

Delaying the progression of chronic kidney disease using sodium bicarbonate supplementation among adult patients: A systematic review

M. B. Cruz, A. J. Mata, R. F. Valdez and O. D. Naidas

Department of Medicine, St. Luke's Medical Center, Philippines

Objectives: In this study, we aim to assess the efficacy of Sodium Bicarbonate supplementation in delaying the progression of chronic kidney disease. Specifically, the objectives are 1) to determine the baseline kidney function of adult patients with chronic kidney disease; 2) To determine the kidney function of adult patients diagnosed with chronic kidney disease after supplementation with sodium bicarbonate; and 3) To compare the change in kidney function of patients before and after supplementation of sodium bicarbonate.

Methods: We attempted to identify all randomized controlled trials involving adults diagnosed with Chronic Kidney Disease irrespective of stage that evaluated Sodium Bicarbonate supplementation as compared with a control (placebo or standard care of treatment).

We included 3 studies with a total of 453 participants and received the source data for 294 participants, adults diagnosed with chronic kidney disease.

The primary outcome of this study was the rate of decline of kidney function compared among the three clinical trials.

The review was undertaken by all authors. Each of the articles were screened one by one and discarded if not applicable. Data extraction was done separately by each author using standard data extraction form.

The quality of the study was assessed using the scores by Cochrane handbook standards: randomization, allocation, concealment, blinding (participants, investigators, outcomes, assessors and data analysis) intention to treat and completeness to follow-up.

Results: This review included 3 trials with 294 patients with Chronic Kidney disease given Sodium Bicarbonate supplementation. These patients were analyzed according to the rate of kidney function decline. Individual analysis conducted on all included studies favours the use of sodium bicarbonate in slowing kidney function decline.

Conclusions: The authors attempted to identify all randomized, controlled trials involving patients with chronic kidney disease to evaluate the effect of sodium bicarbonate supplementation in delaying the progression of chronic kidney disease. Three studies were retrieved with primary end points measuring the rate of kidney function decline.

The principal limitation of our analysis is the difference of measurement of kidney function across three studies. Two of the studies measured urine albumin excretion and urine N acetyl glucosaminidase as a measure of chronic kidney disease and thus was analyzed separate from the other study.

In summary and upon analysis of all studies included individually and as a whole, sodium bicarbonate supplementation may provide benefits in delaying the progression of chronic kidney disease among adult patients. However, we recommend further studies with larger sample sizes with similar outcomes and similar set of patients to be able to draw a more conclusive result.

Biography

M. B. Cruz, A. J. Mata, and R. F. Valdez are residents of the Department of Medicine, St. Luke's Medical Center. O. D. Naidas is the past chairman of the Department of Medicine in the same institution and has been active on research and continuing education.

melvanielcruz@yahoo.com