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IMPACT OF CIGARETTE SMOKING ON P2Y12 RECEPTOR BINDING ACTIVITY BEFORE AND AFTER CLOPIDOGREL THERAPY IN PATIENTS WITH CORONARY ARTERY DISEASE

Poster Contributions
Hall C
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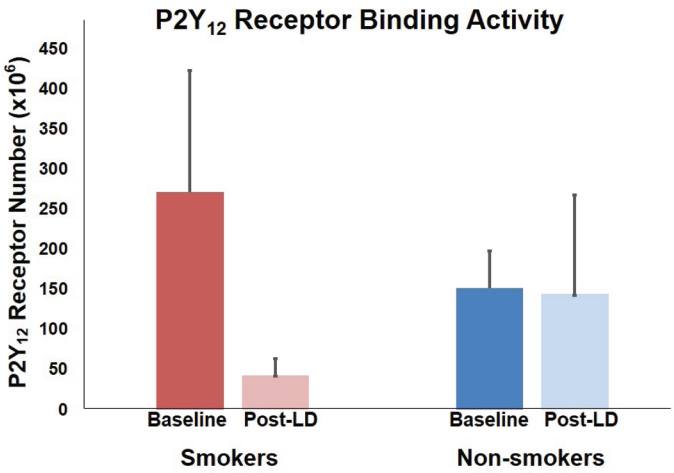
Background: Smoking enhances the antiplatelet effects of the P2Y12 receptor inhibitor clopidogrel. In addition to enhancing hepatic metabolism, nicotine exposure has been associated with increased P2Y12 receptor expression in platelet lysates from healthy volunteers. However, the impact of cigarette smoking on platelet P2Y12 receptor binding in patients with coronary artery disease (CAD) before and after clopidogrel exposure is unknown.

Methods: Clopidogrel-naïve patients with stable CAD on maintenance aspirin (81 mg/day) therapy were enrolled. Smoking status was defined as smokers of >10 cigarettes/day, while non-smokers needed to be free of nicotine exposure. P2Y12 receptor expression was assessed by radioligand receptor binding in platelet rich plasma prior and 24 hours after a 600 mg loading dose (LD) of clopidogrel.

Results: Baseline P2Y12 receptor binding was 1.8-fold higher in smokers (n=10) compared with non-smokers (n=10). After a 600 mg LD of clopidogrel, smokers showed a 6.4-fold reduction in receptor binding compared with baseline, indicative of marked clopidogrel-mediated receptor blockade. There were minimal changes in P2Y12 receptor binding among non-smokers.



Conclusions: Among patients with stable CAD, smokers have more P2Y12 receptor binding than non-smokers and have a higher degree of inhibition following a 600 mg LD of clopidogrel.