THE USE OF CAROTID INTIMAL MEDIA THICKNESS IN THE PREDICTION OF STEMI

Poster Contributions
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Background: Patients who present with ST elevation myocardial infarction (STEMI) typically have fewer traditional risk factors vs. patients with other forms of acute coronary syndrome (ACS). In the present study we examined the utility of carotid intima media thickness assessment (CIMT) on refining the ability of the Framingham Risk Score (FRS) to predict patients at risk of a first STEMI.

Methods: The study was a “pro-retrospective” design, in that we examined risk factors and CIMT in patients who presented with a first acute event and assessed the ability of the FRS and CIMT to predict the likelihood of this event. Patients (n=26) who presented to our institution with a first STEMI and no history of prior diagnosis of coronary artery disease or equivalent (diabetes, peripheral or cerebrovascular disease) underwent CIMT assessment within 30 days of admission. Using a linear regression algorithm derived from the Atherosclerosis in Communities database, we defined a vascular age for each patient (defined as the chronologic age at which each patient’s CIMT would represent the 50th percentile for their age, sex, and race). This vascular age was then used to re-calculate a vascular age-adjusted FRS. Standard and CIMT-adjusted FRS were compared.

Results: The mean CIMT-adjusted “vascular age” was significantly higher than the mean chronologic age for the cohort as a whole (52.8yrs vs. 79.5yrs, p<0.001). CIMT-adjustment of FRS led to a significant increase in 10yr risk assessment for the cohort as a whole (10.1% vs. 17.2%, p=0.015). When calculated using chronologic age, 2/26 patients (7.7%) had high risk FRS 10yr event rates (defined as event rate >20%) compared to 11/26 patients (42.3%) when calculated using CIMT-adjusted age (p=0.018).

Conclusion: The use of CIMT to calculate FRS using a CIMT-adjusted “vascular age” in a STEMI population led to significant improvement in our ability to define high risk for CAD among this patient population. Given that STEMI patients represent a younger population with fewer traditional risk factors vs. other ACS patients, this data suggests that CIMT may be beneficial in indentifying and modifying risk factors and behaviors of patients who are at risk of STEMI.