Author's response to reviews

Title: Reduction of Parathyroid Hormone with Vitamin D Supplementation in Blacks: A Randomized Controlled Trial

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We are pleased to submit our manuscript entitled "Reduction of Parathyroid Hormone with Vitamin D Supplementation in Blacks: A Randomized Controlled Trial" for consideration to be published in BMC Nutrition. Although the importance of vitamin D deficiency and high serum parathyroid hormone (PTH) in bone health are well recognized, recent studies have independently linked vitamin D deficiency and increased PTH with increased morbidity and mortality apart from bone health. Thus, understanding the role of vitamin D supplementation on PTH homeostasis is important. However, several studies have reported varying individualized responses of vitamin D supplementation on serum PTH level. Therefore, we conducted a randomized clinical trial of 3 doses of vitamin D3 versus placebo in Blacks to assess the dose-response effect of vitamin D supplementation on PTH.

During 3 winters from 2007-2010, 328 Blacks (median age, 51 years) of Boston, MA were randomized into a 4-arm, double-blind trial for 3 months of placebo, 1000, 2000, or 4000 IU of vitamin D3. In this vitamin D-deficient Black population with a median baseline 25 (OH)D of 15.2 ng/ml, circulating 25(OH) D levels at 3
months differed significantly by the vitamin D3 supplementation arm, with a median of 14.2, 28.1, 35.5, and 47.3 ng/mL for the placebo, 1,000 IU/day, 2,000 IU/day, and 4,000 IU/day arms, respectively (P<0.001). This increase in 25 (OH)D was followed by a decrease in PTH in a dose-dependent manner. Serum PTH levels at 3 months differed significantly by the vitamin D3 supplementation arm, with a mean of 3.9 pg/mL, -3.4 pg/mL, -6.8 pg/mL and -9 pg/mL for the placebo, 1,000 IU/day, 2,000 IU/day, and 4,000 IU/day arms, respectively (-2.98 pg/mL for each additional 1000 IU/d of vitamin D3; p<0.001). Comparing all three doses (1000, 2000, 4000 IU/d) versus placebo, PTH decreased by -10.30 pg/mL (p<0.001).

We believe our findings will be of interest to the readers of BMC Nutrition given that your journal is among the highest impact journals publishing quality standard of practice articles. This is one of the first studies to examine the possible preventive benefits of vitamin D intake on reduction in parathyroid hormone levels among healthy Blacks. Vitamin D supplementation may be useful in improving parathyroid homeostasis in Blacks.

This manuscript represents original work, is not under consideration elsewhere, has been approved by all authors, each of whom, contributed significantly to this manuscript

The author(s) hereby confirms that neither the manuscript nor any part of it, except for abstracts of less than 400 words, has been published or is being considered for publication elsewhere. By signing this letter each of us acknowledges that he or she participated sufficiently in the work to take public responsibility for its content.

The work will not be submitted for publication elsewhere until the editorial board has decided whether to publish the article. All authors have no relevant financial disclosures or conflicts of interest to report for themselves, or their spouses, partners, or children. Dr. Chandler, will serve as corresponding author. Thank you for considering our manuscript.

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