Abstract

Calcium Intake From Diet and Supplements and the Risk of Coronary Artery Calcification and its Progression Among Older Adults: 10-Year Follow-up of the Multi-Ethnic Study of Atherosclerosis (MESA).

Anderson JJ, Kruszka B, Delaney JA, He K, Burke GL, Alonso A, Bild DE, Budoff M, Michos ED.

Department of Nutrition, Gillings School of Global Public Health, University of North Carolina at Chapel Hill, NC; Department of Epidemiology, University of Washington, Seattle, WA; Department of Epidemiology and Biostatistics, Indiana University, Bloomington, IN; Division of Public Health Sciences, Wake Forest School of Medicine, Winston Salem, NC; Department of Epidemiology, Rollins School of Public Health, Emory University, Atlanta, GA; Patient-Centered Outcomes Research Institute, Washington, DC; Division of Cardiology, Los Angeles Biomedical Research Institute at Harbor-UCLA Medical Center, Torrance, CA; Division of Cardiology, Johns Hopkins University, Baltimore, MD.

BACKGROUND: Recent randomized data suggest that calcium supplements may be associated with increased risk of cardiovascular disease (CVD) events. Using a longitudinal cohort study, we assessed the association between calcium intake, from both foods and supplements, and atherosclerosis, as measured by coronary artery calcification (CAC).

METHODS AND RESULTS: We studied 5448 adults free of clinically diagnosed CVD (52% female; aged 45-84 years) from the Multi-Ethnic Study of Atherosclerosis. Baseline total calcium intake was assessed from diet (using a food frequency questionnaire) and calcium supplements (by a medication inventory) and categorized into quintiles. Baseline CAC was measured by computed tomography, and CAC measurements were repeated in 2742 participants ≈10 years later. At baseline, mean calcium intakes across quintiles were 313.3, 540.3, 783.0, 1168.9, and 2157.4 mg/day. Women had higher calcium intakes than men. After adjustment for potential confounders, among 1567 participants without baseline CAC, the relative risk (RR) of developing incident CAC over 10 years, by quintile 1 to 5 of calcium intake, were 1 (reference), 0.95 (0.79-1.14), 1.02 (0.85-1.23), 0.86 (0.69-1.05), and 0.73 (0.57-0.93). After accounting for total calcium intake, calcium supplement use was associated with increased risk for incident CAC (RR=1.22 [1.07-1.39]). No relation was found between baseline calcium intake and 10-year changes in log-transformed CAC among those participants with baseline CAC >0.

CONCLUSIONS: High total calcium intake was associated with a decreased risk of incident atherosclerosis over long-term follow-up, particularly if achieved without supplement use. However, calcium supplement use may increase the risk for incident CAC.

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