

Predicted 25-Hydroxyvitamin D in Relation to Incidence of Breast Cancer in a Large Cohort of African American Women

Article Publication

Background

- Studies examining the association between vitamin D deficiency and breast cancer have produced conflicting results. In addition, most studies have looked at populations of Caucasian women.
- Little research has explored the relationship between vitamin D and breast cancer in African American women, even though African Americans are 10 times more likely than Caucasians to have vitamin D deficiency.^{1,2}
- **Objective:** The investigators of this study examined the association of predicted vitamin D levels with the incidence of breast cancer in African American women.

Methods

- The Black Women's Health Study started in 1995 and includes 59,000 African American women. Every 2 years, participants received questionnaires that included questions about possible predictors of vitamin D levels. Of 59,000 women, 1,454 had invasive breast cancer.
- Investigators derived a prediction model for vitamin D (metabolite 25[OH]D) status using 1) blood specimens from 2,856 study participants tested by Quest Diagnostics from 2013 through 2015, and 2) questionnaire data from the same period.
- The prediction model was used to calculate 25(OH)D levels for 1995 through 2013.
- To assess the association between breast cancer and predicted vitamin D levels, the authors determined incidence rate ratios using Cox proportional hazards models: each quartile was compared to the highest quartile of predicted vitamin D level.

Results

- Of the 2,856 women with blood samples, 22% were vitamin D deficient (<20 ng/mL) and 25% were vitamin D insufficient (20 to 29 ng/mL).
- Correlation between observed 25(OH)D levels and those predicted by the model was high: 0.49 (SD 0.026).
- After adjustment for confounders, women in the lowest quartile of predicted vitamin D level had a substantially greater risk of breast cancer than women in the highest quartile (relative risk, 1.23; 95% confidence interval, 1.04-1.46).

Conclusions

- According to this large prospective study, African American women in the lowest quartile of vitamin D status have a 23% greater risk for breast cancer than women in the highest quartile.
- These findings raise the question of whether proactive monitoring of vitamin D levels, and treating deficiencies, could be a tool for reducing breast cancer incidence among African American women.

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Webpage

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