

Abstract

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Plasma vitamin D and mortality in older men: a community-based prospective cohort study.

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BACKGROUND: Vitamin D status is known to be important for bone health but may also affect the development of several chronic diseases, including cancer and cardiovascular diseases, which are 2 major causes of death.

OBJECTIVE: We aimed to examine how vitamin D status relates to overall and cause-specific mortality.

DESIGN: The Uppsala Longitudinal Study of Adult Men, a community-based cohort of elderly men (mean age at baseline: 71 y; n = 1194), was used to investigate the association between plasma 25-hydroxyvitamin D [25(OH)D] and mortality. Total plasma 25(OH)D was determined with HPLC atmospheric pressure chemical ionization mass spectrometry. Proportional hazards regression was used to compute hazard ratios (HRs).

RESULTS: During follow-up (median: 12.7 y), 584 (49%) participants died. There was a U-shaped association between vitamin D concentrations and total mortality. An approximately 50% higher total mortality rate was observed among men in the lowest 10% (<46 nmol/L) and the highest 5% (>98 nmol/L) of plasma 25(OH)D concentrations compared with intermediate concentrations. Cancer mortality was also higher at low plasma concentrations (multivariable-adjusted HR: 2.20; 95% CI: 1.44, 3.38) and at high concentrations (HR: 2.64; 95% CI: 1.46, 4.78). For cardiovascular death, only low (HR: 1.89; 95% CI: 1.21, 2.96) but not high (HR: 1.33; 95% CI: 0.69, 2.54) concentrations indicated higher risk.

CONCLUSIONS: Both high and low concentrations of plasma 25(OH)D are associated with elevated risks of overall and cancer mortality. Low concentrations are associated with cardiovascular mortality.

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