Reviewer’s report

Title: Alterations of serum macro-minerals and trace elements are associated with major depressive disorder: a case-control study

Version: 0 Date: 11 Jul 2017

Reviewer: Zdenka Durackov

Reviewer’s report:

The incidence of depressive disorder in the world is very serious and requires increased attention from clinicians and researchers. For this reason, the work presented is very important.

However, in its current form, it is not entirely satisfactory for publishing in BMC Psychiatry and requires some modifications:

- Background is described chaotically and difficult to read. Authors skip from one element to another, and then add more insights into the elements. E.g. On page 4 there is mentioned SOD in lines 4, 13 and then 20-23, and other enzymes with Zn, Ca as a signal element, etc. are mentioned among the SOD information.

- I recommend choosing how to present information - either by element or - by disease and effect.

- In addition, FeSOD is a SOD isoform that does not occur in humans and therefore I recommend not to mention this form.

- If the authors at one point indicate SOD as CuZn SOD, then they should not use the SOD1 in another place and the same for MnSOD and SOD2 p. 4).

- To arguments on p. 5, lines 2-5 add citations.

- A lot of information is about schizophrenia and little about the depressive disorder.

- Explain all the abbreviations used in the text for their first use, even if they are listed in the "Explained Abbreviations" section - the reader is better oriented (GAD - p. 6, line 2).

- Statistical analysis: Author used t-test and Pearsons test. Did authors track normal/out of normal data distribution?

- Table 1: explain abbreviations - CED, KBDT in the text below the table

- Discussion: The authors argue that the concentration of MM and TE ... are strongly associated with MDD .... However, since they did not evaluate the correlations between
the levels of the individual elements and the psychiatric score characterizing the severity of depression, the claim is premature. Re-formulate it.

- English needs correction

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

Yes

**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 am able to assess the statistics

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

Needs some language corrections before being published

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