



Conference Abstract

P.55 Dietary Nitrate Prevents Progression of Carotid Subclinical Atherosclerosis Through BP-Independent Mechanisms in Patients with or at Risk of Type 2 Diabetes Mellitus: Results from the Double-Blind, Randomized-Controlled, Factorial Vasera Trial

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ABSTRACT

Background: Epidemiological and animal studies suggest the potential of dietary nitrate (NO₃⁻) 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.

Carotid stiffness (CS, m/s) was estimated from aortic pulse pressure (Arteriograph®) and carotid lumen area. 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

- [1] Mills CE, Govoni V, Faconti L, Casagrande ML, Morant SV, Crickmore H, et al. A randomised, factorial trial to reduce arterial stiffness independently of blood pressure: Proof of concept? The VaSera trial testing dietary nitrate and spironolactone. *Br J Clin Pharmacol* 2020;86:891-902.

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