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P114: ARTERIAL STIFFNESS IS ASSOCIATED WITH AMBULATORY BLOOD PRESSURE PARAMETERS IN PATIENTS ON MAINTENANCE HEMODIALYSIS

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(VC) in patients with end-stage renal disease (ESRD) and its associations with clinical parameters of arterial stiffness.

Methods: In 68 adults with ESRD on maintenance hemodialysis for >3 months (45.6% males, median age 58.3 (interquartile range (IQR) 54.6; 61.6) years, dialysis duration 62.7 (47.8; 77) months, echocardiography and applanation tonometry was performed.

Results: Calcification of the aortic, mitral and both valves was revealed in 46 (67.6%), 34 (50%) and 33 (48.5%) of patients. 20 (29%) patients had no signs of VC. Patients with vs without AVC were older (65.1 ± 9.5 vs 41.4 ± 11.9 years, $p < 0.001$), had higher dialysis duration (51 (8; 252) vs 21 (10; 38) months, $p < 0.01$), lower peripheral diastolic blood pressure (DBP) (76 ± 17 vs 84 ± 12 mmHg, $p < 0.05$), central DBP (75 ± 15 vs 82 ± 11 mmHg, $p < 0.05$), reflected wave transit time (RWTT) (131 ± 17 vs 137 ± 15 ms, $p < 0.05$). Patients with vs without MVC were older (67.8 ± 8.2 vs 47.9 ± 13.5 years, $p < 0.001$), had higher dialysis duration (51 (34; 111) vs 36 (14; 57) months, $p < 0.01$), carotid-femoral pulse wave velocity (10.1 ± 2.7 vs 8.9 ± 3.5 m/s, $p < 0.05$), lower peripheral DBP (73 ± 17 vs 84 ± 14 mmHg, $p < 0.01$), central DBP (72 ± 13 vs 83 ± 13 mmHg, $p < 0.001$), higher central pulse pressure (52 ± 13 vs 45 ± 16 mmHg, $p < 0.05$), lower RWTT (133 (120; 130) vs 135 (132; 142) ms, $p < 0.05$).

Conclusion: High prevalence of VC (71%) was revealed in patients with ESRD on maintenance hemodialysis. Patients with vs without VC were older, had higher duration of dialysis and more pronounced arterial stiffness.

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DIASTOLIC AMBULATORY BLOOD PRESSURE PARAMETERS ARE ASSOCIATED WITH VALVE CALCIFICATION IN PATIENTS WITH END-STAGE RENAL DISEASE ON MAINTENANCE HEMODIALYSIS

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Objective: Valve calcification (VC) is common in patients on hemodialysis and increases the risk of cardiovascular morbidity and mortality. The aim of the study was to evaluate the association between VC and 44-hour ambulatory blood pressure (ABP) variables.

Materials and methods: In 68 patients with end-stage renal disease (ESRD) on maintenance hemodialysis (45.6% males, median age 58.3 (interquartile range (IQR) 54.6; 61.6) years, dialysis duration 62.7 (47.8; 77) months, arterial hypertension 94%, heart failure 28%, diabetes mellitus 21%, glomerulonephritis 35%, pyelonephritis 25%, multicystic dysplastic kidney 13%) echocardiography and 44-hour ABP monitoring was performed. Mann-Whitney test was considered significant if $p < 0.05$.

Results: Calcification of the aortic (AVC), mitral (MVC) and both valves was revealed in 46 (67.6%), 34 (50%) and 33 (48.5%) of patients. 20 (29%) patients had no signs of VC. Patients with vs without AVC had lower daytime diastolic BP (DBP) (79 ± 13 vs 89 ± 12 mmHg, $p < 0.01$), nighttime DBP (75 ± 13 vs 83 ± 13 mmHg, $p < 0.05$), day one DBP (77 ± 13 vs 89 ± 15 mmHg, $p < 0.01$), day two DBP (79 ± 14 vs 88 ± 10 mmHg, $p < 0.01$), 44-hour DBP (78 ± 13 vs 88 ± 12 mmHg, $p < 0.01$).

Patients with vs without MVC had lower daytime DBP (78 ± 15 vs 86 ± 11 mmHg, $p < 0.01$), nighttime DBP (74 ± 14 vs 81 ± 12 mmHg, $p < 0.05$), 44-hour DBP (77 ± 15 vs 85 ± 11 mmHg, $p < 0.01$), higher daytime DBP variability (10 ± 3 vs 9 ± 3 mmHg, $p < 0.01$).

Conclusion: High prevalence of valve calcification (71%) was revealed in patients with ESRD on hemodialysis. Patients with VC were older, had higher duration of dialysis, lower values of ambulatory DBP.

