

A Head-to-Head Comparison of Two Novel Markers for Predicting CHD

Findings are consistent with current guidelines prioritizing the coronary artery calcium score over the polygenic risk score in predicting patient risk.

The coronary artery calcium score and the polygenic risk score (PRS) are increasingly being used as adjuncts to risk assessments for coronary heart disease (CHD). Investigators sought to compare these markers for their ability to influence risk prediction.

They evaluated data from two population-based cohort studies comprising participants aged 45 to 79 years, including 1991 individuals from the Multi-Ethnic Study of Atherosclerosis and 1217 from the Rotterdam Study. In both cohorts, the coronary artery calcium score and PRS had a similar magnitude of association with CHD risk. The C-statistic, indicating risk discrimination performance, was 0.76 for the coronary artery calcium score and 0.69 for the PRS. When added to a traditional risk factor-based model (the 2013 American College of Cardiology/American Heart Association pooled cohort equation), the coronary artery calcium score improved the C-statistic by 0.09 while the PRS did not significantly change the C-statistic. The findings were consistent in younger and older groups.

COMMENT

The authors state that this is the first head-to-head comparison of the coronary artery calcium score and PRS in the same large late-middle-age-to-older patient cohorts. Importantly, it is not a competition; the coronary calcium score conveys anatomic information and the PRS is about genetic predisposition. The findings indicate that coronary artery calcium may be preferred for risk stratification in these older groups. Nevertheless, the PRS will increasingly be easily available as more people have their genomes sequenced, and it may have more utility regarding lifetime risk in younger patients. Both will probably have roles in the future. — **Harlan M. Krumholz, MD, SM**

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