Abstract

Differences in vitamin D status as a possible contributor to the racial disparity in peripheral arterial disease.

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BACKGROUND: Racial differences in cardiovascular risk factors do not fully explain the higher prevalence of lower-extremity peripheral arterial disease (PAD) in black adults.

OBJECTIVE: We sought to determine whether any of this excess risk may be explained by vitamin D status, which has been widely documented to be lower in blacks than in whites.

DESIGN: This population-based cross-sectional study included 2987 white and 866 black persons aged >or=40 y from the 2001-2004 National Health and Nutrition Examination Survey. PAD was defined as an ankle-brachial pressure index of <0.90 in either leg.

RESULTS: Mean (+/-SEM) 25-hydroxyvitamin D [25(OH)D] concentrations were significantly lower in black than in white adults (39.2 +/- 1.0 and 63.7 +/- 1.1 nmol/L, respectively; P < 0.001). Adjusted odds ratios for PAD decreased in a dose-dependent fashion with increasing quartiles of 25(OH)D in white adults [1.00 (referent), 0.86, 0.67, and 0.53; P for trend < 0.001]. In black adults, the association was nonlinear; models with cubic splines suggested evidence of greater odds for PAD and a trend for lower odds for PAD at the lowest and highest concentrations of 25(OH)D, respectively. After adjustment for racial differences in socioeconomic status and for traditional and novel risk factors, odds for PAD in black compared with white adults were reduced from 2.11 (95% CI: 1.55, 2.87) to 1.67 (1.11, 2.51). After additional adjustment for 25(OH)D, the odds were further reduced to 1.33 (0.84, 2.10).

CONCLUSIONS: Racial differences in vitamin D status may explain nearly one-third of the excess risk of PAD in black compared with white adults. Additional research is needed to confirm these findings.

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