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## MYOCARDIAL ISCHEMIA AND INFARCTION

**PREPROCEDURAL PLASMA NEOPTERIN LEVELS AND CARDIOVASCULAR EVENTS AFTER PRIMARY CORONARY STENT IMPLANTATION IN PATIENTS WITH STABLE ANGINA PECTORIS**

ACC Poster Contributions

Ernest N. Morial Convention Center, Hall F

Tuesday, April 05, 2011, 9:30 a.m.-10:45 a.m.

Session Title: Stable Ischemic Syndrome: Biomarkers

Abstract Category: 5. Stable Ischemic Syndrome

Session-Poster Board Number: 1141-352

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**Background:** Neopterin is an activation marker for monocytes/macrophages. We have reported that neopterin is associated with atherosclerotic plaque instability in coronary and carotid arteries (Heart 2007, Atherosclerosis 2010, J Atheroscler Thromb 2010). We prospectively investigated the predictive value of plasma neopterin levels on 2-year cardiovascular events in patients with stable angina pectoris (SAP) undergoing coronary stent implantation.

**Methods:** We studied consecutive 123 patients with SAP who underwent successful primary coronary stent implantation (44 patients with bare metal stent implantation: BMS group and 79 with drug-eluting stent implantation: DES group). In all patients, plasma neopterin levels were measured on admission using HPLC. Cardiovascular events were defined as cardiac death, acute coronary syndrome, target vessel revascularization (TVR) or non-TVR at 2-year follow-up. In addition, one frozen coronary artery specimen after DES was obtained at autopsy and 2 frozen specimens after BMS by endarterectomy, followed by immunohistochemical staining for neopterin.

**Results:** Twenty six patients had cardiovascular events. Preprocedural plasma neopterin levels were significantly higher in patients with cardiovascular events than in those without them in all patients (19.4 [16.4-25.4] nmol/L vs. 12.9 [10.8-18.3] nmol/L, P=0.0006) and in BMS group (19.2 [16.8-25.4] nmol/L vs. 12.4 [9.5-17.3] nmol/L, P=0.0005), but not in DES group (19.6 [10.8-25.0] nmol/L vs. 13.4 [11.0-18.2] nmol/L, P=0.53). Multiple logistic regression analysis showed that the elevated neopterin levels (the highest tertile of neopterin levels) were an independent predictor of cardiovascular events (OR 5.20, 95%CI 1.94 to 13.98; P=0.001). Immunohistochemical staining showed abundant neopterin-positive macrophages in the neointima after BMS, but only sparse neopterin positivity after DES.

**Conclusions:** These findings suggest that neopterin is closely associated with restenosis after bare metal stent implantation and plaque instability in patients with SAP.