Reviewers report

Title: High Serum Bicarbonate Level within the Normal Range Prevents the Progression of Chronic Kidney Disease in Elderly Chronic Kidney Disease Patients

Version: 1 Date: 20 August 2012

Reviewer: Donald Wesson

Reviewer's report:

Major Compulsory Revisions

1. The data reported by the authors support that low serum [HCO3] within the normal range is associated with worse kidney outcomes (25% eGFR reduction and/or need for dialysis. They have not shown or adequately discussed, however, the determinants of the low serum [HCO3] that might be contributing to these adverse kidney outcomes. There are a number of possibilities, some of them overlapping:

   a. The lower serum [HCO3] might indicate a higher extracellular [H+] that itself might be injurious to kidneys.

   b. Higher extracellular [H+] might induce other processes, such as high levels of agents that themselves cause kidney injury.

   c. Lower serum [HCO3] might indicate higher dietary H+ intake to which the kidney response (e.g., higher NH4+ production) might contribute to kidney injury.

   d. An recent publication currently in online form only (Scialla JJ, et al; Net endogenous acid production is associated with faster decline in GFR in African Americans. Kid Int (2012) online at doi:10.1038/ki.2012.82) supports that higher net endogenous acid production (NEAP) is associated with faster nephropathy progression in patients, even if their serum [HCO3] is within the normal range. Increased dietary H+ and other factors increase NAEP. Consequently, lower serum [HCO3] might indicate higher NAEP that itself might be injurious to the kidney.

   If the authors have no data to support one of the above or other mechanisms to explain the reported data, they must at least comment upon these or other possible explanations. Doing so will give insight as to how therapeutic intervention might slow nephropathy progression.

2. Can the authors comment on the urine net acid excretion in their subjects?

Minor essential revisions:

1. Please provide the dose of NaHCO3 used for subjects being so treated.
2. Please state if other sources of alkali, like sodium citrate, were used in the subjects.

Discretionary revisions; None

**Level of interest:** An article of importance in its field

**Quality of written English:** Acceptable

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

**Declaration of competing interests:**

I have no such conflicts.