Associations between calcium and vitamin D supplement use as well as their serum concentrations and subclinical cardiovascular disease phenotypes.

Abstract:
Supplementation of calcium (Ca) and vitamin D for the prevention of osteoporosis is frequently found in Western countries. Recent re-analyses of clinical trials observed a higher risk of myocardial infarction and stroke in subjects taking Ca (+vitamin D) supplements, although the underlying mechanisms are not clear. Thus, we analyzed the associations between Ca and vitamin D supplementation as well as serum concentrations of Ca and 25-hydroxyvitamin D (25(OH)D) and subclinical cardiovascular disease (CVD) phenotypes, namely intima-media thickness, ankle-brachial-index (ABI), intermittent claudication, and atrial fibrillation (AF). Data of 1601 participants aged 50-81 years of the population-based cross-sectional Cooperative Health Research in the Region of Augsburg (KORA) F4 study in Germany were analyzed. Logistic and linear regression models were used to estimate odds ratios (OR) (95% confidence intervals (CI)) and β-estimates (p-values), respectively. Regular Ca supplementation showed a significant positive association with the presence
of AF after multivariable adjustment (OR = 3.89; 95% CI 1.28-11.81). Higher serum 25(OH)D concentrations were independently associated with a lower prevalence of asymptomatic peripheral arterial disease as assessed by ABI measurements (? = 0.007; p = 0.01). No other significant associations between supplementation or serum concentrations of Ca or vitamin D and CVD phenotypes were identified. Although based on few cases the finding of a significant higher prevalence of AF in Ca supplement users hints at one possible mechanism that may contribute to an increased risk of myocardial infarction and stroke. The observed association between serum 25(OH)D and ABI supports results from other studies.