14<sup>th</sup> International Conference on

## **Clinical & Experimental Cardiology**

November 14-16, 2016 Orlando, Florida, USA

## Time-related benefit of new oral P2Y<sub>12</sub>-inhibitors pre-treatment in patients addressed to primary PCI for acute ST elevation myocardial infarction

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**Objectives & Background:** The goal of STEMI treatment is early reperfusion. New oral  $P2Y_{12}$  inhibitors demonstrated to improve angiographic results of primary PCI (pPCI) and patients' clinical prognosis. Of note, oral  $P2Y_{12}$  inhibitors onset of action is significantly impaired in STEMI patients. Aim of our observational study was to establish if the benefit of  $P2Y_{12}$  inhibitors loading dose (LD) administration is time related.

**Methods:** A total of 201 consecutive patients with STEMI addressed to pPCI were enrolled and divided into 3 groups depending on the time interval from "P2Y<sub>12</sub> inhibitors LD administration to balloon": Group 2 included patients receiving P2Y<sub>12</sub> inhibitors LD at least 60 minutes before pPCI; group 1 within the 60 minutes before pPCI; and group 0 at the moment of pPCI. Angiographic, clinical and biochemical parameters were evaluated. Two-skilled interventional cardiologists evaluated the TFG of the IRA at first angiogram prior to pPCI and post pPCI in a double blinded fashion. ST resolution was as well evaluated as an indicator of successful reperfusion.

**Results:** Pre-pPCI TFG improved throughout the groups proportionally to the increasing "P2Y<sub>12</sub> inhibitors LD administration to balloon" time; we found the following rates of prePCI TFG 0/1: 84% in group 0; 51.8% in group 1 and 33.3% in group 2 (p<0.001). Moreover, post pPCI TFG was accordingly significantly different in the three groups (p<0.001): 81.9% in group 0; 88% in group 1; and 96.7% in group 2.

**Conclusions:** Our observational study demonstrates an angiographic time-related benefit of  $P2Y_{12}$  inhibitors administration: A longer time window between  $P2Y_{12}$  inhibitors administration and pPCI significantly improves coronary reperfusion in terms of both pre and post pPCI TIMI flow grade.

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