DISTRIBUTION OF CORONARY ARTERY CALCIUM SCORE AND PREVALENCE OF CORONARY ARTERY DISEASE ACCORDING TO FRAMINGHAM RISK STRATA IN ASYMPTOMATIC KOREAN ADULTS

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Background: Coronary artery calcium score (CACS) and coronary computed tomography angiography (CCTA) have been proposed as possible way to screen of coronary artery disease (CAD) beyond Framingham risk strata (FRS). However, current guidelines recommended CACS screening only in intermediate-risk groups (FRS, 10% to 20%). Thus, we aimed to evaluate the distribution of CACS and the prevalence of CAD across FRS, and also determine whether lower-risk population could benefit from screening of CACS and CCTA.

Methods: We included 1,854 participants aged 40 to 79 years, who had no histories of CAD, stroke, or diabetes. The number needed to screen was defined as number of people who need to be screened to detect 1 individual with CACS above the specified cutoff point within each FRS group. Distribution of CACS and prevalence of occult CAD were compared according to FRS groups.

Results: CACS of >0, ≥100, and ≥300 were present in 33.8%, 8.2%, and 2.9% of participants, respectively. Prevalence of CAD was present in 6.1% of participants. Distribution of CACS of >0, ≥100, and ≥300 were significantly increased with higher FRS group (P<0.01). Prevalence of occult CAD was 3.4% in FRS ≤5%, 6.7% in FRS 6-10%, 8.5% in FRS 11-15%, 9.3% in FRS 16-20%, and 11.5% in FRS >20% (P<0.0001). In multivariable logistic regression analysis adjusting for BMI, glucose, and WBC count, low-risk (FRS 6-10%) group as well as intermediate- and high-risk groups had also significantly increased odds ratios (OR) for occult CAD compared with very low-risk (FRS ≤5%) group (1.89 [1.09-3.29] in FRS 6-10%, 2.32 [1.12-4.80] in FRS 11-15%, 2.58 [1.43-4.63] in FRS 16-20% and 3.10 [1.75-5.47] in FRS >20%; P<0.05).

Conclusions: This study suggests that the yield of screening for significant CACS and occult CAD is low in very low-risk population, but becomes greater in low- and intermediate-risk subjects.