THE IMPACT OF CYP2C19*2 POLYMORPHISM ON ENDOTHELIAL FUNCTION AND ARTERIAL STIFFNESS IN PATIENTS WITH CORONARY ARTERY DISEASE RECEIVING CLOPIDOGREL

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Background: The role of CYP2C19*2 polymorphism in clopidogrel response and cardiovascular prognosis has come under question in recent studies. Measurement of endothelial function and arterial stiffness are well validated in large population studies as strong predictors of adverse cardiovascular outcomes. We examined the impact of CYP2C19*2 polymorphism on endothelial function and arterial stiffness in coronary artery disease (CAD) patients.

Methods: The study included 245 patients with stable CAD, receiving clopidogrel regimen (75mg/d). CYP2C19*2 genotyping was performed by real-time polymerase chain reaction. CAD patients were divided in two groups. Group A consisted of patients homozygous for the wild type and group B consisted of patients carrying at least one CYP2C19*2 loss-of-function allele. Endothelial function was evaluated by flow-mediated dilatation (FMD). Carotid-femoral pulse wave velocity (PWV) was measured as an index of aortic stiffness.

Results: Group A included 153 patients (62.4%) and group B 92 patients (37.6%). There was no statistically significant difference between the two groups in age (62±10 vs. 60±12 years, p=0.12), male sex (90% vs. 91%, p=0.65) and the presence of dyslipidemia (74% vs. 70%, p=0.57), diabetes mellitus (27% vs. 27%, p=0.97) and arterial hypertension (80% vs. 81%, p=0.74). Importantly, there was no difference in FMD (4.82±2.17% vs. 4.92±2.47%, p=0.74) and PWV values (9.08±2.02m/sec vs. 8.89±2.49m/sec, p=0.55) between the two groups.

Conclusion: CYP2C19*2 polymorphism is not associated with endothelial function and arterial stiffness in CAD patients receiving clopidogrel. These findings are consistent with recent large trials, which document the absence of an effect of the CYP2C19*2 loss-of-function alleles on cardiovascular risk, among CAD patients treated with clopidogrel.