Abstract

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OBJECTIVE: Serum 25-hydroxyvitamin D [25(OH)D] levels are inversely associated with important cardiovascular disease (CVD) risk factors. However, the association between 25(OH)D levels and prevalent CVD has not been extensively examined in the general population.

METHODS: We performed a cross-sectional analysis of data from the Third National Health and Nutrition Examination Survey (1988-1994) and examined the association between serum 25(OH)D levels and prevalence of CVD in a representative population-based sample of 16,603 men and women aged 18 years or older. Prevalence of CVD was defined as a composite measure inclusive of self-reported angina, myocardial infarction or stroke.

RESULTS: In the whole population, there were 1308 (8%) subjects with self-reported CVD. Participants with CVD had a greater frequency of 25(OH)D deficiency [defined as serum 25(OH)D levels <20 ng/mL] than those without (29.3% vs. 21.4%; p<0.0001). After adjustment for age, gender, race/ethnicity, season of measurement, physical activity, body mass index, smoking status, hypertension, diabetes, elevated low-density lipoprotein cholesterol, hypertriglyceridemia, low high-density lipoprotein cholesterol, chronic kidney disease and vitamin D use, participants with 25(OH)D deficiency had an increased risk of prevalent CVD (odds ratio 1.20 [95% confidence interval (CI) 1.01-1.36; p=0.03]).

CONCLUSIONS: These results indicate a strong and independent relationship of 25(OH)D deficiency with prevalent CVD in a large sample representative of the US adult population.

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