Dietary acid reduction with fruits and vegetables or bicarbonate attenuates kidney injury in patients with a moderately reduced glomerular filtration rate due to hypertensive nephropathy.

Goraya N, Simoni J, Jo C, Wesson DE.

The neutralization of dietary acid with sodium bicarbonate decreases kidney injury and slows the decline of the glomerular filtration rate (GFR) in animals and patients with chronic kidney disease. The sodium intake, however, could be problematic in patients with reduced GFR. As alkali-induced dietary protein decreased kidney injury in animals, we compared the efficacy of alkali-inducing fruits and vegetables with oral sodium bicarbonate to diminish kidney injury in patients with hypertensive nephropathy at stage 1 or 2 estimated GFR. All patients were evaluated 30 days after no intervention; daily oral sodium bicarbonate; or fruits and vegetables in amounts calculated to reduce dietary acid by half. All patients had 6 months of antihypertensive control by angiotensin-converting enzyme inhibition before and during these studies, and otherwise ate ad lib. Indices of kidney injury were not changed in the stage 1 group. By contrast, each treatment of stage 2 patients decreased urinary albumin, N-acetyl β-D-glucosaminidase, and transforming growth factor β from the controls to a similar extent. Thus, a reduction in dietary acid decreased kidney injury in patients with moderately reduced eGFR due to hypertensive nephropathy and that with fruits and vegetables was comparable to sodium bicarbonate. Fruits and vegetables appear to be an effective kidney protective adjunct to blood pressure reduction and angiotensin-converting enzyme inhibition in hypertensive and possibly other nephropathies.