Stable Ischemic Heart Disease

IMPACT OF C34T P2Y12 ADP RECEPTOR POLYMORPHISM AND SMOKING STATUS ON CARDIOVASCULAR OUTCOME IN CORONARY ARTERY DISEASE PATIENTS RECEIVING CLOPIDOGREL

Poster Contributions
Hall C
Saturday, March 29, 2014, 3:45 p.m.-4:30 p.m.

Session Title: Stable Ischemic Heart Disease: Basic Science I
Abstract Category: 24. Stable Ischemic Heart Disease: Basic
Presentation Number: 1156-325

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Background: The clinical benefit of clopidogrel has been attributed to its inhibition of platelet activation and aggregation. We tested the combined impact of smoking status and C34T polymorphism of P2Y12 adenosine diphosphate (ADP) receptor on cardiovascular outcome in coronary artery disease (CAD) patients after percutaneous coronary intervention (PCI) receiving clopidogrel.

Methods: We consecutively enrolled 229 patients with CAD, receiving clopidogrel regimen (75mg/d), one month after PCI. C34T genotyping was performed by real-time polymerase chain reaction. Patients were followed for a mean time of 19 (range 3 to 40) months. The primary composite endpoint was death from cardiovascular causes, nonfatal myocardial infarction and hospitalization for unstable angina or stroke. Subjects smoking at least one cigarette per day were categorized as smokers and the rest as non smokers.

Results: The mean age of the participants was 62±10 years and 23% were active smokers. In the total study population, 124 patients (54%) were carriers of at least one C34T reduced-function allele and 105 patients (46%) were non carriers. The primary end point occurred in 21% of the non smokers and 40% of smokers and the hazard ratio (HR) for smokers compared to non smokers was (HR=2.4, 95%CI: 1.05 to 5.60, p=0.03). In order to investigate time dependency of smoking habits in the occurrence of primary endpoint we conducted stratified to C34T polymorphism Cox regression analysis after adjustment for age and sex. Interestingly in carriers of at least one C34T allele, smoking was significantly associated with the occurrence of primary end point (for smokers HR=, 95%CI: 1.05 to 6.11, p=0.04) while in subjects without a C34T polymorphism smoking was not associated with the occurrence of primary end point (HR=0.87, 95%CI: 0.21 to 3.65, p=0.86).

Conclusion: Smoking is associated with adverse cardiovascular outcome in CAD patients after PCI receiving clopidogrel, especially in carriers of at least one C34T reduced function allele. These findings highlight the possible interplay between polymorphisms affecting the P2Y12 ADP receptors activity and smoking in CAD patients under clopidogrel treatment.