

Assessment of the Coronary Arteries With Computed Tomography: New approaches and Applications (Poster Session)  
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### **Risk Factor Associations With Coronary Calcium: A 4-Slice Multidetector CT Study With Prospective ECG Triggering in 2,030 Subjects**

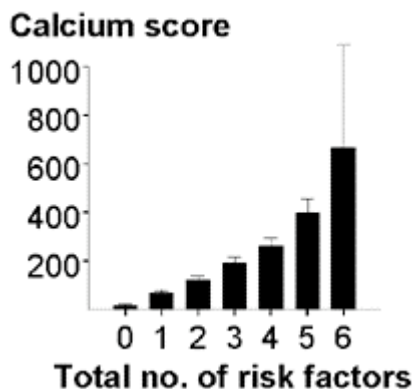
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Multidetector (4-slice) spiral CT (4-S-CT) has become available as a novel modality for quantifying coronary calcium. It has not been tested if coronary calcium determined by 4-S-CT is associated with the presence of established cardiovascular risk factors.

Methods: A total of 2,030 subjects asymptomatic for CAD ( $56 \pm 10$  years, 75% men) referred by their physician were examined using an Mx-8000 4-S-CT (Philips, formerly Marconi, Cleveland, Ohio). Scanning was done with prospective ECG-triggering at 60% of the RR interval using a slice width of 2.5 mm and a protocol very similar to the MESA (Multi-Ethnic Study of Atherosclerosis) in the USA. Coronary calcium was quantified in analogy to the Agatston criteria. Cardiovascular risk factors were assessed by questionnaire.

Results: Coronary calcium was detected in 990 (65%) men and 248 (48%) women ( $p < 0.001$ ). Age, gender and all of the established causal risk factors (systemic hypertension, active smoking, hypercholesterolemia, and diabetes) were independently associated with the calcium score. With an increasing number of these risk factors, the calcium score increased (figure shows mean  $\pm$  SEM).



Conclusion: The association with risk factors suggests that coronary calcium determined by 4-S-CT and prospective ECG-triggering in a similar fashion as in MESA provides useful information about the presence and extent of coronary atherosclerosis.

