

Obesity and vitamin D status may help explain the racial and ethnic disparities in ampullary cancer survival rates

To the Editor:

The recent paper by Nassour and colleagues reported race/ethnicity disparities in ampullary cancer survival. Median survival times were 18.9 months for blacks, 23.9 months for whites, 32.7 months for Hispanics, and 37.4 months for Asians.¹ Some factors related to survival such as socioeconomic status and treatment utilization were mentioned but thought not to explain all of the disparities.

One factor overlooked is the race/ethnicity prevalence of obesity. Obesity is an important risk factor for adverse effects on the gastrointestinal tract² and cancer in general.³ In the period 2011–2014, obesity rates in the US were 48.1% for non-Hispanic black, 42.8% for Hispanic, 34.5% for non-Hispanic white, and 11.7% for non-Hispanic Asian.⁴ A linear two-tailed regression fit to the data is Survival rate = $38.4 - 0.37 \times \text{Obesity rate}$, $r = 0.94$, $P = 0.06$. Thus, obesity rates may help explain the relative survival rates for blacks and Asians compared to Hispanics and whites.

Another overlooked factor is vitamin D status. There is mounting evidence that vitamin D reduces incidence and mortality rates for many types of cancer, and the mechanisms whereby vitamin D reduces risk of cancer and increases survival are well known.^{5–8} Vitamin D status has been suggested to explain the portion of reduced survival for blacks compared to whites for many types of cancer.⁹ Older black Americans have mean 25-hydroxyvitamin D concentrations of about 16 ng/mL, Hispanics, 21 ng/mL, and whites, 26 ng/mL.¹⁰ Those 25-hydroxyvitamin D (25(OH)D) concentrations are inversely related to survival times for blacks, Hispanics, and whites. A linear two-tailed regression fit to the data is Survival rate = $-3.8 + 1.4 \times 25(\text{OH})\text{D}$, $r = 0.98$, $P = 0.10$. In addition, 25(OH)D concentrations are generally inversely correlated with body mass index. While it would be difficult for ampullary cancer patients to reduce their body weight, it would be easy to increase 25(OH)D concentrations. Raising concentrations to 40–60 ng/mL using 5000–10 000 IU/d vitamin D₃ should be considered.

DISCLOSURES

I receive funding from Bio-Tech Pharmacal (Fayetteville, AR, USA).

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