Reviewer's report

Title: Vitamin D status among postmenopausal osteoporotic women: a hospital based cross-sectional study from Northern Sri Lanka

Version: 0 Date: 30 Dec 2019

Reviewer: Igor Pravst

Reviewer's report:

In the manuscript authors investigated Vitamin D status among postmenopausal osteoporotic women in Northern Sri Lanka using non-representative hospital-based study. Considering known correlations of non-optimal vitamin status with osteoporosis, and a variety of factors influencing vitamin D status (including geographic parameters/sun exposure and lifestyle habits of specific populations), assessment of investigated research question in new regions is very appropriate. To improve the manuscript, I suggest addressing following issues:

(1) While authors mention diversity of the recommended daily vitamin D exposure (considering both sun-related exposure and dietary intake/supplementation), they should also mention different cut-off limits for vitamin D deficiency. Often serum 25-hydroxyvitamin D [25(OH)D] concentrations bellow 12 ng/mL are used for deficiency, and levels below 20 ng/mL are considered as inadequate (i.e. considering IOM Dietary Reference Intakes for Calcium and Vitamin D. Washington, DC: National Academy Press, 2010.). Authors should provide rationale for using different cut-offs. On Page 4 (lines 15-17) appropriate reference is also needed for the used cut-offs.

(2) Methods (Page 4, second paragraph): Methods should be described more in detail. For example, the assay used should be described, preferably with producer name/brand and detection limits. Considering the explanations provided in results section, I assume that 25-hydroxyvitamin D [25(OH)D] concentration was measured, but authors only mention that "vitamin D levels were analysed". This should be clarified in the methods section. In the results section authors also report serum calcium levels, but the method for measuring this is not described. This is also the case for some other reported measurements.

(3) Methods (statistics) (Page 4, third paragraph). Considering that Vitamin D is a hormone-like substance, it is likely that vitamin D levels were not parametric. Did authors check this before the statistical analyses?

(4) Results (Page 4, Line 41-44): Are these serum Ca levels? No units are provided here, and no cut-offs for high/low calcium. I should mention that in human body calcium levels are very tightly regulated and the described ranges are a bit strange and that reported standard deviation is extremely large. Common normal values are 2.2 to 2.7 mmol/L, while author provide mean SD 3.5 ± 2.74 (mmol/L?). These results should be re-checked before publication and commented in results/discussion section.
(5) Discussion (Page 5; Line 42). Authors cited reference 4 (Sachdeva et al. 2005) for high prevalence of vitamin D deficiency in young adults (claiming age 18-14??), but I was not able to find this in the cited reference. It seems that wrong reference is cited. Authors could re-check all citations.

Other minor issues:

(6) Abstract/line 11: This is probably the first such study from Northern Sri Lanka, not globally?

(7) Abstract/Results/line 27: With so large 95% CI, there is no need providing decimal places when reporting results in the abstract.

(8) Abstract/Results/lines 30-37. Most of the results section in the abstract is used for description of the study population. Authors should summarise study results here.

(9) I suggest authors to avoid using term "correcting vitamin D" (both in abstract and main text/conclusions), as vitamin D concentrations are not incorrect, but just not high enough.

(10) The use of two decimal places is not needed for reporting serum 25-OH-D levels (i.e. in Table 7), considering large SDs. One decimal place is more than sufficient.

(11) Figure 2 is not needed, while data in Figure 1 is also already presented elsewhere.

Are the methods appropriate and well described?
If not, please specify what is required in your comments to the authors.

No

Does the work include the necessary controls?
If not, please specify which controls are required in your comments to the authors.

Yes

Are the conclusions drawn adequately supported by the data shown?
If not, please explain in your comments to the authors.

Yes

Are you able to assess any statistics in the manuscript or would you recommend an additional statistical review?
If an additional statistical review is recommended, please specify what aspects require further assessment in your comments to the editors.

I recommend additional statistical review
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