Atherosclerosis. 2012 Nov;225(1):148-53. doi: 10.1016/j.atherosclerosis.2012.08.002. Epub 2012 Aug 24.

Statins use and coronary artery plaque composition: results from the International Multicenter CONFIRM Registry.

Nakazato R, Gransar H, Berman DS, Cheng VY, Lin FY, Achenbach S, Al-Mallah M, Budoff MJ, Cademartiri F, Callister TQ, Chang HJ, Cury RC, Chinnaiyan K, Chow BJ, Delago A, Hadamitzky M, Hausleiter J, Kaufmann P, Maffei E, Raff G, Shaw LJ, Villines TC, Dunning A, Feuchtner G, Kim YJ, Leipsic J, Min JK.

Cedars-Sinai Heart Institute and Department of Imaging, Cedars-Sinai Medical Center, Los Angeles, CA, USA. Ryo.Nakazato@cshs.org

Abstract

OBJECTIVE: The effect of statins on coronary artery plaque features beyond stenosis severity is not known. Coronary CT angiography (CCTA) is a novel non-invasive method that permits direct visualization of coronary atherosclerotic features, including plaque composition. We evaluated the association of statin use to coronary plaque composition type in patients without known coronary artery disease (CAD) undergoing CCTA.

METHODS: From consecutive individuals, we identified 6673 individuals (2413 on statin therapy and 4260 not on statin therapy) with no known CAD and available statin use status. We studied the relationship between statin use and the presence and extent of specific plaque composition types, which was graded as non-calcified (NCP), mixed (MP), or calcified (CP) plaque.

RESULTS: The mean age was 59 ± 11 (55% male). Compared to the individuals not taking statins, those taking statins had higher prevalence of risk factors and obstructive CAD. In multivariable analyses, statin use was associated with increased the presence of MP [odds ratio (OR) 1.46, 95% confidence interval (CI) 1.27-1.68), $p < 0.001$] and CP (OR 1.54, 95% CI 1.36-1.74, $p < 0.001$), but not NCP (OR 1.11, 95% CI 0.96-1.29, $p = 0.1$). Further, in multivariable analyses, statin use was associated with increasing numbers of coronary segments possessing MP (OR 1.52, 95% CI 1.34-1.73, $p < 0.001$) and CP (OR 1.52, 95% CI 1.36-1.70, $p < 0.001$), but not coronary segments with NCP (OR 1.09, 95% CI 0.94-1.25, $p = 0.2$).

CONCLUSION:

Statin use is associated with an increased prevalence and extent of coronary plaques possessing calcium. The longitudinal effect of statins on coronary plaque composition warrants further investigation.