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### **P6.1: EVALUATION OF ARTERIAL STIFFNESS INDICES AND CENTRAL HEMODYNAMICS IN HEALTHY NORMOTENSIVE VOLUNTEERS AND IN TREATED OR UNTREATED HYPERTENSIVE PATIENTS IN AMBULATORY CONDITIONS**

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**Results:** As expected, eGFR fell from  $85 \pm 18$  ml/min at baseline to  $59 \pm 12$  ml/min, 12 months post-donation ( $P < 0.001$ ). Clinic BP was  $123 \pm 15/79 \pm 9$  mmHg at baseline and  $126 \pm 14/75 \pm 9$  mmHg, 12 months post-donation ( $P = 0.09$  and  $P < 0.001$  for systolic and diastolic BP, respectively). There was no change in aPWV from baseline, 12 months following donation ( $7.33 \pm 1.53$  m/s versus  $7.35 \pm 1.1.58$  m/s,  $P = 0.8$ ).

**Conclusion:** These data demonstrate that it is feasible to recruit patients undergoing living-donor nephrectomy and to examine the effects on aortic stiffness up to 12 months following donation. Moreover, the results provide important data on which to base larger studies aimed at investigating longer-term effects of kidney donation on aortic stiffness and cardiovascular health.

#### P6.1

##### EVALUATION OF ARTERIAL STIFFNESS INDICES AND CENTRAL HEMODYNAMICS IN HEALTHY NORMOTENSIVE VOLUNTEERS AND IN TREATED OR UNTREATED HYPERTENSIVE PATIENTS IN AMBULATORY CONDITIONS

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Central blood pressure (BP) and various vascular indices estimated non-invasively over a 24-hour period were compared between normotensive volunteers and hypertensive patients by an innovative technology of pulse wave analysis, integrated in a BPLab ambulatory blood pressure monitoring (ABPM) system. Digitalized waveforms obtained during each brachial oscillometric BP measurement were stored in the device memory and then post-processed using software with Vasotens technology running on a personal computer. Averages for the whole 24-hour period and for the awake and asleep subperiods were computed. A total of 142 normotensive healthy subjects and 661 hypertensive patients were analyzed. 24-hour central BP, aortic pulse wave velocity (PWV) and augmentation indices (AI) were significantly higher in the hypertensive than in the healthy subject group ( $119.3$  vs.  $105.6$  mmHg for systolic BP,  $75.6$  vs.  $72.3$  mmHg for diastolic BP,  $9.8$  vs.  $9.2$  m/sec for PWV,  $-9.7$  vs.  $-40.7$  for peripheral AI and  $24.7$  vs.  $11.0$  for aortic AI), whereas reflected wave transit time (RWTT) was significantly lower in patients with high BP ( $126.6$  vs.  $139.0$  ms). After adjusting for age, gender, body mass index and 24-hour BP levels, a statistically significant between-group difference was still observed for 24-hour RWTT ( $127.5$  ms hypertensives vs.  $134.5$  ms normotensives,  $p = 0.0001$ ) and 24-hour peripheral AI ( $-14.1$  vs.  $-20.0$ ,  $p = 0.005$ ). All estimates of vascular health displayed a typical circadian rhythm. Thus the estimation of arterial stiffness and central hemodynamics by the BPLab device represents an effective tool for an evaluation of vascular damage in hypertensive patients in dynamic condition.

#### P6.2

##### SYSTEMATIC REVIEW OF RESULTS OF KISSING STENTS IN THE TREATMENT OF AORTOILIAC OCCLUSIVE DISEASE

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**Introduction:** Severe stenosis or occlusion of the aortoiliac bifurcation is typically treated with open surgery. Patency results of aorto-bifemoral bypass are up to 90% at 5 years. However, the number and severity of complications seem to have reached a plateau level. A less invasive technique, the kissing stent (KS) is available nowadays. The goal of this review was to give an overview of the current results and status of the kissing stent technique.

**Method:** The Scopus® search engine was used to retrieve articles concerning KS, this retrieved 78 abstracts, 60 were rejected and 4 more were rejected after full text screening. One article was included after cross referencing. After a quality check, data was extracted for further analysis.

