P80: ANALYSIS OF ENDOTHELIAL FUNCTION IN MALE STUDENTS IN SOUTHERN BRAZIL: THE ROLE OF PHYSICAL ACTIVITY

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of treatment was reduced statistically significant (0.88 ± 0.42 to 0.58 ± 0.29 °C, p = 0.021) (Image).

Conclusion: In a group of patients with dyslipidemia thermal heterogeneity in the carotid arteries was positively associated with carotid subclinical atherosclerosis. Moreover, dyslipidemia treatment reduced thermal heterogeneity after a short-term period, implying a beneficial effect of treatment on thermal heterogeneity.

Material and methods: AS was measured by carotid-femoral pulse wave velocity (cfPWV) using the SphygmoCor device (AtCor Medical, Australia). Mean arterial pressure (MAP) was obtained by pulse-wave analysis of the radial artery and ANS activity was estimated by heart rate variability (HRV) as log-ratio of low-frequency/high-frequency heart rate heart rate components (Schiller Medilog AR12plus, United States) in hypertensive subjects (n = 43, 17 female, mean ± SD age 45 ± 13 years, brachial BP 145 ± 17/87 ± 10 mmHg) at rest. All measurements were subsequently repeated during supervised device-guided paced breathing (DGB) and reduction of cardiac pre-load by lower limb venous occlusion (LVO). These interventions, which are known to decrease and increase sympathetic activity, were performed in random order.

Results: DGB reduced HRV by 0.14 [0.07, 0.20] (Mean [95% confidence intervals]) and LVO increased HRV by 0.13 [0.08, 0.18] (both P < 0.05). DGB reduced cfPWV by 1.3 [0.9, 1.6] m/s alongside with a reduction in MAP of 6.6 [5.1, 8.1] mmHg (both P < 0.01). By contrast, LVO increased cfPWV by 1.0 [0.6, 1.4] m/s (P < 0.01), despite a fall in MAP of 1.5 [0.2, 2.7] mmHg (P < 0.05). The difference between effects of DGB and LVO on cfPWV was significant whether adjusted or unadjusted for change in MAP (P < 0.05).

Conclusion: Despite BP-lowering effects, DGB and LVO had opposite effects on HRV and cfPWV. This suggest that the autonomic nervous system has a pressure-independent role in the regulation of AS in hypertension.

P78
PRESSURE-INDEPENDENT ROLE OF THE AUTONOMIC NERVOUS SYSTEM IN THE REGULATION OF ARTERIAL STIFFNESS IN SUBJECTS WITH ESSENTIAL HYPERTENSION
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Objective: To test if arterial stiffness (AS) can be modulated by the autonomic nervous system (ANS) independently of blood pressure (BP) in hypertensive patients.
REDUCTION IN ENDOTHELIAL, BUT NOT MICROVASCULAR, FUNCTION DURING ACUTE INFLAMMATION: PRELIMINARY RESULTS

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Acute inflammation is associated with increased risk for cardiovascular events and leads to reductions in conduit artery (flow-mediated dilation, FMD) and resistance vessel endothelial function. Whether this dysfunction during acute inflammation is further transmitted down the arterial tree to the microvasculature, inhibiting its ability to dilate or be recruited in response to a hypoxic stimulus, has yet to be investigated. Microvascular function and reactivity can be non-invasively measured using near-infrared spectroscopy (NIRS) during and following an occlusive stimulus.

Purpose: To investigate whether acute inflammation impairs microvascular function.

Methods: The typhoid vaccine was used to induce acute systemic inflammation in 16 young, healthy adults (8 male, 26.3 ± 3.0 years; 21.7 ± 2.4 kg/m²). Blood pressure, FMD of the brachial artery, and NIRS of the forearm flexor muscles were measured at baseline and 24-h following the vaccination. NIRS was analyzed during a 5-min arterial occlusion to obtain markers of microvascular function and reactivity from the tissue saturation index (TSI): occlusion slope (muscle oxidative capacity); and reperfusion slope, reperfusion magnitude, and peak hyperemic response (microvascular reactivity).

Results: Mean arterial pressure did not change during the inflammatory episode (90 ± 9 mmHg to 90 ± 7 mmHg, p = 0.83) and FMD was significantly reduced at 24 h (5.6 ± 2.6% to 4.1 ± 1.7%, p = 0.03). No change was noted in the TSI occlusion slope, reperfusion slope, reperfusion magnitude, or peak hyperemic response (p > 0.05).

Conclusion: Vaccination-induced acute inflammation reduced endothelial function. However, no differences were noted in microvascular reactivity or oxidative capacity. Further investigation with a larger sample size is necessary to confirm these results.

P83
DIFFERENT PROTOCOLS FOR EARLY CARDIAC REHABILITATION MODULATE THE VASCULAR FUNCTION OF INDIVIDUALS UNDERGOING CORONARY ARTERY BYPASS GRAFTING: RANDOMIZED CLINICAL TRIAL

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Background: Cardiac rehabilitation with aerobic exercises is the first strategy as a non-pharmacological treatment in the postoperative period of individuals undergoing coronary artery bypass grafting (CABG) to improve functional capacity and vascular health. However, other exercise modalities remain uncertain as to the same benefits. Purpose: To evaluate the effect of different modalities of exercise, such as early cardiac rehabilitation, on subjects submitted to CABG on the percentage of flow-mediated dilation (FMD) of the brachial artery and vascular resistance.

Methods: A randomized clinical trial in which 15 patients (62.7 ± 6.5 years) underwent CABG were randomly assigned to the following groups: isometric (IG, Handgrip Jamar O), ventilatory muscle training (VG, Power-Breathe O) and control (CG, conventional respiratory and motor physiotherapy). All patients received physical attendance twice a day (20 minutes/session) for a consecutive week after the CABG (hospital admission). Endothelial function was assessed through the technique FMD before and after (~7 days) admission to CABG. The doppler ultrasound videos were analyzed by CardiovascularSuite O software to measure %FMD. Statistics: Generalized estimation equation, followed by Bonferroni post-hoc (p < 0.05).

Results: Systolic, diastolic and mean arterial pressure (SBP/DBP/MAP, respectively) was of 133, 76, 95 mmHg. The groups presented %FMD before and after intervention: IG 9.2 - 2.7% p = 0.71; VG 9.7 - 10.9% p = 0.82; CG 10.4 - 2.9% p = 0.15 and medium flow of: IG 245.5 - 207.6 mL/min p = 0.84; VG 83.7 - 58.7 mL/min p = 0.04; CG 94.6 - 101.2 mL/min p = 0.89.

Conclusions: Different protocols for early cardiac rehabilitation modulate the vascular function of individuals undergoing CABG.