

Dual antiplatelet treatment in patients with acute ST-elevation myocardial infarction — is it always sufficiently effective?

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Objectives: Dual antiplatelet treatment is the keystone of acute ST-elevation myocardial infarction (STEMI) drug treatment; but the efficacy of this therapy is not always sufficient. The aim of the study was to determine whether dual antiplatelet therapy administrated in standard dosage reaches sufficient efficacy or not and also to determine whether laboratory monitoring of antiplatelet therapy helps to improve the management of patients with acute STEMI.

Patients and Methods: A pilot prospective study in patients with acute STEMI treated with direct percutaneous coronary intervention (dPCI) of culprit coronary lesion. Light transmission aggregometry (LTA) with ADP and arachidonic acid was chosen to assess the efficacy of antiplatelet treatment. Samples were taken prior to coronarography (*sample1*) as well as on first day after diagnostic procedure (*sample2*). The Study group included 29 patients (16 men, 13 women). All patients had received aspirin loading dose (400 mg) and ADP inhibitor loading dose: 18 patients had received clopidogrel (600 mg) and 11 had received prasugrel (60 mg).

Results: In clopidogrel group, 13 patients did not reach effective drug activity in the first sample and 3 patients did not reach effective drug activity in the second sample. While in prasugrel group, ineffective antiplatelet treatment was seen only in 3 patients in the first sample. Patients treated with

prasugrel had significantly lower aggregation rate with ADP in the first, as well as in the second sample (*sample1*: $35 \pm 18.0\%$ vs. $54 \pm 13.1\%$; *sample2*: $21.0 \pm 10.3\%$ vs. $43.5 \pm 17.3\%$; $p < 0.01$).

Conclusion: Our results show that LTA seems to be a useful laboratory method for antiplatelet drugs efficacy assessment. However, antiplatelet activity of this treatment is not always sufficient. Monitoring of antiplatelet therapy may help to identify patients with inadequate response and improve the treatment of acute STEMI patients. Prasugrel seems to be more effective than clopidogrel in patients with acute STEMI and dPCI of culprit coronary lesion.

KEYWORDS: ST-elevation myocardial infarction, percutaneous coronary intervention, clopidogrel, prasugrel.

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