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Dietary vitamin A may be a cardiovascular risk factor in a Saudi population.

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Abstract

Traditional risk factors do not appear to explain fully the variation in the incidence of the cardiovascular diseases (CVD). Epidemiological studies have not been entirely consistent with regard to the relationship between antioxidant vitamin intake and CVD and there appears to be little data on this relationship in non-Caucasian populations. This study aimed to investigate the dietary intake of vitamin A, C, and vitamin E, and carotenoids, serum concentrations of vitamin E and A and indices of lipid peroxidation were measured in male Saudi patients with established CVD and age-matched controls. We assessed the dietary intakes of vitamins A, C, and E and carotenoids, by a food frequency questionnaire. Serum vitamins A and E concentrations were measured by HPLC, in 130 Saudi male subjects with established CVD, and 130 age-matched controls. We also determined serum lipid profiles (total cholesterol, triglycerides, HDL-C, LDL-C), lipoprotein (a), oxidized LDL, and serum lipid peroxide concentrations. Diabetes mellitus ($P < 0.0001$), a positive smoking habit ($P < 0.0001$) and hypertension ($P < 0.05$) were more prevalent among CVD patients. Levels of dietary vitamin E and A were also significantly higher among cases. In conditional logistic regression analysis, the most significant characteristics differentiating CVD patients from controls were diabetes mellitus (Odds ratio 2.49, CI 1.42-4.37, $P < 0.001$), total fat intake (Odds ratio 1.02, CI 1.01-1.03, $P < 0.01$), serum vitamin A (Odds ratio 0.72, CI 0.53-0.99, $P < 0.05$), and the vitamin A/total fat intake ratio (Odds ratio 1.04, CI 1.01-1.06, $P < 0.01$). In a Saudi population, smoking habit and hypertension were significantly more common among patients with CVD. Multivariate analysis showed that dietary total fat and vitamin A and the presence of diabetes mellitus were independent coronary risk factors. This is the first report of a potentially deleterious effect of dietary vitamin A in a non-Caucasian population. However it is possible that unidentified residual confounding factors may account for this finding.