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ARTERIAL STIFFNESS IS ASSOCIATED WITH AMBULATORY BLOOD PRESSURE PARAMETERS IN PATIENTS ON MAINTENANCE HEMODIALYSIS

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Introduction: Arterial stiffness is a principal pathogenetic mechanism of aortic systolic blood pressure (SBP) augmentation, left ventricular hypertrophy and sudden cardiac death. The aim of the study was to evaluate the

association between parameters of pulse wave and 44-hour ambulatory blood pressure (ABP) variables in patients with end-stage renal disease.

Methods: In 68 patients with ESRD on maintenance hemodialysis (45.6% males, median age 58.3 (interquartile range (IQR) 54.6; 61.6) years, dialysis duration 62.7 (47.8; 77) months applanation tonometry and 44-hour ABP monitoring was performed.

Results: Carotid-femoral pulse wave velocity (PWV) < 10 vs ≥ 10 m/s was revealed in 52 (76.5%) of patients respectively. Patients with ≥ 10 vs < 10 m/s had higher dialysis duration (median 60; IQR 36; 84) vs 28; IQR 11; 50.5) months, $p < 0.05$), peripheral SBP (148.1 ± 24.8 vs 140.7 ± 23.6 mmHg, $p < 0.05$); diastolic blood pressure (DBP) (85.7 ± 15.2 vs 83.3 ± 12.7 mmHg, $p < 0.05$); 48-hour heart rate (HR) (74.7 ± 13.0 vs 72 ± 8.7 bpm, $p < 0.05$), mean day one HR (78.7 ± 7.5 vs 72.5 ± 9.7 bpm, $p < 0.05$), 48-hour DBP variability (DBPV) (78 ± 13 vs 88 ± 12 mmHg, $p < 0.01$), day two SBP variability (13.5 ± 4.4 vs 13.1 ± 4.1 mmHg, $p < 0.05$), mean day two BD variability (12 ± 3.9 vs median 11; 11.8 ± 3.6 mmHg, $p < 0.05$).

Patients with ≥ 10 vs < 10 m/s had lower daytime DBPV (median 8.5; IQR 7; 9) vs IQR 10 (8; 11) mmHg, $p < 0.05$), day one DBPV (median 8; IQR 8; 9) vs 9 IQR 8; 10 mmHg, $p < 0.01$).

Conclusions: Patients with ≥ 10 m/s had higher duration of dialysis, higher values of ambulatory DBP and higher — of HR. These findings may have implications in gaining further insights into the mechanism of arterial stiffness.

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ALBUMIN-TO-CREATININE RATIO IS ASSOCIATED WITH TARGET ORGAN DAMAGE IN HYPERTENSION

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Purpose/Background/Objectives: Hypertension is associated with higher cardiovascular risk as well as several markers of subclinical target organ damage (TOD). Albumin to creatinine ratio (ACR) in urine has been recognised as an independent risk factor for cardiovascular events. We hypothesised that there is a relationship between ACR and markers of TOD in never-treated hypertensives.

Methods: We enrolled 924 consecutive essential hypertensives (mean age 53 ± 12 years, 486 males) without known cardiovascular disease (CVD). Markers of subclinical TOD [left ventricular mass index (LVMI), pulse wave velocity (PWV), ankle-brachial index (ABI) and estimated glomerular filtration rate (eGFR)] were evaluated in all patients. LVMI was assessed echocardiographically using the Devereux formula. Carotid-femoral PWV was estimated with the Complior device. eGFR was calculated by the Cockcroft-Gault formula. ABI was calculated by dividing the highest ankle systolic blood pressure by the highest brachial systolic blood pressure.

Results: ACR exhibited significant association with LVMI ($r = 0.277$, $p < 0.001$), PWV ($r = 0.277$, $p < 0.001$) ABI ($r = -0.078$, $p = 0.018$) and eGFR ($r = -0.100$, $p = 0.002$). In further analysis, ACR was associated with TOD as suggested by the 2013 European Guidelines for Hypertension [left ventricular hypertrophy (LVMI > 115 g/m² in men and > 95 g/m² in women), increased PWV (PWV > 10 m/s), decreased ABI (ABI < 0.9) and decreased renal function (eGFR < 60 ml/min)]. Specifically, ACR exhibited a significant association with the number of TOD and this association was independent of age and gender ($p < 0.05$).

Conclusions: Our findings support the close relationship between ACR and TOD in hypertension, as well as, the predictive ability of ACR for TOD.

Poster Session II – Models and Methodologies II P135

PRECISION CALIBRATION OF PERIPHERAL PRESSURE WAVEFORMS USING INTRA-ARTERIAL BLOOD PRESSURE REVEALS THE NEED FOR IMPROVED WAYS TO ACCURATELY ESTIMATE AORTIC BLOOD PRESSURE

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Background: Estimating aortic blood pressure (BP) non-invasively requires peripheral waveform calibration using cuff systolic (SBP) and diastolic