly more than that of the group of patients with  $CTFC < 40$  ( $10.9 \pm 0.92$  vs.  $9.45 \pm 0.85$ ,  $P = 0.001$ ). After adjustment for baseline characteristics, a high MPV remained a strong independent factor to predict the no-reflow phenomenon (Odds Ratio [OR]=2.263, 95% Confidence Interval [CI]=1.47 to 5.97;  $P < 0.002$ ), in-hospital MACE (OR=2.49, 95% CI=1.34 to 4.61;  $P < 0.004$ ), and  $CTFC \geq 40$  (OR=2.09, 95% CI=1.22 to 3.39;  $P < 0.003$ ).

**Conclusion:** These findings confirmed that not only could admission MPV predict impaired reperfusion and in-hospital MACE in acute STEMI patients treated with PCI, but also it could be considered a practical way to determine higher-risk patients.

#### Keywords:

Myocardial infarction . Heart Catheterization . Reperfusion

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