Reviewer’s report

Title: Worsened Arterial Stiffness in High-Risk Cardiovascular Patients with High Habitual Carbohydrate Intake: A Cross-Sectional Vascular Function Study

Version: 3 Date: 22 December 2013

Reviewer: John McClure

Reviewer’s report:

Statistical Review
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The authors seem to have responded appropriately to the other reviewers’ comments.

Major Compulsory Revisions:

My main concern with this article is that the numbers of individuals with low carbohydrate (<60%) diets is only 18 (out of 364) in the CVD/risk equiv sample and 8 (out of 93) in the Control sample (table 2). These are very few individuals to be basing the authors’ claims on, given the multivariate nature of their analyses.

Without greatly increase the sample sizes, this issue could perhaps be resolved by including % carbohydrate intake itself in the model as a continuous variable, or possibly a much more equal dichotomisation (i.e. a carb cut-off quite a lot higher than 60%). The appropriateness of any such models would need to be checked and, if dichotomising, the choice of cut-off would need to be justified.

If these alternatives are not tried or not found suitable then the inadequacy of the number of low carbohydrate individuals needs to be addressed in the paper. It seriously limits any conclusions that can be made about the study.

Also, the Control sample in itself is too small for the estimates from the multivariate data analyses in Table 4 to be stable, even without the issues with low numbers of low carbohydrate intake participants. Any conclusions made about any analyses on this Control sample have to reflect this.

On a separate note, why was there a large discrepancy in the number of risk factors accounted for when investigating the effect of high carbohydrate diet on blood pressure & lipid profiles (only Age and Sex as confounders – Table 3), unlike when attempting to model PWV (Table 4)?

Level of interest: An article of limited interest

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 interests.