ACC.15
TCT@ACC-i2 | innovation in intervention

A13
JACC March 17, 2015
Volume 65, Issue 10S

Acute Coronary Syndromes

THERAPEUTIC WINDOW FOR P2Y12-RECEPTOR INHIBITION: A COLLABORATIVE ANALYSIS OF THE RELATION BETWEEN PLATELET REACTIVITY, STENT THROMBOSIS AND BLEEDING

Moderated Poster Contributions
Acute Coronary Syndromes Moderated Poster Theater, Poster Hall B1
Sunday, March 15, 2015, 10:00 a.m.-10:10 a.m.

Session Title: What's New in Platelet Activity?
Abstract Category: 2. Acute Coronary Syndromes: Clinical
Presentation Number: 1197M-05

Authors: *Daniel Aradi, Laurent Bonello, Ajay Kirtane, Adnan Kastrati, Gregg Stone, Dirk Sibbing, Heart Center Balatonfüred, Balatonfüred, Hungary*

Background: Although residual platelet reactivity during treatment with $P2Y_{12}$-inhibitors is associated with stent thrombosis (ST) and bleeding, clinically validated, standardized cut-offs for platelet function testing are lacking. We sought to determine the prognostic impact of low (LPR), optimal (OPR), or high platelet reactivity (HPR) by applying standardized cut-off criteria in patients undergoing PCI treated with clopidogrel or prasugrel.

Methods: Authors of studies published before January 2014, reporting the association between platelet reactivity, ST and major bleeding were contacted for a collaborative analysis using *a priori* defined, uniform cut-off values for standardized platelet function assays. Based on the best available evidence (exploratory studies), LPR-OPR-HPR categories were defined as <95, 95-208 and >208 PRU for VerifyNow, <19, 19-46, and >46U for the Multiplate analyzer and <16, 16-50 and >50% for VASP assay.

Results: Fifteen studies including 18,169 patients were used for the analysis. Patients with HPR had a 2.6-fold higher risk of ST ($p<0.00001$) but a similar risk for bleeding ($p=0.053$) compared to those with OPR. In contrast, patients with LPR had a 1.8-fold higher risk for bleeding ($p<0.0001$), but identical risk for ST ($p=0.81$) as those with OPR. Mortality was 1.6-fold higher in patients with HPR compared to others ($p<0.001$). Validation cohorts confirmed the clinical relevance of cut-off values suggested by exploratory studies.

Conclusion: During thienopyridine treatment, mortality and ST is significantly higher in HPR, while LPR is a predictor of bleeding. Potential benefits of targeting OPR as a therapeutic window for $P2Y_{12}$-inhibition need to be confirmed in randomized trials.