Reviewer’s report

Title: Screening for vitamin D deficiency in a tropical area: results of a sun exposure questionnaire

Version: 0 Date: 28 Dec 2017

Reviewer: Rachel Crowley

Reviewer’s report:

The authors have described use of a sun exposure questionnaire in both young and old populations, in both winter and summer (different patients) living in Brazil, in an attempt to identify patients with vitamin D deficiency.

As a general comment, there is no indication to start population screening in otherwise healthy individuals, regardless of the definitions of deficiency used and of the expected prevalence of the risk factor for bone disease, therefore the benefit of wide application of a questionnaire is unclear.

Major points

1 - Given the findings of this study and the Canadian study, and the caveats regarding time of day of exposure and environmental pollution, the authors should comment on the validity of the questionnaire itself as a tool for measurement of exposure and whether this is satisfactory

2 - The authors commented in the introduction that there is a need for more accurate measurement of vitamin D status in non-white individuals (p4 line 16); a) this is not a study of vitamin D status assessment and b) the authors should comment on the study design - the participants were Fitzpatrick skin type I-III, thus paler-skinned than the population most likely to benefit from optimal vitamin D status

3 - The authors should standardize use of the IOM criteria in the manuscript (insufficiency / deficiency)

4 - The authors should expand upon the clinical significance of the mean 25OHD measurements - these are greater than 16ng/ml (with the exception of wintertime in young patients) - the median population requirement as per IOM.

5 - What is the potential impact of the high female subject representation in the cohorts? Was there equal distribution in the summer and winter cohorts?

6 - How was BMI correlation with 25OHD analysed? - it is reported as an odds ratio
7 - The conclusion should be written - clearly this questionnaire cannot be used in this population to identify patients with insufficient 25OHD

8 Figure 1&2 should be combined and superimposed, with TSES plotted vs 25OHD and sensitivity and specificity curves overlaid, so that readers can appreciate the performance of the questionnaire at different measurement points - figure 2 does not make statistical sense.

Minor corrections

1 - status does not require italicization

2 - Figure 1 should include units

3 - Figure 2 y axis sensitivity

4 - the questionnaire items should be included in the methods

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.

No

Are you able to assess any statistics in the manuscript or would you recommend an additional statistical review?
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