SMOKING AND PHARMACODYNAMIC PROFILING OF ASPIRIN VERSUS CLOPIDOGREL MONOTHERAPY IN PATIENTS WITH ATHEROSCLEROTIC DISEASE

Poster Contributions
Hall C
Sunday, March 30, 2014, 9:45 a.m.-10:30 a.m.

Session Title: PCI Pharmacology
Abstract Category: 36. TCT@ACC-i2: ACS/AMI/Hemodynamics and Pharmacology
Presentation Number: 2105-289

Authors: Fabiana Rollini, Francesco Franchi, Jung Rae Cho, Christopher DeGroat, Mona Bhatti, Elisabetta Ferrante, Antonio Tello-Montoliu, Ronakkumar Patel, Andrew Darlington, Bhaloo Desai, Jose’ Luis Ferreiro, Ana Muniz-Lozano, Martin Zenni, Luis Guzman, Theodore Bass, Dominick Angiolillo, University of Florida College of Medicine-Jacksonville, Jacksonville, FL, USA

Background: In the CAPRIE trial, clopidogrel montotherapy was associated with a greater reduction in ischemic events compared with aspirin monotherapy in patients with atherosclerotic disease. The magnitude of such effects was higher among smokers compared with non-smokers. The effect of smoking on pharmacodynamic (PD) profiles of aspirin versus clopidogrel monotherapy has been poorly explored.

Methods: Sixty aspirin-treated (81mg/day) patients with atherosclerotic disease, classified as non, light and heavy smokers according to cotinine serum levels, were enrolled. Patients switched to clopidogrel (75mg/day) monotherapy for 7 days. PD assessments were performed before and after switch by Multiple Electrode Aggregometry with ASPI (arachidonic acid), ADP-PGE1 (adenosine diphosphate with prostaglandin E1), COLL (collagen) and TRAP (thrombin receptor-activating peptide).

Results: On treatment platelet reactivity following ADP-PGE1 and TRAP stimuli was significantly lower among heavy smokers following switch to clopidogrel (Figure). A significant inverse effect was observed with ASPI, while neutral findings were shown with COLL stimuli (Figure).

Conclusions: In heavy smokers with atherosclerotic disease, clopidogrel is associated with enhanced platelet inhibitory effects, affecting purinergic and non-purinergic pathways, compared with aspirin. These PD findings may contribute to the enhanced relative ischemic benefit (“smoker’s paradox”) of clopidogrel among smokers.