

Infarct size following loading with ticagrelor/prasugrel versus clopidogrel in ST-segment elevation myocardial infarction

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Background: Treatment with newer direct-acting anti-platelet drugs (Ticagrelor and Prasugrel) prior to primary percutaneous coronary intervention (PCI) is associated with improved clinical outcome in patients with ST-segment elevation myocardial infarction (STEMI) when compared with Clopidogrel.

Purpose: We retrospectively compared infarct size following non-randomized treatment with Ticagrelor/Prasugrel versus Clopidogrel in a population of STEMI patients treated with primary PCI.

Methods: Patients were loaded with Clopidogrel, Ticagrelor or Prasugrel in the ambulance before primary PCI. Infarct size and myocardial salvage index were calculated using cardiac magnetic resonance (CMR) during index admission and at three-month follow-up.

Results: 693 patients were included in this analysis. Clopidogrel was given to 351 patients and Ticagrelor/Prasugrel to 342 patients. The groups were generally comparable in terms of baseline and procedural characteristics. Median infarct size at three-month follow-up was 12.9% vs 10.0%, in patients treated with Clopidogrel and Ticagrelor/ Prasugrel respectively ($p < 0.001$), and myocardial salvage index was 66% vs 71% ($p < 0.001$). Results remained significant in a multiple regression model ($p < 0.001$).

Conclusion: Pre-hospital loading with Ticagrelor or Prasugrel compared to Clopidogrel, was associated with smaller infarct size and larger myocardial salvage index at three-month follow-up in patients with STEMI treated with primary PCI.

