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## **ROSUVASTATIN REGRESSES CORONARY ATHEROSCLEROSIS BY QUANTITATIVE CORONARY ANGIOGRAPHY**

**CHICAGO, IL** – Results of a study known as ASTEROID, designed to determine the effects of treatment with rosuvastatin on progression of coronary atherosclerosis in patients who had a clinically indicated cardiac catheterization that showed angiographic evidence of coronary artery disease (CAD), were presented today at the American College of Cardiology's 57<sup>th</sup> Annual Scientific Session.

The ASTEROID trial showed that rosuvastatin treatment for 24 months to average LDL-C levels well below 70 mg/dL, accompanied by significant increases in high-density lipoprotein cholesterol (HDL-C), produced regression by decreasing percent diameter stenosis and improving minimum lumen diameter (MLD) as measured by QCA in coronary disease patients.

Previous studies using quantitative coronary angiography (QCA) demonstrated that statin therapy slows progression of coronary stenoses in proportion to average low-density lipoprotein cholesterol (LDL-C) levels during therapy. However, no statin monotherapy study has achieved either halting of progression or regression of angiographic disease.

A Study to Evaluate the Effect of Rosuvastatin on Intravascular Ultrasound-Derived Coronary Atheroma Burden (ASTEROID) assessed whether rosuvastatin could regress coronary atherosclerosis by intravascular ultrasound (IVUS, the primary endpoint) and QCA (a secondary endpoint). As previously reported, IVUS showed atheroma volume regression of a single coronary artery with <50% angiographic luminal narrowing.

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ASTEROID was a prospective, multicenter, international open-label trial that enrolled men and women 18 years or older with a clinical indication for coronary catheterization and angiographic evidence of CAD who met specific angiographic and IVUS criteria. Patients who used lipid-lowering medication for more than three months within the previous 12 months were excluded from the study. Patients who received lipid-lowering therapy in the four weeks before enrollment had a four-week wash out period to obtain accurate baseline lipid values. While patients with uncontrolled triglyceride levels ( $\geq 500$  mg/dL [5.7 mmol/L]) or poorly controlled diabetes (glycosylated hemoglobin levels  $\geq 10\%$ ) were not included, patients with any baseline level of low-density lipoprotein cholesterol (LDL-C) were permitted to take part in the trial. Inclusion required demonstration of at least one obstruction with more than 20 percent angiographic luminal diameter narrowing in any coronary vessel. The left main coronary artery had to have  $\leq 50\%$  reduction in lumen diameter by visual estimation, and the target vessel for IVUS interrogation could not have undergone angioplasty or bypass surgery nor have  $>50\%$  luminal narrowing throughout a target segment with a minimum length of 40 mm.

ASTEROID treated 507 coronary disease patients with rosuvastatin 40 mg/day for 24 months. Of these patients, 379 had evaluable angiograms at baseline and at study end. Blinded QCA analysis of percent diameter stenosis (%DS) and minimum lumen diameter (MLD) was performed for up to 10 segments of the coronary arteries and their major branches with  $>25\%$  diameter stenosis at baseline. For each patient, the means of all matched lesions at baseline and study end were calculated. There were 292 patients with 613 matched stenoses.

Rosuvastatin reduced LDL-C by 53.3% to  $61.1 \pm 20.3$  mg/dL; high-density lipoprotein cholesterol (HDL-C) increased by 13.8% to  $48.3 \pm 12.4$  mg/dL. Mean  $\pm$  SD percent diameter stenosis decreased from  $37.3 \pm 8.4\%$  (median [minimum-maximum] 35.7% [26-73%]) to  $36.0 \pm 10.1\%$  (median 34.5% [8-74%];  $p < 0.001$ ). MLD (minimum lumen diameter) increased from  $1.65 \pm 0.36$  mm (median 1.62 [0.56-2.65] mm) to  $1.68 \pm 0.38$  mm (median 1.67 [0.76-2.77] mm;  $p < 0.001$ ).

“In this study, we broadened the assessment of the ASTEROID patients by reporting on the effects of rosuvastatin on discrete coronary stenoses by QCA,” said Dr. Christie M. Ballantyne, M.D., Section of Atherosclerosis and Vascular Medicine, Department of Medicine, Baylor College of Medicine, and the Methodist DeBakey Heart & Vascular Center lead author of the QCA analysis of the AstraZeneca-funded ASTEROID trial. Dr. Ballantyne added, “ASTEROID’s two imaging modalities, which clearly measured different parameters and focused on different segments of the coronary arteries, demonstrated concordant improvements in angiographic measurements of lumen dimension and IVUS measurements of atheroma volume consistent with regression and stabilization of atherosclerosis with intensive statin therapy.”

Rosuvastatin treatment for 24 months to average LDL-C levels well below 70 mg/dL, accompanied by significant increases in HDL-C, produced regression by decreasing percent diameter stenosis and improving MLD as measured by QCA in coronary disease patients.

*Dr. Ballantyne will present this study, "Effect of Rosuvastatin Therapy on Coronary Artery Stenoses in the ASTEROID Trial" on Monday, March 31 at 10:45 a.m. in North Hall B1.*

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The American College of Cardiology ([www.acc.org](http://www.acc.org)) represents the majority of board certified cardiovascular physicians in the United States. Its mission is to advocate for quality cardiovascular care through education, research, promotion, development and application of standards and guidelines- and to influence health care policy. ACC.08 is the largest cardiovascular meeting, bringing together cardiologists and cardiovascular specialists to share the newest discoveries in treatment and prevention, while helping the ACC achieve its mission to address and improve issues in cardiovascular medicine.