Low vitamin D levels again linked to higher death risk

By Stephen Daniells, 25-Sep-2009

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Low levels of vitamin D may increase the risk of dying from all causes by 150 per cent, suggests a study with over 700 elderly women.
Women with blood levels of the vitamin lower than 15.3 nanograms per millilitre were more likely to die from causes such as heart disease and cancer, than women with higher levels (above 27 ng/ml), according to findings published in *Nutrition Research*,

"The present findings from this population-based cohort of ageing are consistent with the association between low serum 25(OH)D and mortality that has been described in […] the general population," wrote the researchers, led by Richard Semba from the Johns Hopkins University.

"In addition, a recent meta-analysis suggested that vitamin D *supplementation was associated with decreased mortality,"* they added.

The researchers noted that several biologic mechanisms could explain a causal relationship between vitamin D deficiency and mortality, with the vitamin's active form (1,25-dihydroxyvitamin D) linked to a range of effects including control of inflammatory compounds, regulating immune health and blood pressure, or reducing arterial hardening.

"The role that vitamin D plays in different tissues may account for the associations between vitamin D deficiency and cardiovascular disease, cancer, and mortality," they said.

Making headlines

The general population study used data from 13,331 men and women participating in the Third National Health and Nutritional Examination Survey (NHANES III). The results of the study grabbed headlines around the world when published last year in the *Archives of Internal Medicine*.

The new study looked at vitamin D levels, in the form of 25- hydroxyvitamin D (25(OH)D), the non-active 'storage' form, in 714 community-dwelling women, aged between 70 and 79 years, participating in the Women's Health and Aging Studies I and II.

The Johns Hopkins researchers worked in collaboration with scientists from Wake Forest University, National Institute on Aging, University of Pennsylvania, and Columbia University.

Study details

During 6 years of follow-up, 100 of the 714 women died with data showing that the main causes of death included cardiovascular disease (36 per cent), respiratory disease (18 per cent), cancer (15 When the researchers divided women into four groups (quartiles) according to their 25(OH)D levels, the proportion of women who died in during those 6 years in each quartile (from lowest to highest) was 19, 13,15, and 8.1 per cent, said the researchers.

Increasing blood levels of vitamin D were linked to increasing survival rates, with women with the lowest average 25(OH)D levels having *"significantly worse survival"* than women with the highest average levels of 25(OH)D.

"Controlled clinical trials are needed to determine whether vitamin D supplementation will improve health outcomes such as cardiovascular disease and mortality in older adults who have insufficient levels of vitamin D," concluded the researchers.

D details

Vitamin D refers to two biologically inactive precursors - D3, also known as cholecalciferol, and D2, also known as ergocalciferol. The former, produced in the skin on exposure to UVB radiation (290 to 320 nm), is said to be more bioactive.

While our bodies do manufacture vitamin D on exposure to sunshine, the levels in some northern countries are so weak during the winter months that our body makes no vitamin D at all, meaning that dietary supplements and fortified foods are seen by many as the best way to boost intakes of vitamin D.

In adults, it is said vitamin D deficiency may precipitate or exacerbate osteopenia, osteoporosis, muscle weakness, fractures, common cancers, autoimmune diseases, infectious diseases and cardiovascular diseases. There is also some evidence that the vitamin may reduce the incidence of several types of cancer and type-1 diabetes.

Source: *Nutrition Research*
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"Low serum 25-hydroxyvitamin D concentrations are associated with greater all-cause mortality in older community-dwelling women"
Authors: R.D. Semba, D.K. Houston, L. Ferrucci, A.R. Cappola, K. Sun, J.M. Guralnik, L.P. Fried