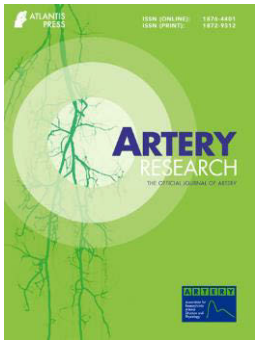

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P66: REDUCTION IN AUGMENTATION PRESSURE IS ASSOCIATED WITH IMPROVEMENT OF EARLY VENTRICULAR EJECTION AFTER AORTIC VALVE REPLACEMENT

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P63
MODIFICATION OF SYMPATHETIC TONE BY RENAL ARTERY DENERVATION CAUSES EARLY, SIGNIFICANT AND SUSTAINED ARTERIAL DE-STIFFENING

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Objective: To examine whether Sympathetic Renal Denervation (RDN) might have an additive value for cardiovascular risk decline beyond lowering blood pressure.
Methods: 73 selected patients with resistant hypertension had RDN performed. Arterial stiffness was measured, using applanation tonometry, before the procedure, 24 to 48 hours following the procedure and subsequently 1, 3 and 6 months after the RDN.
Results: Within 48 hours RDN significantly reduced carotid-femoral aortic pulse wave velocity (AoPWV) from 11.3 ± 2.7 to 10.3 ± 2.6 m/s ($p = 0.001$), the reduction was sustained at months 1, 3, and 6. Early changes of AoPWV value did not correlate with office systolic or diastolic BP ($p = 0.45$; $p = 0.33$). Furthermore, the higher the initial AoPWV value, the greater the reduction of AoPWV was observed after 6 months: Q1 8.4 ± 1, Δ 0.05 ± 1.6/Q2 10.1 ± 0.4, Δ 1.1 ± 1.4/Q3 12.2±0.8, Δ 1.8 ± 1.7/Q4 15.3 ± 1.7, Δ 2.8 ± 2.1, ($p = 0.002$).
Conclusion: A sustainable effect on AoPWV, observed in our study as early as within 24-48 hours following the procedure and up to 6 months, suggests an additional RDN effect on reducing arterial stiffness and cardiovascular risk. The de-stiffening effect was greater in patients with high initial AoPWV.

P65
REMOTE ISCHAEMIC PRECONDITIONING REDUCES KIDNEY INJURY IN VASCULAR SURGERY

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Background: Perioperative acute kidney injury has been found to occur in 12% of patients undergoing lower limb revascularisation (Arora et al., 2013). The aim of the current double-blinded, randomised and sham-controlled pilot study was to determine the effect of remote ischaemic preconditioning (RIPC) in perioperative renal damage in vascular surgery.
Methods: Patients undergoing elective lower limb revascularisation surgery between January 2016 and February 2018, who gave full informed consent, were recruited. Four episodes of 5 minutes of upper limb ischaemia were performed preoperatively. In the sham group, pressure equal to venous pressure was applied instead of ischaemia. Blood samples were collected preoperatively and 20—28 hours after surgery.
Results: Twenty-nine patients were enrolled in the sham and 28 patients were enrolled in the experimental group. The baseline characteristics did not differ between the groups except for gender (Table). The surgery resulted in significant increase of creatinine (from the median value of 80 to 88, $p = 0.0279$) in the sham group. In the RIPC group, in contrast, significant decline in creatinine (from the mean value of 79 to 75, $p = 0.034$) and cystatin C (from the median value of 1.1 to 0.9, $p = 0.0007$) was noted. However, changes in creatinine, urea, cystatin C and B2M between the groups were statistically significant (p-values 0.002, 0.0203, 0.0113, 0.0286 respectively) (Figure).
Conclusion: This pilot study demonstrates that RIPC reduces the levels of biomarkers of acute kidney injury in patients undergoing surgical lower limb revascularisation. This phenomenon may offer renoprotection during vascular surgery.

