

# Rosuvastatin slows progression of Carotid Intima-Media Thickness in low-risk subjects – *METEOR* study –

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**A**therosclerosis is often advanced when it becomes symptomatic. As a result, currently risk stratification schemes often fail to predict many coronary heart events. Studies have shown that subclinical atherosclerosis can be assessed using Carotid Intima-Media Thickness (CIMT), an important index of atherosclerosis burden. The METEOR study (Measuring Effects on Intima-Media Thickness: an Evaluation of Rosuvastatin) hypothesis was that 40mg of *rosuvastatin* per day could affect progression of CIMT in patients at low risk of coronary heart disease.

The METEOR study provides new evidence of the effects of rosuvastatin of atherosclerosis and extends the results of ASTEROID (A Study to Evaluate the Effect of Rosuvastatin on Intra-vascular Ultrasound) study. This study showed significant regression of the atheroma, but in high risk patients with established coronary heart disease.

Thus, the METEOR study was a randomized, double blind, placebo-controlled trial comparing treatment with the 40 mg/day of rosuvastatin with placebo in 948 individuals, randomized in a 5:2 ratio. Subjects included were at low risk, with either as the only risk factor or with a 10-year Framingham risk score of less than 10%. All the subjects had mild to moderate CIMT thickening. Those with one risk factor had to have an LDL level of less than 190 mg/dl and

those with multiple risk factors an LDL level less than 160 mg/dl. The mean LDL level at study baseline was 155 mg/dl.

The primary end-point was the change in maximum CIMT for 12 carotid sites in 2 years of follow-up, assessed using B-mode ultrasound. The investigators also measured changes of maximum CIMT of the common carotid artery, carotid bulb and internal carotid artery.

LDL levels showed a mean reduction of 49% in the rosuvastatin group, decreased from 155 mg/dl to 78 mg/dl, a significant reduction vs placebo. HDL increased with rosuvastatin by 8 % with treatment. At 2 years of follow up, treatment with rosuvastatin was associated with a significantly reduction in the rate of progression of CIMT both overall and for the individual carotid segments when compared with placebo (for 12 sites changes in CIMT were: – 0.0014 vs 0.013,  $p < 0.001$ ; for common carotid sites: – 0.0038 vs 0.0084;  $p < 0.001$ ; for carotid bulb sites: – 0.0040 vs 0.0172,  $p < 0.001$ ). The regression of the CIMT seen at the end-point was not relate to the lower overall risk in patients.

**In conclusion**, the METEOR study demonstrated a regression of atherosclerosis assessed using measure of CIMT in low-risk patients. These findings suggest that the low-risk individuals with evidence of asymptomatic disease should undergo routine arterial imaging followed by statin therapy.

*Comment on the paper:*

Crouse JR, Raichlen JS, Riley WA et al for the METEOR Study Group – Effect of Rosuvastatin on progression of carotid intima thickness in low-risk individuals with subclinical atherosclerosis. The METEOR trial. *J Am Coll Cardiol* 2007; 297:1344-1353