Reviewer’s report

Title: 25-Hydroxyvitamin D variability within-person due to diurnal rhythm and illness: a case report

Version: 0 Date: 29 Oct 2018

Reviewer: Otabek Yangibaev

Reviewer's report:

1. Do you believe the case report is authentic?

Yes/No

2. Do you have any ethical concerns? Please consider if local Institutional Review Board approval or ethical approval was obtained (if appropriate) and if the patient (or their parent or guardian in the case of children under 18) gave written, informed consent to publish this case and any accompanying images. A statement to this effect should appear in the manuscript.

Comments:

3. Does the Introduction explain the relevance of the case to the medical literature?

Yes/No

4. Does the article report the following information? Where information is missing, please specify.

a. The relevant patient information, including:
   
   - De-identified demographic information (age, gender, ethnicity)
   
   - Main symptoms of the patient
   
   - Medical, family and psychosocial history
   
   - Relevant past interventions and their outcomes

b. The relevant physical examination findings
c. Important dates and times in this case (if appropriate, organized as a timeline via a figure or table); if specific dates could lead to patient identification, consider including time relevant to initial presentation, i.e. initial presentation at T = 0, follow up at T = 1 month.

d. Diagnostic assessments, including:
   - Diagnostic methods
   - Challenges (e.g., financial, language/cultural)
   - Reasoning and prognostic characteristics (e.g., staging), where applicable

e. Types and mechanism of intervention

f. A summary of the clinical course of all follow-up visits

Comments:

5. Is the interpretation (discussion and conclusion) well balanced and supported by the case presented?

Comments:

6. Is the anonymity of the patient protected? Please consider any identifying information in images such as facial features or nametags, whether the patient is named etc. If not, please detail below. 1. Do you believe the case report is authentic?

Yes/No

Yes

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Yes/No

7. Is the Abstract representative of the case presented?

Comments:

8. Does the case represent a useful contribution to the medical literature?

Comments:

9. Additional comments for the author(s)?

Yes/No

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Dear authors,

It was a great pleasure reading your manuscript. It is written according to the high academic English standards.
However, an actual value of the conclusions and outcomes of this case report and of the anticipated larger scale experimental study remain debatable in a real-world situation. But still these experiments and their results likely to be important mainly for researchers confined to this field.

At the same time, your conclusions on the effect of acute illness into the serum levels of 25(OH)D seems to be quite weak, since the evidence and inferred conclusions, based only on this case, seems to be quite anecdotal. Also, I presume you have sought expert advice from statisticians when choosing ANOVA for statistical analysis, in my humble opinion, probably students-t-test might be an option.

Last but not least, how accurate could be measurements of blood samples taken into a filter paper compared to the conventional serum levels measurements? Also, there are many other confounders inherently affecting outcomes of this case study, for instance, patient was allowed to continue with their daily dietary Vitamin D as this can affect the blood levels of the drug, blood sampling errors etc. also, on the days 1 and 2 samples were taken after drug was taken by the patient and on day 3 and 4 within 1-hour prior, i.e. measuring trough drug levels. I think this can also contribute to the inconsistent results.

Additionally, individuals circadian cycle can result in natural fluctuations of the drug levels that can be demonstrated as statistically significant, but whether this is going to have any practical value is questionable, however for experimental studies this is could be relevant.

Many thanks
Reviewer

Level of interest
Please indicate how interesting you found the manuscript:

An article of limited interest

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

Acceptable
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