The Variability of the Anti-platelet Effect of Prasugrel in Patients with ST- Elevation Myocardial Infarction undergoing Primary Angioplasty

Romana Herscovici, Roy Beigel, Edward Koifman, Paul Fefer, Amit Segev, Victor Guetta, Hanoch Hod, Shlomi Matetzky
The Leviev Heart Center, Chaim Sheba Medical Center, Israel

Background:
Prior studies in patients with stable coronary artery disease suggested that prasugrel compared with clopidogrel, confers faster, more potent and more consistent platelets inhibition.
Only few data exists regarding the anti-platelets effect of prasugrel in patients with acute coronary syndrome (ACS) and even less so in patients with STEMI.
The purpose of this study was to exam the variability in patients response to prasugrel and its clinical significance among consecutive patients with STEMI undergoing primary angioplasty (PPCI).

Methods:
The study comprises 92 consecutive STEMI patients who underwent PPCI within 12 hours of symptoms onset. Platelet reactivity was determined 72 hours post prasugrel loading by conventional aggregometry. Patients were followed-up for an average of 7 months for the occurrence of a pre-specified MACE (re -ACS, urgent revascularization, stroke, severe heart failure and\or death).

Results:
When patients were stratified into 4 quartiles based on ADP induced platelets aggregation (PA) significant variability was noted across the 4 groups : 13±2%, 25±2%, 36±5% and 55±13 (p for trend < 0.01).
While 11 (48%) of the patients in the 4^{th}quartile (n=23) showed suboptimal response, all of the patients in the other 3 quartiles had optimal response (ADP- PA < 50%; p<0.001). Patients in the 4^{th}quartile (n=23) were more likely to be diabetics but otherwise there were no differences in baseline clinical and angiographic characteristics when compared to patients in the other 3 quartiles (n=69).
Through a mean follow-up of 7 months (4 -8) patients in the 4^{th}quartile were significantly more likely to sustain MACE as compared to those in the other 3 quartiles (35% vs. 10%, p =0.008)

Conclusion:
Patients with STEMI undergoing PPCI demonstrated significant individual variability to prasugrel, which might have impact on clinical outcome.