P127: SPATIAL VARIATION OF RESERVOIR PRESSURE IN CHILDREN ASSESSED WITH HIGH FIDELITY PRESSURE MEASUREMENT IN FIVE AORTIC LOCATIONS

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THE ASSOCIATION OF THE INTEGRATED CENTRAL PRESSURE-STIFFNESS RISK SCORE WITH CARDIOVASCULAR MORTALITY IN HEMODIALYSIS PATIENTS

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Background: Our aim was to study the predictive power of ICPS risk categories on CV mortality in hemodialysis patients.

Methods: In our retrospective cohort study 91 patients were involved. During follow-up 31 events occurred. After adjustment for multiple variables, compared with the average ICPS risk category group (n = 29.5 months and CV mortality was registered. Patients were classified into tertiles based on their PWV, cSBP and cPP values. After the analysis of the predictive values of the tertiles of the identical parameters, patients were scored. One score was given, when a patient had a third tertile value of cSBP or a second or third tertile value of PWV or cPP. Then the CV outcome was analyzed with Cox regression analysis of the groups of patients with different ICPS scores and three ICPS risk categories on CV mortality in hemodialysis patients.

Results: During follow-up 31 events occurred. After adjustment for multiple factors, compared with the average ICPS risk category group (n = 35; 38%), those, who were in the high risk group (n = 33; 30%) showed a tendency for a significantly higher hazard ratio (HR) of CV mortality than patients in the average ICPS risk category group (n = 23; 21%) and a markedly increased risk (HR = 10.03, CI: 1.67–60.42).

Conclusions: The ICPS risk categories can help in the identification of hemodialysis patients with high CV risk.

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SPATIAL VARIATION OF RESERVOIR PRESSURE IN CHILDREN ASSESSED WITH HIGH FIDELITY PRESSURE MEASUREMENT IN FIVE AORTIC LOCATIONS

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Objective: To assess whether reservoir pressure (Pres) in young individuals with a compliant aorta is uniform throughout the aorta, as has recently been reported in older adults with cardiovascular disease (1).

Methods: High fidelity pressure was measured with a Verrata wire (Philips Volcano) in 5 aortic locations (ascending-to-abdominal) via pull-back in 11 children with a normal aorta (age 10.4 ± 4.9 years, mean ± SD). Pres was calculated using the ‘pressure-only’ approach (2), with exponential fitting over the whole of diastole (1) (WholeDia) or the period when pressure declined in an approximately exponential fashion (ExpDia).

Results: ExpDia produced a better fit than WholeDia (R2 = 0.99 ± 0.01 vs 0.91 ± 0.11, P < 0.001). Pres amplitude (ΔP_{ren}) in the ascending aorta from WholeDia fitting (12.0 ± 4.1 mmHg) was less than with ExpDia fitting (19.0 ± 5.2, P = 0.001). The zero-flow asymptotic pressure (P_{inf}) obtained from the fitting procedure was negative (non-physiological) in 76% (WholeDia) and 44% (ExpDia) of recordings, but fixing P_{inf} to 37 mmHg (average of those, who were in the high risk group (n = 23; 21%) had a markedly increased risk (HR = 8.43), while patients in the very high ICPS risk category (n = 33; 30%) showed a tendency for a significantly higher hazard ratio (HR) of CV mortality (HR = 2.62, 95% confidence interval (CI):0.82–8.43), while patients in the very high ICPS risk category (n = 23; 21%) had a markedly increased risk (HR = 10.03, CI:1.67–60.42).

Conclusions: The ICPS risk categories can help in the identification of hemodialysis patients with high CV risk.

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RADIAL INTIMA-MEDIA THICKNESS ASSESSMENT BY ULTRA-HIGH FREQUENCY ULTRASOUND AND AUTOMATED IMAGE-ANALYSIS IN HEALTHY VOLUNTEERS

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Background: Ultrahigh-frequency ultrasound may represent a powerful tool for investigating the arterial properties of medium and small-size arteries. Aim of this study was: 1) to evaluate intra- and inter-operator reproducibility of radial artery vascular parameters (intima-media thickness – IMT- and diastolic diameter -DD), obtained both with a manual and an automatic approach; 2) to identify physiological correlates of radial IMT.

Methods: 40 healthy subjects were examined by Vevo MD (FUJIFILM, VisualSonics, Toronto, Canada); in 11 volunteers two B-mode clips (longitudinal view) of the radial artery were acquired for each subject by two skilled operators. IMT DD were measured manually and using an automatic software (Cardiovascular Suite, QUIPU, Pisa, Italy). Coefficient of variations (CV) and Bland-Altman analysis were employed.

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