Statin Therapy and Coronary Plaque Characteristics on 64 Slice Cardiac CT in Asymptomatic Type 2 Diabetics

David Halon [1], Tamar Gaspar [2], Idit Dobrecky-Mery [1,2], Mali Azencot [1], Nisan Yaniv [3], Nathan Peled [2], Basil Lewis [1]

[1] Cardiovascular Medicine, Lady Davis Carmel Medical Center, [2] Radiology Department, Lady Davis Carmel Medical Center, [3] Cardiology Department, Clalit Community Health Services, Haifa, Israel

Background: Statins decrease coronary heart disease related adverse events but their effect on coronary plaque characteristics is unclear. Calcification may stabilize coronary plaques and be associated with fewer adverse events and better clinical outcome. We prospectively examined 64 slice coronary CT angiograms (CTA) in an asymptomatic patient cohort with type 2 diabetes mellitus to examine differences in coronary plaque characteristics between pts receiving or not receiving statin treatment.

Patients and Methods: Type 2 diabetics, 55-74 yrs, with no history of clinical coronary disease underwent CTA in the confines of a prospective, ongoing, outcomes study. Coronary plaque was assessed visually as absent, calcified (≥50% calcium), non-calcified (no calcium) or mixed (<50% calcium) using a 17 segment coronary arterial model and total length of each plaque type was measured.

Results: In 120 pts (age 63.7 yr, 44 (36.7%) men) coronary plaque was present in 40 (90.9%) men and 65 (85.5%) women (ns) but was more extensive in men (total plaque length 56±56 vs 30±31 mm, p=0.02). At study entry 86 (72%) pts were taking statins. Total plaque length was similar for pts with and without statins (40±44 vs 38±33 mm (ns) and 40% of plaques were calcified. In pts taking statins the total length of calcific plaque was greater and the total length of non-calcific/mixed plaque was decreased (Table).

Plaque characteristics in relation to statin therapy

	No Statin	Statin	p-value
Calcified plaque (mm) (% of total plaque length)	8.9±17.1 (23.5)	20.9±31.0 (51.7)	0.01
Non-calcified/mixed plaque (mm) (% of total plaque)	28.9±38.3 (76.5)	19.5±23.4 (48.3)	
Total plaque (mm) (m±1SD)	37.9±43.3	40.4±44.1	0.77

Conclusions: In asymptomatic type 2 diabetics undergoing 64 slice cardiac CTA: 1. Overall extent of coronary plaque was similar in pts taking or not taking statins. 2. In patients receiving statins the proportion of calcified coronary plaque was greater and there was a lesser extent of non-calcific/mixed plaque 3. Differences in plaque composition may relate to the beneficial effect of statins in coronary patients.