Abstract

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Vitamin B6 and Risk of Colorectal Cancer: A Meta-analysis of Prospective Studies.

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CONTEXT: Mounting evidence indicates that vitamin B(6), a coenzyme involved in nearly 100 enzymatic reactions, may reduce the risk of colorectal cancer.

OBJECTIVE: To conduct a systematic review with meta-analysis of prospective studies assessing the association of vitamin B(6) intake or blood levels of pyridoxal 5'-phosphate (PLP; the active form of vitamin B(6)) with risk of colorectal cancer.

DATA SOURCES: Relevant studies were identified by a search of MEDLINE and EMBASE databases to February 2010, with no restrictions. We also reviewed reference lists from retrieved articles.

STUDY SELECTION: We included prospective studies that reported relative risk (RR) estimates with 95% confidence intervals (CIs) for the association between vitamin B(6) intake or blood PLP levels and the risk of colorectal, colon, or rectal cancer.

DATA EXTRACTION: Two authors independently extracted data and assessed study quality. Study-specific RRs were pooled using a random-effects model.

DATA SYNTHESIS: Nine studies on vitamin B(6) intake and 4 studies on blood PLP levels were included in the meta-analysis. The pooled RRs of colorectal cancer for the highest vs lowest category of vitamin B(6) intake and blood PLP levels were 0.90 (95% CI, 0.75-1.07) and 0.52 (95% CI, 0.38-0.71), respectively. There was heterogeneity among studies of vitamin B(6) intake (P = .01) but not among studies of blood PLP levels (P = .95). Omitting 1 study that contributed substantially to the heterogeneity among studies of vitamin B(6) intake yielded a pooled RR of 0.80 (95% CI, 0.69-0.92). The risk of colorectal cancer decreased by 49% for every 100-pmol/mL increase (approximately 2 SDs) in blood PLP levels (RR, 0.51; 95% CI, 0.38-0.69).

CONCLUSION: Vitamin B(6) intake and blood PLP levels were inversely associated with the risk of colorectal cancer in this meta-analysis.

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