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Vitamin D3 supplementation, low-risk prostate cancer, and health disparities.

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Abstract

Vitamin D promotes the differentiation of prostate cancer cells, raising the possibility that vitamin D deficiency over time may contribute to the progression from subclinical prostate cancer to clinical disease. Since low-risk prostate cancers are monitored over time in an effort to determine which progress into clinically important, more aggressive cancers, they provide an excellent model in which to study, over an extended period of time, the effects of enhancing vitamin D status and related changes in tumor progression. This is particularly relevant to African-American men, who exhibit a high prevalence of vitamin D deficiency as well as higher incidence of prostate cancer and higher mortality rates from prostate cancer than Caucasians. Our research team has

recently completed an open-label clinical trial aimed at assessing the safety and potential efficacy of vitamin D3 supplementation at 4000 international units (IU) per day for one year in subjects diagnosed with early stage, low-risk prostate cancer. The results of this clinical study suggest that supplementation with vitamin D3 at 4000IU per day may benefit patients with early stage, low-risk prostate cancer on active surveillance, because of the improved outcome (a decreased number of positive cores at repeat biopsy) in more than half of the subjects enrolled in the trial. We also observed that, after one year of supplementation, there was no difference in circulating levels of vitamin D between African-American and Caucasian subjects who completed the study. These clinical results also suggest that robust and sustained vitamin D3 supplementation can reduce prostatecancer-related health disparities in African-American men and that these health disparities are at least in part the result of widespread hypovitaminosis D within the African-American population. This article is part of a Special Issue entitled 'Vitamin D Workshop'.

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