P.026: A PIVOTAL ROLE OF THE ANTI-ANGIOGENETIC FACTOR THROMBOSPONDIN-2 IN THE PROGRESSION OF CARDIAC HYPERTROPHY TO FAILURE.

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P.022 VALIDITY OF THE TENSIOCLINIC DEVICE TO MEASURE ARTERIAL STIFFNESS IN PATIENTS ON HEMODIALYSIS

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Assessment of arterial stiffness in dialysis patients has prognostic significance. The TensioClinic device uses oscillometrically obtained wave forms to calculate pulse wave velocity (PWV) and augmentation index (AI). Our objective was to assess the validity of measurements of TensioClinic (PWVT, AI) compared to that of the validated PulsePen tonometer (PWVp, AIp). We measured PWV and AI in duplicate, before and after hemodialysis, in 94 hemodialysis patients. Reliability of a given device was assessed by calculating the standard deviation of the difference (SDD) between the first and second measurement. Validity of TensioClinic was evaluated by comparing its results to that obtained by the PulsePen device, using correlation analysis and Bland-Altman plots.

Predialysis SDD for PWVP and PWVT were -0.03 ± 0.94 m/s and 0.51 ± 1.35 m/s, postdialysis PWVP and PWVT SDD-s were 0.09 ± 1.41 m/s and 0.07 ± 1.81 m/s, respectively. Pre- and postdialysis SDD for AIp and AIp were 0.87 ± 5.49% and 1.81 ± 8.74%, and 0.79 ± 4.01% and 3.54 ± 22.69%. Mean predialysis PWVP was 10.95 ± 2.89 m/s and PWVT 9.97 ± 2.36 m/s. Postdialysis PWVP was 11.59 ± 2.92 m/s and PWVT 10.37 ± 3.24 m/s. Significant correlation was found between predialysis PWVP and PWVT (r = 0.28, p < 0.05). After dialysis had not significant (r = 0.16). Mean predialysis AIp was 23.32 ± 12.27% and AIp 2.17 ± 26.4%. Postdialysis AIp and AIp were 22.01 ± 12.54% and 4.36 ± 37.81%, respectively. Significant correlation was found between pre- and postdialysis AIp and AIp, r = 0.40 and 0.26, respectively.

PWV and AI measurements with PulsePen are more reproducible compared to TensioClinic. Poor correlation between the obtained results by the two devices may limit the use of TensioClinic in hemodialysis patients.

P.023 THE RELATIONSHIP BETWEEN PERIPHERAL ARtery PULSE WAVe VELOCITY AND VASODILATOR FUNCTION IN HYPERTENSIVE PATIENTS

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Pulse wave velocity is commonly employed as a summary descriptor of the mechanical properties of an artery. Although PWV is related to arterial stiffness and both are predictors of cardiovascular events, no commercially available devices are currently available to measure local PWV non-invasively. To our knowledge, methods are currently available to measure local PWV non-invasively.

Among a group of hypertensive patients, there was a significant correlation between CRPWV and AI (r = –0.28, p = 0.014). Among a group of hypertensive patients, there was a significant inverse correlation between CRPWV and brachial vasodilator response to acetylcholine, independent of distending blood pressure. This suggests that CRPWV may represent a rapidly obtainable estimate of arterial health.

P.024 MEASURING LOCAL PULSE WAVE VELOCITY USING NON-INVASIVE MULTIPLE M-LINE ULTRASOUND

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Introduction: Local pulse wave velocity (PWV) provides direct information about the mechanical properties of an artery. Although PWV is related to arterial stiffness and both are predictors of cardiovascular events, no methods are currently available to measure local PWV non-invasively.

Method: The common carotid artery (CCA) of 4 young subjects were measured with multiple M-line ultrasound, resulting in 14 distension waveforms spaced over 17 mm. PWV was determined by applying linear regression to the foot of the distension waveforms and the corresponding echo line position. The PWV was accepted for further analysis if the correlation coefficient of both parameters was above 0.95.

Results: The local PWV measurement method had a good intra-subject coefficient of variation (CV) of <5%. The average PWV was 3.5 ± 0.7 m/s with an inter-subject CV of 20%. One subject, with high blood pressure (140/90 mmHg), had a PWV of 4.6 ± 0.2 m/s.

Conclusion: A low results showed a low PWV in the CCA compared to conventional carotid-femoral (CF) PWV. The muscular arteries that are part of the CF-trajectory increase the CF-PWV. Moreover since pulse waves travel in opposite direction, using the distance between carotid and femoral artery causes CF-PWV to overestimate true PWV.

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