**Results:** 810 patients (72.8% Rutherford classification of 1/2/3) were included. The most prevalent risk factor was hypertension (37.5-96%) and 50% of patients were treated for TASC C & D lesions. Overall the technical success rate was 98.2%. Procedural protocols greatly differed on applying protrusion and pre or post dilatation. Clinical improvement at 30 days was achieved in 89.9%. Primary patency at 12, 24, and 36 months was 88.8%, 78.9 and 68.5, respectively. A complication rate of 11% was reported, of which most are minor. No detailed analysis could be performed because individual patient data are lacking.

**Conclusion:** KS treatment of aortoiliac disease is related with only minor complications and acceptable midterm patency results, this can however not surpass the results seen with open surgery.

#### P6.3

##### MODERATE INTENSITY EXERCISE AORTIC RESERVOIR PRESSURE INDEPENDENTLY PREDICTS LEFT-VENTRICULAR MASS INDEX: ONE-YEAR PROSPECTIVE STUDY IN PATIENTS WITH TREATED HYPERTENSION

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**Background.** Moderate intensity exercise blood pressure (BP) is associated with adverse cardiovascular outcomes. The mechanisms of this association are unknown but may be due to central haemodynamic factors. This study sought to determine the relation between moderate-exercise central haemodynamics (including aortic reservoir characteristics) and end organ disease assessed by left ventricular mass index (LVMI).

**Methods.** Resting and moderate cycle exercise (60-70% heart rate maximum) haemodynamics were recorded in 119 participants with treated hypertension (mean age 65±7 years, 47% male) at baseline and one-year. Brachial BP was recorded by auscultation and central haemodynamics (aortic reservoir pressure, augmentation index, systolic BP, pulse pressure) via radial tonometry. LVMI mass was recorded using real-time 3-dimensional echocardiography.

**Results.** Baseline to one-year change in LVMI was not related to change in any resting brachial or central haemodynamic variable, or exercise brachial BP ( $P > 0.05$  all). However, change in exercise aortic reservoir pressure (integral) was significantly associated with change in LVMI ( $r = 0.244$ ,  $p = 0.006$ ). This relationship was maintained on multiple regression analysis adjusting for age, sex, body-mass index, aortic stiffness and 24-hour ambulatory systolic BP ( $\beta = 0.001$ , 95% CI =  $0.000-0.001$ ,  $p = 0.035$ ).

**Conclusions.** Moderate exercise aortic reservoir pressure independently predicts changes in LV mass over time. Technology to measure 24-hour ambulatory central haemodynamics (including aortic reservoir characteristics) is now available and should provide additional prognostic information beyond peripheral BP measures.

#### P6.4

##### THE DIFFERENTIAL EFFECTS OF RESISTANCE TRAINING AND ENDURANCE TRAINING ON AUGMENTATION INDEX: A PILOT STUDY

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**Background:** Current literature suggests that increased exercise is associated with decreased cardiovascular risk and improvements in vascular health. However, there is some conflict as to which modality of exercise has the most beneficial effect on vascular health and cardiovascular risk [1-3]. Therefore, the aim of our study was to investigate the influence of two different training modalities on augmentation index (AIx). This was carried out in a group of tightly matched, young, healthy male athletes who were either resistance (RT) or endurance trained (ET).

**Methods:** 17 male athletes (9 RT + 8 ET) aged 18-25 years were assessed for height, weight, BMI, mean arterial pressure (MAP) and AIx. AIx, which has been shown to be the most sensitive marker of systemic vascular stiffness in young individuals, was determined using the Mobil-o-Graph device (IEM).

**Results:** No significant differences in height, weight or MAP ( $p > 0.05$ ) were observed between the RT and ET groups. However, both BMI and HR were found to be significantly higher in the RT compared to the ET group ( $P < 0.05$ ). Interestingly, the RT group also had significantly higher AIx at heart rate 75 compared to the ET group ( $14.4 \pm 9.6\%$  vs  $0.3 \pm 12.3\%$ ,  $P < 0.05$ ).

**Conclusion:** These results demonstrate that AIx was significantly higher in the RT compared to the ET group. Therefore, different modalities of exercise may elicit differential effects on vascular health. However, as this is a pilot study, larger and longitudinal studies are needed to support these findings.

#### P6.5

##### ANTI-INFECTIVE PERIODONTAL THERAPY IS ASSOCIATED WITH IMPROVEMENT OF ARTERIAL STIFFNESS AND PULSE WAVE REFLECTION

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**Aim:** This parallel-group double blind prospective placebo-controlled clinical trial evaluated the impact of anti-infective periodontal therapy on the expression of surrogate parameters of cardiovascular health including arterial stiffness, pulse wave reflection, and blood pressure.