Reviewer's report

Title: Effects of L-carnitine supplementation on oxidative stress and antioxidant enzymes activities in patients with coronary artery disease: a randomized, placebo-controlled trial

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Reviewer: Nis Stride

Reviewer's report:

The study performed by Bor-Jen Lee et al. aims to describe the changes in antioxidant activity in red blood cells after supplementation with L-carnitine for 12 weeks.

Levels of malondialdehyde (MDA) was also assessed as an indicator of the oxidative stress level.

Major revisions:

1. Hypothesis and novelty:
   The question of antioxidant capacity in CAD is novel and the manuscript is relatively concise and clear. However the aim and hypothesis are not sufficiently sharp. What is the reason for testing 12 weeks LC supplementation in patients with CAD? It seems that changes in antioxidant activity would apply in healthy subjects as well, and perhaps with a more favorable signal to noise ratio?

   If tested in CAD patients would it then not be appropriate to continue LC supplementation for a longer period of time and evaluate clinically relevant parameters?

2. Results are really only table 2 and even so the authors have chosen not to depict pre and post values?

   Data should also be graphically presented with clear representation of pre and post values.

3. The study would benefit greatly from investigation of more mechanistic parameters.

4. The safety profile of LC supplementation is not thoroughly addressed.

5. The discussion section is highly speculative and the link between antioxidant capacity in RBC’s and atherosclerosis/CAD is only addressed in vague terms. A hypothetical link between RBC conditions and endothelial/myocardial conditions should be described (or investigated!) in more detail in order to justify the coupling between antioxidants, LC and CAD of this study.

6. The background for using the MDA assay as an indicator of oxidative damage is not touched upon.
Could one assess ROS production and oxidative damage in a more direct manner?

7. Are the mitochondria central in the assessment of antioxidants and oxidative damage? – Mitochondria are only mentioned once throughout the entire paper.

Minor revisions:
Generally the manuscript should be improved grammatically.

**Quality of written English:** Needs some language corrections before being published

**Statistical review:** Yes, but I do not feel adequately qualified to assess the statistics.

**Declaration of competing interests:**
I declare that I have no competing interests