Reviewer's report

Title: Astaxanthin vs placebo on arterial stiffness, oxidative stress and inflammation in renal transplant patients (Xanthin): a randomised controlled trial

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Reviewer: Carmine Zoccali

Reviewer's report:

The idea of testing a potent anti-oxidant in transplant patients is nice. My concern is the study power. The hypothesis that astaxanthin reduces pentraxin levels by 40% (or a 32%?) is overtly optimistic. To my knowledge no existing drug reduces CRP by more than 30%-35%. The authors say that they are aware of the problem that the small sample size and add that they see this study as a sort of pilot, their final aim being that of designing a larger study based on clinical outcomes. In reality studies based on clinical outcomes (the best but also the most difficult studies) don't use this sort of pilot to explore the issue. In general study power is based on available evidence and, in the case that there is no such information, on working hypotheses (...it is reasonable expecting a 10% difference between treated and untreated..). If an underpowered study based on biomarkers (like this study) turns out to be inconclusive, as it appears likely, further advancement on the knowledge of this much interesting molecule may be hampered. My advice is that the authors focus on biomarkers (like they do ) but that they aim at testing a reasonable effect of the drug (i.e. a 20% improvement in the main outcome measure) and recalibrate the study power accordingly.

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:

I declare that I have no competing interest
Carmine Zoccali