Response to Invited Commentary

Welles et al. Respond to “Low Vitamin D and Cardiovascular Disease”

Christine C. Welles*, Mary A. Whooley, S. Ananth Karumanchi, Tammy Hod, Ravi Thadhani, Anders H. Berg, Joachim H. Ix, and Kenneth J. Mukamal

* Correspondence to Dr. Christine Welles, Department of Medicine, Section of General Internal Medicine, San Francisco VA Medical Center, 4150 Clement Street, 111A1, San Francisco, CA 94121 (e-mail: christywelles@gmail.com).

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We appreciate the insightful commentary by Drs. Schneider and Michos (1). We have reanalyzed the data from our study (2) with adjustment for 3 categories of race/ethnicity: white, black, and other. The point estimates for the association between vitamin D and cardiovascular events were not appreciably altered by this substitution (Table 1). However, our participants were primarily white men; therefore, future studies in more racially diverse samples would be of interest to further explore racial differences, especially in light of the recent work by Powe et al. (3).

We appreciate the authors’ reference to the methodological considerations involved in analyzing the data by season. We would like to clarify that in our study, we adjusted for season (not date) of blood draw, with 4 different categories: spring (March–May), summer (June–August), fall (September–November), and winter (December–February). Analyzing the data using the cosinor approach (4) did not appreciably alter the point estimate (Table 2).

ACKNOWLEDGMENTS

Author affiliations: Division of General Internal Medicine, Department of Medicine, School of Medicine, University of California, San Francisco, San Francisco, California (Christine C. Welles, Mary A. Whooley); Department of Family and Preventive Medicine and Division of Nephrology-Hypertension, San Francisco VA Medical Center, San Francisco, California (S. Ananth Karumanchi, Tammy Hod, Ravi Thadhani, Anders H. Berg, Joachim H. Ix, and Kenneth J. Mukamal).

Table 1. Association Between Baseline 25-Hydroxyvitamin D Level (<20 ng/mL vs. ≥20 ng/mL) and Subsequent Cardiovascular Eventsa (n=323) After Multivariate Adjustment, by Race/Ethnicity, Among 946 Participants in the Heart and Soul Study, 2000–2012

<table>
<thead>
<tr>
<th>Modelb</th>
<th>2 Race Categories (White vs. Nonwhite)</th>
<th>3 Race Categories (White, Black, or Other)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>HR 95% CI</td>
<td>HR 95% CI</td>
</tr>
<tr>
<td>Model 3c</td>
<td>1.30 1.01, 1.67</td>
<td>1.25 0.97, 1.63</td>
</tr>
<tr>
<td>Model 4d</td>
<td>1.11 0.85, 1.44</td>
<td>1.12 0.85, 1.46</td>
</tr>
</tbody>
</table>

Abbreviations: CI, confidence interval; HR, hazard ratio.

Subsequent cardiovascular events were defined as heart failure, myocardial infarction, stroke, or cardiovascular mortality.

Model numbers correspond to those in Table 2 of the paper by Welles et al. (2).

Results were adjusted for age, sex, season of blood draw, college graduation, tobacco use, multivitamin use, physical activity, diabetes, hypertension, body mass index, and depression.

Results were adjusted for all model 3 covariates plus systolic blood pressure, diastolic blood pressure, hemoglobin A1c, triglycerides, high-density lipoprotein cholesterol, C-reactive protein, phosphorus, parathyroid hormone, and fibroblast growth factor 23.

Table 2. Association Between Baseline 25-Hydroxyvitamin D Level (<20 ng/mL vs. ≥20 ng/mL) and Subsequent Cardiovascular Eventsa (n=323) After Multivariate Adjustment, by Season of Blood Draw, Among 946 Participants in the Heart and Soul Study, 2000–2012

<table>
<thead>
<tr>
<th>Modelb</th>
<th>Adjusted for Season of Blood Draw</th>
<th>Adjusted by Cosinor Approach</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>HR 95% CI</td>
<td>HR 95% CI</td>
</tr>
<tr>
<td>Model 3c</td>
<td>1.30 1.01, 1.67</td>
<td>1.35 1.05, 1.73</td>
</tr>
<tr>
<td>Model 4d</td>
<td>1.11 0.85, 1.44</td>
<td>1.15 0.89, 1.50</td>
</tr>
</tbody>
</table>

Abbreviations: CI, confidence interval; HR, hazard ratio.

Subsequent cardiovascular events were defined as heart failure, myocardial infarction, stroke, or cardiovascular mortality.

Model numbers correspond to those in Table 2 of the paper by Welles et al. (2).

Results were adjusted for age, sex, white race/ethnicity, college graduation, tobacco use, multivitamin use, physical activity, diabetes, hypertension, body mass index, and depression.

Results were adjusted for all model 3 covariates plus systolic blood pressure, diastolic blood pressure, hemoglobin A1c, triglycerides, high-density lipoprotein cholesterol, C-reactive protein, phosphorus, parathyroid hormone, and fibroblast growth factor 23.
Department of Medicine, School of Medicine, University of California, San Diego, San Diego, California (Joachim H. Ix); Division of General Medicine and Primary Care (Kenneth J. Mukamal) and Division of Nephrology (Tammy Hod, S. Ananth Karumanchi), Department of Medicine, Beth Israel Deaconess Medical Center, Boston, Massachusetts; Department of Pathology, Beth Israel Deaconess Medical Center, Boston, Massachusetts (Anders H. Berg); and Division of Nephrology, Department of Medicine, Massachusetts General Hospital, Boston, Massachusetts (Ravi Thadhani).

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Conflict of interest: none declared.

REFERENCES