ABSTRACT

Background: Epidemiological and animal studies suggest the potential of dietary nitrate (NO\textsubscript{3}\textsuperscript{−}) to inhibit atherogenesis. Spironolactone may improve arterial stiffness. We tested if 6 months’ intervention with dietary nitrate and spironolactone could affect carotid subclinical atherosclerosis and stiffness versus placebo/doxazosin, to control for blood pressure (BP), in a population with or at risk of type 2 diabetes [1].

Methods: A subgroup of participants in our double-blind, randomized-controlled, factorial VaSera trial were randomized to nitrate-containing beetroot juice or nitrate-depleted juice, and spironolactone or doxazosin. Ultrasound for carotid diameter (CD, mm) and intima-media thickness (CIMT, mm) was performed at baseline, 3- and 6-months. Data was analysed by modified intention-to-treat and mixed-model effect, adjusted for confounders.

Results: 93 participants had a baseline evaluation; 86% had follow-up data. No statistical interactions occurred between the juice and drug arms. BP was similar between the juices and between the drugs. CIMT was significantly lower following nitrate-containing, compared with placebo juice [−0.06 (95% Confidence Interval −0.12, −0.01), \(p = 0.022\)], with no effect on CD. CS reduction was similar between juices [−0.38 (−0.67, −0.10) with placebo, −0.13 (−0.42, 0.16) with active juice] and the drugs [−0.30 (−0.58, −0.02) with doxazosin, −0.21 (−0.51, 0.09), with spironolactone]. No differences were detected between spironolactone or doxazosin on CIMT and CD.

Conclusion: 6 months’ intervention with dietary nitrate influences vascular remodelling, but not carotid stiffness or diameter. Neither spironolactone nor doxazosin had a BP-independent effect on carotid structure and function.

REFERENCE


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