

Sodium bicarbonate to improve physical function in patients over 60 years with advanced chronic kidney disease: the BiCARB RCT

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Plain English summary

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Plain English summary

Patients with advanced chronic kidney disease often have excessive levels of acid in their blood (acidosis). Acidosis has been associated with a range of other problems that particularly affect patients with chronic kidney disease, including weaker muscles, weaker bones, worse blood vessel health and kidney disease that worsens more quickly. For decades, acidosis has been treated with sodium bicarbonate tablets (the ingredient found in baking soda) to neutralise the excess acid. However, sodium bicarbonate is awkward to take, may cause side effects and may increase blood pressure.

To clarify whether or not sodium bicarbonate caused an overall improvement in health, we carried out a study involving 300 people aged ≥ 60 years with advanced chronic kidney disease and mild acidosis. Half received sodium bicarbonate capsules and half received dummy capsules (placebo), for up to 2 years. The treatments were chosen randomly by a computer and the participants, their doctors and the researchers were not aware of the treatment received until the end of the study. We measured physical function (walking speed, ability to stand from a chair, balance) alongside quality of life, kidney function, bone and blood vessel health, side effects and health service use over 2 years.

We found that sodium bicarbonate did not improve physical function or quality of life compared with placebo. Sodium bicarbonate also did not improve kidney function, bone health or blood vessel health compared with placebo. More people in the sodium bicarbonate group than in the placebo group had side effects, although blood pressure was the same in both groups. Health-care costs were higher in the sodium bicarbonate group than in the placebo group. We conclude that oral sodium bicarbonate did not significantly improve health measures compared with placebo for older people (aged ≥ 60 years) with advanced chronic kidney disease associated with mild acidosis.

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