

Angiographic and electrocardiographic parameters of myocardial reperfusion in angioplasty of patients with ST elevation acute myocardial infarction loaded with ticagrelor or clopidogrel (MICAMI-TICLO trial)

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Abstract

Introduction Ticagrelor has been shown to improve outcomes in patients with ACS. However, the effects of this drug on parameters of microvascular flow in patients presenting with ST-segment elevation myocardial infarction (STEMI) have not been completely evaluated. **Methods** Ninety-two patients presenting with STEMI were randomized to a loading dose of clopidogrel (600 mg) or ticagrelor (180 mg) before undergoing primary angioplasty. We assessed angiographic and electrocardiographic parameters of myocardial reperfusion. Blinded operators calculated angiographic corrected TIMI Frame count (cTFC) and myocardial blush grade (MBG) before and after stent implantation. ST segment resolution was also measured in all patients. Primary endpoint was cTFC after PCI. Secondary endpoints were cTFC prior to PCI, TIMI flow grade, MBG and the percentage of ST resolution. **Results** Of the 92 randomized patients, 70 patients were analyzed. Mean age of patients was 58.8 ± 10 years. Patients presented with a mean ischemic time of 4.4 ± 2.6 hours. There were no significant differences in the time between loading dose and stent deployment (35.2 ± 36.4 in ticagrelor and 42.7 ± 29.5 min in clopidogrel, $p = 0.36$). cTFC before angioplasty was significantly lower in ticagrelor than in clopidogrel (81.1 ± 29.4 vs. 95.1 ± 17.5 frames respectively, $p = 0.01$). After angioplasty there were no differences between ticagrelor and clopidogrel in cTFC (24.6 ± 9.3 vs. 27.0 ± 13.4 frames respectively, $p = 0.62$); MBG grade 3 was present in 76.4 vs. 69.4% of patients, respectively ($p = 0.41$). The percentage of ST resolution did not show any differences between groups (84.8 ± 23.4 in ticagrelor vs. 70.8 ± 33.7 in clopidogrel, $p = 0.36$). **Conclusion** Compared with clopidogrel, ticagrelor loading in patients presenting with STEMI is not associated with an improvement of angiographic and electrocardiographic parameters of myocardial reperfusion after angioplasty.

Keywords Ticagrelor, Clopidogrel, Microvascularperfusion, STEMI