Lower vitamin D status may explain racial disparities in all-cause mortality among younger commercially insured women with incident metastatic breast cancer

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To the Editor,

The recent paper on racial disparities in all-cause mortality among younger commercially insured women with incident metastatic breast cancer found that African-American women had the highest risk, that morbidity was associated with higher risk, and that living in the Northeast was associated with lower risk [1]. No explanation was given for the findings.

Overlooked in the discussion was any mention of vitamin D. Solar UVB exposure is the most important source of vitamin D, and African-Americans with darker skin pigmentation than white Americans have mean 25-hydroxyvitamin D concentrations of about 60 % of those for white Americans [2]. In a review, it was shown that survival rates for 13 types of cancer including breast cancer were about 25 % lower for African-Americans compared to white Americans after consideration of stage of diagnosis, treatment, and socioeconomic status [2]. The women studied in Ref. [1] had the same stage of diagnosis, likely the same treatment as they were insured, and no effect of socioeconomic status was found. As discussed in that paper, geographical ecological studies in the U.S. link lower UVB doses in the Northeast to higher cancer mortality rates. Thus, the finding that the hazard ratio for survival is nonsignificantly elevated in the West and significantly

decreased in the Northeast is likely due to the higher UVB doses in the West and the lower UVB doses in the Northeast.

Also, many observational studies have found inverse correlations between serum 25-hydroxyvitamin D concentrations and adverse health outcomes. These diseases include autoimmune diseases, cardiovascular disease, diabetes mellitus, infectious diseases, cognitive dysfunction, and mental illness [3]. These diseases represent the major types of disease affecting mortality rates of adults.

Thus, encouraging women to increase 25-hydroxyvitamin D concentrations to above 75–100 nmol/L should reduce the all-cause mortality rate of women diagnosed with breast cancer.

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References

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A rebuttal letter to this letter to the editor is available at doi: [10.1007/s10549-016-3921-x](https://doi.org/10.1007/s10549-016-3921-x).

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