

Abstract

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Prediagnostic Plasma Vitamin D Metabolites and Mortality among Patients with Prostate Cancer.

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BACKGROUND: Laboratory evidence suggests that vitamin D might influence prostate cancer prognosis.

METHODOLOGY/PRINCIPAL FINDINGS: We examined the associations between prediagnostic plasma levels of 25(OH)vitamin D [25(OH)D] and 1,25(OH)(2)vitamin D [1,25(OH)(2)D] and mortality among 1822 participants of the Health Professionals Follow-up Study and Physicians' Health Study who were diagnosed with prostate cancer. Cox proportional hazards models were used to calculate hazard ratios (HRs) and 95% confidence intervals (CIs) of total mortality (n=595) and lethal prostate cancer (death from prostate cancer or development of bone metastases; n=202). In models adjusted for age at diagnosis, BMI, physical activity, and smoking, we observed a HR of 1.22 (95% CI: 0.97, 1.54) for total mortality, comparing men in the lowest to the highest quartile of 25(OH)D. There was no association between 1,25(OH)(2)D and total mortality. Men with the lowest 25(OH)D quartile were more likely to die of their cancer (HR: 1.59; 95% CI: 1.06, 2.39) compared to those in the highest quartile (P(trend)=0.006). This association was largely explained by the association between low 25(OH)D levels and advanced cancer stage and higher Gleason score, suggesting that these variables may mediate the influence of 25(OH)D on prognosis. The association also tended to be stronger among patients with samples collected within five years of cancer diagnosis. 1,25(OH)(2)D levels were not associated with lethal prostate cancer.

CONCLUSIONS/SIGNIFICANCE: Although potential bias of less advanced disease due to more screening activity among men with high 25(OH)D levels cannot be ruled out, higher prediagnostic plasma 25(OH)D might be associated with improved prostate cancer prognosis.

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