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i2 SUMMIT

THE IMPACT OF PRAVASTATIN PRETREATMENT ON PERIPROCEDURAL MICROCIRCULATORY DAMAGE IN PATIENTS UNDERGOING PERCUTANEOUS CORONARY INTERVENTION

i2 Poster Contributions
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Authors: *Masashi Fukunaga, Kenichi Fujii, Daizo Kawasaki, Hirokuni Akahori, Katsumi Oka, Motomaru Masutani, Takeshi Tsujino, Mitsumasa Ohyanagi, Tohru Masuyama, Hyogo College of Medicine, Nishinomiya, Japan*

Background: Pretreatment with statins decreased the incidence of cardiac enzyme increase after percutaneous coronary intervention (PCI). However, 2 different etiologies, distal embolization of atheroma or ischemia caused by side-branch occlusion, cannot be differentiated by measuring cardiac enzyme levels. This study evaluated the effect of pravastatin pretreatment on post-procedural index of microcirculatory resistance (IMR) values which is introduced for assessing the status of the microcirculation independently of the epicardial area.

Methods: Seventy-eight patients with stable angina without previous statin treatment were randomly assigned either to pravastatin treatment (20mg/day, n=39) or no treatment (n=39) 4 weeks before elective PCI. An intracoronary pressure/temperature sensor-tipped guide wire was used. Thermodilution curves were obtained during maximal hyperemia achieved by infusion of intravenous adenosine triphosphate. The IMR was calculated from the ratio of the mean distal coronary pressure at maximal hyperemia to the inverse of mean hyperemic transit time. Intravascular ultrasound (IVUS) was performed before and after PCI. CK-MB and troponin I values were measured at baseline and at 8 and 24 hours after PCI.

Results: Baseline patient and lesion characteristics were similar between two groups. After uneventful PCI, no significant differences existed in IVUS values and fractional flow reserve between two groups. Post-PCI troponin I values tended to have lower in patients with pravastatin treatment (0.35±0.63 versus 0.63±0.78ng/ml, p=0.1). However, patients with pravastatin treatment had significantly lower IMR compared to patients without pravastatin treatment (14.9±9.2 versus 28.1±25.7, p<0.001). There was a mild correlation between post-PCI troponin I and IMR (r=0.10, p=0.006). Multivariate analysis found that pravastatin pretreatment was the only independent predictors of post-PCI IMR (p=0.01).

Conclusions: Pretreatment with pravastatin is associated with reduced microvascular dysfunction induced by PCI. These data suggests that pravastatin pretreatment is preferred in patients undergoing elective PCI for stable angina pectoris.