Reviewer’s report

Title: Intravenous Vitamin C Administration Reduces Fatigue in Office Workers: A Double-blind Randomized Controlled Trial

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Reviewer: Wangjae Lee

Reviewer’s report:

The authors investigate the effect of vitamin C on fatigue in office workers. They observed that fatigue was reduced in the lower baseline vitamin C level group after two hours and after one day (p = 0.004), but not in the higher baseline group (p = 0.206). The authors conclude that intravenous vitamin C reduced fatigue at two hours, and the effect persisted for one day and no significant differences in adverse events between two groups. In addition, high dose intravenous vitamin C proved to be safe and effective against fatigue in this study. The results shown by authors can be trusted, because the experiment was a double-blind, random allocated, placebo-controlled trial. The data is highly interesting, since it was done with healthy human volunteers, but there are concerns that have to be addressed:

1. Even though the authors described that this experiment was done with healthy human volunteers, but there was no information about the general health status of volunteers. Did you check their general levels of blood or plasma components, such as the numbers of lymphocytes, the levels of ALT/AST, blood sugar and creatinine before the experiment? It is very important to setup the baseline for the experiment through the elimination of volunteers who have chronic diseases, such as hepatitis and diabetes mellitus. If you did, it should be shown first. How about the changing of those factors after intravenous administration of vitamin C?

2. It is known that vitamin C (ascorbic acid) is rapidly converted into dehydroascorbic acid (DHA) in plasma, since it is highly effective anti-oxidant. Based on the rapid conversion of vitamin C into the DHA, the DHA levels are also important at the time point when measuring of vitamin C concentration. Did you check the DHA levels in plasma as well? The DHA can be easily measured by DNPH method. If you did, please describe the ratio of Ascorbic acid:DHA at the same time point?

3. The authors described that vitamin C levels in plasma were measures by HPLC. However, the process is poorly described in Materials and Methods. Please, describe it in detail, for example, the type of detector, column and buffers used in this experiment.

Level of interest: An article of importance in its field

Quality of written English: Acceptable
Statistical review: Yes, and I have assessed the statistics in my report.

Declaration of competing interests:

There is no conflict of interest with this paper