



## Artery Research

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### **P7.04: PROGRESSIVE ARTERIAL STIFFENING IN RENAL TRANSPLANT RECIPIENTS – RESULTS OF 28-MONTH FOLLOW-UP**

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**Conclusions:** Marathon runners have increased aortic stiffness, as well as central and peripheral haemodynamic parameters. These findings could contribute to precisely assess cardiovascular risk in marathon runners focusing on the proper training volumes, frequency and duration.

#### P7.04

##### PROGRESSIVE ARTERIAL STIFFENING IN RENAL TRANSPLANT RECIPIENTS + RESULTS OF 28-MONTH FOLLOW-UP

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Recent follow-up studies showed no change or even short-term improvement of arterial stiffness after kidney transplantation. Data from general population and end-stage renal disease patients suggest, that PWV increases with age of 0,07-0,08 m/s for each year of life. It was shown recently that reduced glomerular filtration rate (GFR) is associated with increased arterial stiffness in RTR. We investigated the change of PWV during follow-up and its relationship with graft function. Carotid-femoral PWV was measured at baseline (PWV1) and after 28 ± 3 (range 24-34) months of follow-up (PWV2) in 61 RTR aged 49 ± 12 years. Fasting blood was collected for serum creatinine, calcium (Ca), phosphorus (P), and high-sensitive C-reactive protein (hsCRP). GFR was calculated with MDRD formula (eGFR). ΔPWV was calculated as (PWV2-PWV1)/PWV1. Clinical and laboratory data were analysed to identify factors associated with ΔPWV. Results are shown as mean ± SD.

	Baseline	Follow-up	P
PWV (m/s)	9,1 ± 1,7	9,8 ± 2,0	< 0,002
Body mass (kg)	73,7 ± 13,9	75,4 ± 13,6	< 0,001
SBP (mmHg)	132 ± 17	137 ± 19	= 0,05
DBP (mmHg)	83 ± 11	84 ± 10	NS
MAP (mmHg)	99 ± 12	102 ± 12	NS
PP (mmHg)	50 ± 11	53 ± 14	<0,05
eGFR (ml/min/1,73m2)	55 ± 16	56 ± 16	NS

Serum Ca, P, Ca x P product, hsCRP did not change during follow-up. Significant positive correlation was found between ΔPWV and serum phosphorus ( $r = 0,27$ ;  $p < 0,05$ ) and Ca x P product ( $r = 0,25$ ;  $p < 0,05$ ) but not with body mass, BMI, SBP, DBP, MAP, PP, Ca, eGFR, hsCRP. Arterial stiffness increased in renal transplant recipients despite stable graft function. Phosphorus metabolism disturbances might be involved in arterial stiffening in RTR.

#### P7.05

##### ASSOCIATION BETWEEN RENAL FUNCTION AND ARTERIAL STIFFNESS IN NEVER-TREATED HYPERTENSIVES

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**Introduction:** Hypertension and renal dysfunction are associated with increased arterial stiffness. Arterial stiffness is a marker of cardiovascular

disease and predictor of cardiovascular risk. We assessed the relationship between renal function and arterial stiffness in never-treated hypertensives.

**Methods:** We enrolled 388 consecutive essential hypertensives (mean age 52 ± 12 years), who had no established cardiovascular disease. Arterial elastic properties were evaluated with carotid-femoral pulse wave velocity (PWV). Renal function was evaluated with blood creatinine and estimated glomerular filtration rate, measured by the simplified Modification of Diet in Renal Disease (MDRD) formula and the Cockcroft-Gault formula.

**Results:** In multivariable regression analysis PWV significantly correlated with blood creatinine levels ( $p < 0,05$ , adjusted  $R^2$  of model = 0.224) and estimated GFR by the Cockcroft-Gault formula ( $p = 0,05$ , adjusted  $R^2$  of model = 0.222), as well as by the MDRD formula ( $p < 0,05$ , adjusted  $R^2$  of model = 0.223). (Figure) The abovementioned correlations were independent of age, sex, body-mass index and mean blood pressure.

**Conclusion:** This is the first study in never-treated hypertensives that shows a weak but significant relationship between the degree of GFR loss and arterial stiffness, even in individuals with GFR values within the normal renal function range.

#### P7.06

##### CENTRAL BLOOD PRESSURE AND AUGMENTATION INDEX OF HEALTHY YOUTH

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**Background:** The clinical importance of central blood pressure (BP) and heart rate corrected augmentation index (AlxHR75) has been gradually increasing in recent years.

**Objectives:** We measured the peripheral and central BP, the AlxHR75 of healthy volunteers with special regard to diurnal variation (8 AM, 12 PM, 5 PM) and gender difference.

**Methods:** The measurements were carried out using the SphygmoCor (AtCor Medical, Australia) device.

**Results:** 52 young subjects (23 males, 29 females) were included in the study. The average age was 23.6 ± 2.1 years. The peripheral and central systolic and diastolic BP values did not show any significant diurnal variation either for males, or females. All BP values of the males were higher than that of females ( $p < 0,001$ ). The peripheral systolic BP were higher than the central systolic pressure during all three times of measurement ( $p < 0,001$ ). The differences for males were 14.3 ± 3.7 mmHg; 17.4 ± 3.6 mmHg, and 17.8 ± 3.1 mmHg ( $p < 0,001$ ), while the amplification of systolic BP for females were 11.5 ± 3.4 mmHg; 12.7 ± 3.7 mmHg, and 12.9 ± 3.5 mmHg ( $p < 0,001$ ), respectively. However, the values of the AlxHR75 were the highest in the morning, and it gradually decreased during the day for both genders ( $p < 0,01$ ). The females AlxHR75 were higher than that of males ( $p < 0,001$ ).

**Conclusions:** We suppose that it is important to determine central BP by non-invasive measurement, especially in young individuals, since the peripheral BP measured at the brachial artery does not reliably represent the actual central pressure conditions. Furthermore we conclude that the AlxHR75 shows a considerable diurnal variation and gender difference.