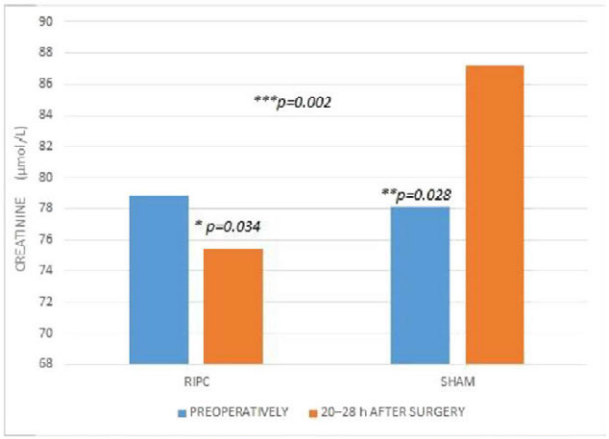

*Figure. Postoperative changes in creatinine. * – creatinine change in the RIPC group; ** – creatinine change in the sham-group creatinine change in the RIPC group; *** – differences between the sham and the RIPC groups*

P66
REDUCTION IN AUGMENTATION PRESSURE IS ASSOCIATED WITH IMPROVEMENT OF EARLY VENTRICULAR EJECTION AFTER AORTIC VALVE REPLACEMENT

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Background: Previously regarded as a measure of pressure wave reflection, central augmentation pressure (AP) may be influenced by the pattern of early ventricular ejection. We examined the relationship of AP to first-phase ejection fraction (EF1), a measure of ventricular ejection up to the time of the first systolic peak in central pressure in patients with aortic stenosis (AS) before and after aortic valve replacement (AVR).
Methods: Carotid pressure, obtained by tonometry calibrated from peripheral mean and diastolic blood pressure, was used to calculate augmentation pressure (difference between the second and first systolic peaks of the aortic waveform). LV volume was obtained by echocardiography. EF1 was defined as the fraction of LV volume ejected from the start of systole to the time of the first systolic peak (T1) on the carotid pressure waveform. Aortic arch to abdominal aorta pulse wave velocity (aPWV) was measured by pulsed wave Doppler.
Results: 10 patients with severe AS (aged 75.8 ± 7.8 years) and preserved EF (62.2 ± 7.1%) were studied before and 48—72 hours after AVR. There was a significant reduction in mean arterial pressure (MAP) (pre:96.9 ± 12.3 mmHg vs post:83.4 ± 11.2 mmHg, $p = 0.012$) and AP (pre:20.8 ± 11.4 mmHg vs post:11.0 ± 5.8 mmHg, $p = 0.017$). EF1 improved significantly (pre:18.7 ± 6.8% vs post:28.9 ± 12.4%, $p = 0.043$), whilst EF did not change. aPWV didn't change significantly after AVR. The change in EF1 was negatively associated with change in AP ($\beta = -0.841$, $p = 0.002$) (Figure 1). This relationship persisted after adjustment of age, gender, BMI, baseline MAP and aortic valve area ($\beta = -1.095$, $p=0.033$).
Conclusion: In patients with AS and preserved EF, an improvement of early ejection is associated with reduction in augmentation pressure after AVR.

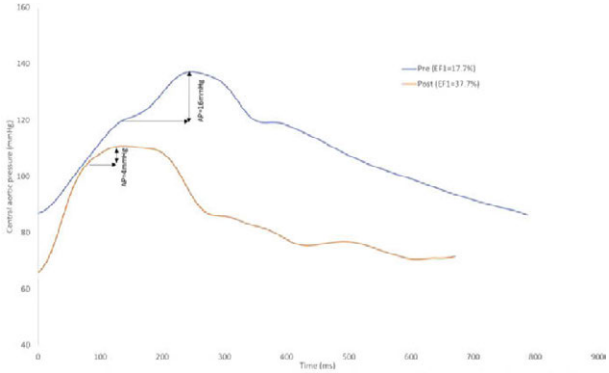

Figure 1. Central aortic pressure waveforms in one subject pre (blue line) and post (red line) AVR. Augmentation pressure reduced from 16mmHg to 4mmHg, whilst EF1 increased from 17.7% to 37.7% after AVR.