THE LONG-TERM NON-DEVELOPMENT OF CORONARY ARTERY CALCIUM AS A MARKER OF HEALTHY ARTERIAL AGING IN THE MULTI ETHNIC STUDY OF ATHEROSCLEROSIS (MESA)

Poster Contributions
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Background: The long-term non-development of coronary artery calcification (CAC) is a marker of healthy arterial aging. The predictors of this phenotype are not known.

Methods: We analyzed participants from MESA with a baseline CAC = 0 at Visit 1 and a follow-up CAC scan at Visit 5 (n=1,850). We examined the proportion that did not develop CAC, calculated multivariable relative risks, and used the receiver operating characteristic (ROC) for prediction of incident CAC.

Results: 55% of participants (n=1,000) did not develop CAC over a median follow-up of 9.6 years and they were significantly more likely to be younger, female, and have less traditional risk factors (RF) except for smoking and physical activity. Participants with a Framingham Risk Score (FRS) <6% were 44% less likely to develop CAC compared to a FRS ≥20% and participants with 0 CVD RF were 31% less likely to develop CAC compared to ≥3 CVD RF (Table 1). However, the ROC adjusted for demographics was just 0.65 and no single traditional or novel RF increased the ROC by more than 0.02.

Conclusions: Younger participants and those without multiple traditional CVD RF were significantly less likely to develop incident CAC. However no single traditional or novel RF was able to enhance the prediction or discrimination of individuals with health aging who do not develop CAC. Therefore, healthy arterial aging may be predominantly influenced by the long-term maintenance of a low CVD risk profile rather than any specific RF identified in adulthood.