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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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 makers of microvascular function and reactivity from the tissue saturation index (TSI): occlusion slope (muscle oxidative capacity); and repercussion slope, repercussion 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, repercussion slope, repercussion 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.

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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 Ó), ventilatory muscle training (VG, Power-Breathe Ó) 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 Ó 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 of: 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.

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RELATIONSHIP OF ARTERIAL STIFFNESS AND ANKLE-BRACHIAL INDEX

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The ankle-brachial index (ABI) is widely accepted as a diagnostic test used to evaluate the presence of peripheral arterial disease (PAD). 1. We investigated the associations between central arterial stiffness evaluated by measurement of aortic pulse wave velocity (aPWV), augmentation index...