P6.6: A DOUBLE BLIND, RANDOMISED TRIAL INVESTIGATING IF ARTERIAL STIFFNESS CAN BE REDUCED INDEPENDENTLY OF BLOOD PRESSURE IN PARTICIPANTS WITH OR AT RISK OF TYPE 2 DIABETES

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Material and Methods: 80 patients with severe untreated periodontitis were subjected to anti-infective periodontal therapy, comprising bacterial biofilm removal by scaling and root planning either with or without administration of systemic antibiotics. The following parameters were assessed at baseline and 12 month post-therapy: periodontal bleeding on probing, representing a clinical parameter for active inflammation (BoP), pulse wave velocity (PWV), augmentation index (Alx), central systolic pressure (SBPao) and central pulse pressure (PPao) using an oscillometric device (Arteriograph).

Results: Preliminary data evaluation demonstrated, that 12 months post-therapy reduction of periodontal bleeding on probing correlated significantly with decreased values of PWV, SBPao, PPao, Alx, and aPp (p<0.05, respectively) whereas peripheral blood pressure remained unchanged.

Conclusions: Successful reduction of periodontal inflammation is associated with improved markers of arterial dysfunction.

P6.6
A DOUBLE BLIND, RANDOMISED TRIAL INVESTIGATING IF ARTERIAL STIFFNESS CAN BE REDUCED INDEPENDENTLY OF BLOOD PRESSURE IN PARTICIPANTS WITH OR AT RISK OF TYPE 2 DIABETES
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Background: Arterial stiffness (AS) as pulse wave velocity (PWV), is a powerful independent predictor of cardiovascular events, and commonly complicates Type 2 diabetes (T2D). The VaSera machine measures cardiac (by 2nd sound phonogram)-ankle PWV, expressed as a cardio-ankle vascular index (CAVI), aimed to be independent of blood pressure (BP). Our factorial trial tests whether separately randomised dietary nitrate or placebo, and an aldosterone antagonist reduce CAVI and PWV in those at risk of or diagnosed with T2D.

Method: Double-blind, randomised trial assessing AS at baseline, 3 and 6 months. Target recruitment is 120 patients, 18-90 years, excluding those with serious illness or eGFR <45ml/min. Daily interventions are spironolactone (~50mg) or doxazosin (~16mg), to control for BP change, with a nitrate donor (~0.4g nitrate) or an identical nitrate-free juice.

Results: 74 participants are screened, 54 randomised and 34 completed. Mean±SD baseline age and body mass index were 59.7±12.1 years and 32.8±5.5kg/m², respectively; 40% female. No differences in CAVI or PWV were observed between screening and randomisation (8.30±1.4 to 7.97±1.3 units and 9.30±2.0 to 9.17±1.8m/s, respectively). Systolic (S) and diastolic (D) BP dropped between these visits (138±17 to 133±17mmHg, p<0.005 and 81±12 to 71±12mmHg, p<0.001, respectively). Bland-Altman analysis between screening and randomisation for CAVI, PWV, SBP and DBP shows <6% of mean differences fall outside of the 95% limits; mean differences limits of agreement; -0.13±2.12, -0.32±1.85, -5.26 and -4.19, respectively.

Conclusion: A trial focused on PWV is practical and effective within our recruitment, with simple recruitment and a low drop-out rate.

P6.7
SUBLINGUAL NITROGLYCERIN IN PATIENTS WITH HEART FAILURE AND PRESERVED EJECTION FRACTION: IMPACT ON CENTRAL AND REGIONAL CAROTID AND RADIAL INPUT IMPEDANCE AND HEMODYNAMICS
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Introduction: Heart Failure with preserved ejection fraction (HFpEF) is a highly prevalent condition for which no pharmacologic therapy is available. Diastolic dysfunction is thought to be central to its pathophysiology, Organic nitrates have pharmacologic effects on preload, afterload and myocardial contraction/relaxation that may favourably influence ventricular filling. However, the effect of sublingual nitro-glycerine (NTG) on diastolic parameters in this population has not been studied. We aimed to assess the effect of NTG on intraventricular pressure gradients (IVPG) and other measures of diastolic function.

Methods: Colour M-mode Doppler (CMM) is a non-invasive ultrasound technique used to obtain left ventricular (LV) blood flow velocities during early filling and to calculate IVPG. CWI recordings of 20 patients (HFpEF) at rest and after the administration of 0.4 mg of NTG were obtained and processed. Average values of the parameters were calculated and compared (Wilcoxon test) at rest and after NTG.

Results: NTG induced a non-significant increase in early diastolic IVPG (p=0.286) due to a reduction in the early diastolic convective component (p=0.026). Similarly, the early diastolic reversal convective component was reduced (p=0.009). In contrast, the late diastolic IVPG was increased (p=0.017), due to an increased inertial component (p=0.034). There was a reduction in peak E wave velocity (p=0.004), E wave acceleration (p=0.003) and deceleration (p=0.0), while the acceleration time (p=0.034) and the heart rate (HR) (p=0.016) increased.

Conclusion: Organic nitrates exert effects on diastolic filling in HFpEF: increased HR and myocardial contractility and decreased peak E wave velocity possibly related to a preload reduction.

P6.9
DIETARY NITRATE BY BEETROOT JUICE CAN LOWER RENAL RESISTIVE INDEX IN PATIENTS WITH CHRONIC KIDNEY DISEASE
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Introduction: Beetroot has a high concentration of nitrate. In circulation nitrate converts to nitrite. Nitrite-derived NO is a potent vasodilator. Increased renal resistive index (RI) are associated with higher mortality in patients with chronic kidney disease (CKD) and predict cardiovascular events in these patients. Here we investigated if the ingestion of beetroot juice can reduce RI-values.

Methods: Using a randomized cross-over study design 12 CKD patients were investigated within 4 hours (h) after one ingestion of dietary nitrate load (300 mg) by highly concentrated beetroot juice (30g beetroot powder dissolved in 200 ml water) versus 200 ml water. Plasma nitrite concentration as well as renal segmental arterial RI in duplex doppler ultrasonography was measured before and after 4 hours after ingestion of beetroot or water. BP was measured every 15 minutes within the 4 hours.

Results: In 12 CKD patients (7 females) the eGFR was 40.7±13.8 ml/min. Three patients had a hypertensive nephropathy, 2 diabetic nephropathy and 7 patients had a combined hypertensive/diabetic nephropathy.