

Abstract

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Prospective study of plasma vitamin B6 and risk of colorectal cancer in men.

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OBJECTIVE: Vitamin B(6) may lower risk of colorectal cancer by preventing aberrations in one-carbon metabolism or by anti-inflammatory effects. We prospectively evaluated the association between plasma levels of pyridoxal 5'-phosphate (PLP; the active form of vitamin B(6)) and risk of colorectal cancer in a nested case-control study within the Physicians' Health Study.

METHODS: Among 14,916 men who provided blood specimens in 1982 to 1984, we identified 197 incident colorectal cancer cases through 2000 and individually matched them to 371 controls by age and smoking status.

RESULTS: Plasma PLP levels were positively correlated with cold cereal intake and plasma levels of folate and vitamin B(12) (age- and smoking-adjusted partial correlation $r = 0.28-0.48$) and slightly inversely correlated with body mass index ($r = -0.11$) and plasma levels of homocysteine, C-reactive protein, tumor necrosis factor- α receptor 2, and interleukin-6 ($r = -0.23$ to -0.14). With control for these factors and known risk factors for colorectal cancer, plasma PLP levels were significantly inversely associated with risk of colorectal cancer; compared with men in the lowest quartile, those with PLP in quartiles 2 to 4 had relative risks (95% confidence interval) of 0.92 (0.55-1.56), 0.42 (0.23-0.75), and 0.49 (0.26-0.92; $P(\text{trend}) = 0.01$), respectively.

CONCLUSION: In conclusion, vitamin B(6) may protect against colorectal cancer independent of other one-carbon metabolites and inflammatory biomarkers.

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