Reviewer’s report

Title: Higher serum 25(OH)D level is associated with decreased risk of impairment of glucose homeostasis: data from Southwest China

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Reviewer: Aftab K

Reviewer's report:

The authors have looked at association of vitamin D levels and glucose homeostasis in a cross-sectional study. Although it remains an interesting clinical question to fully explore but this has been studied in various studies already. The evidence to date suggests association rather than causation of low vitamin D levels and insulin resistance or vice versa. The effect of vitamin D supplements on insulin sensitivity has been recently studied in randomised control studies and published. Mousa et al (Am J Clin Nutr. 2017) and Moreina -Lucas TS et al (Diabetes Obese Metab, 2017) have both reported, in an RCT, that vitamin D supplements has no effect oni sulin sensitivity or secretion in vitamin D deficient, overweight or obese adults. So, this paper by Danting Li and colleagues will not add on much to what has already been known. The authors argue that this is the first time that association of vitamin D levels and glucose homeostasis have studied in chinese population but in actual fact Jie Zhang et al (International Journal Of Endocrinolgy, 2016) and Lin Ding et al (Internation Journal Of Endocrinology, 2014) have already studied this association among chinese cohort.

Methods stated in this study aren't completely clear. In methods section authors describe using eligible data for analysis from baseline survey in 2015. But in initial statement author states using data from an ongoing prospective study in 2013. This needs to be stated clearly as to why data wasn't collected from 2013 and what was the reason for collecting data from 2015?. Furthermore, it would have been more standardised if vitamin D were measured in winter months to account for seasonal variations.

Finally, the manuscript needs significant revision for grammar, spelling, punctuation and sentence structure. Few examples: Para 52, conclusion section of abstract; "decreased risk of ? among nn-diabetic adults.". Sentence structure of Para 66, 79, 80, 81 in background section isn't correct and needs to be re-written. Para 101 of methods section " diagnosed of (with) diabetes mellitus". Para 106 of laboratory methods " ... overnight fast ? (of) at least 10 hours". Similarly para 108 sentence structure isn't correct. Para 143 spelling of glucose (glucose) needs to be corrected. Para 158 should read as " (current smokers, ex-smokers...), sleep and stress...".
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.

Unable to assess

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?
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I am able to assess the statistics

Quality of written English
Please indicate the quality of language in the manuscript:

Not suitable for publication unless extensively edited

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