Reviewer’s report

Title: Clinical and cost-effectiveness of oral sodium bicarbonate therapy for older patients with chronic kidney disease and low-grade acidosis (BiCARB): a pragmatic randomised, double blind, placebo-controlled trial

Version: 0 Date: 05 Dec 2019

Reviewer: Bruce Spinowitz

Reviewer's report:

The authors have executed an important multicenter double-blind placebo controlled trial evaluating the impact of sodium bicarbonate supplementation in an elderly population, with the primary endpoints being a patient level physical performance assessment. Additional secondary endpoints of importance include quality-of-life assessments as well as impact on renal function.

The choice of sodium bicarbonate dose is somewhat lower than that used in the recent large unblinded, study utilizing sodium bicarbonate versus standard of care, which did show significant risk reduction for renal endpoints.

In addition, compliance appeared to be less than optimal.

These 2 factors undoubtedly lead to the very minimal difference in bicarbonate level over the course of the study.

Power calculations for primary endpoints called for 143 participants per group, yet the number of patients available for evaluation of the primary endpoints at 12 months was significantly lower than this number.

Power calculations for n needed to evaluate secondary end points were similarly not achieved.

The discussion section which does deal with some limitations as noted above, should be emphasized and expanded to a greater extent.

In addition, comparison to the published version of a recent study, the UBI study, published in the Journal of Nephrology (2019) vol 32:989-1001, should be part of the discussion, as well as the references.
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?
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Yes

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