

Abstract

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Dietary vitamin B6 intake and the risk of colorectal cancer.

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BACKGROUND: Vitamin B6, a coenzyme in the folate metabolism pathway, may have anticarcinogenic effects. Laboratory and epidemiologic studies support the hypothesis of its protective effect against colorectal cancer (CRC).

OBJECTIVE: The aim of this large Scottish case-control study, including 2,028 hospital-based cases and 2,722 population-based controls, was to investigate the associations between dietary and supplementary intake of vitamin B6 and CRC.

METHODS: Three logistic regression models adjusted for several confounding factors, including energy, folate, and fiber intake, were applied in the whole sample and after age, sex, cancer site, folate, MTHFR C677T (rs1801133), MTHFR A1298C (rs1801131), MTR A2756G (rs1805087), and MTRR A66G (rs1801394) stratification (analysis on genotypes on 1,001 cases and 1,010 controls < or =55 years old).

RESULTS: Moderately strong inverse and dose-dependent associations in the whole sample were found between CRC risk and the intake of dietary and total vitamin B6 in all three models [model III: odds ratio (OR), 0.77; 95% confidence interval (95% CI), 0.61-0.98; P for trend = 0.03; OR, 0.86; 95% CI, 0.69-1.07; P for trend = 0.12]. In addition, meta-analyses of published studies showed inverse associations between vitamin B6 and CRC (combined relative risk, 0.81; 95% CI, 0.68-0.96; test for overall effect P = 0.01; combined odds ratio, 0.67; 95% CI, 0.60-0.75; test for overall effect P < 0.00001). Analysis within the stratified subgroups showed similar associations apart from a stronger effect among < or =55-year-old individuals.

CONCLUSIONS: Evidence from larger cohort and experimental studies is now required to confirm and define the anticarcinogenic actions of vitamin B6 and to explore the mechanisms by which this effect is mediated.

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