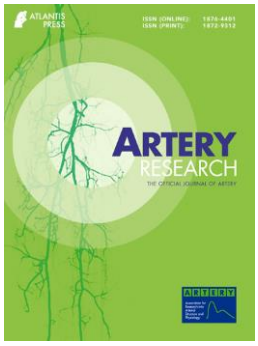

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P9.11: ARTERIAL STIFFNESS IS ASSOCIATED WITH DECREASED KIDNEY FUNCTION IN A PRIMARY CARE POPULATION: RESULTS FROM THE HIPPOCRATES-STUDY

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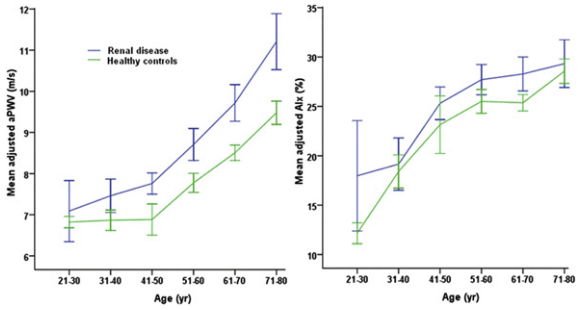
	Kidney disease	Healthy controls
Age (y)	55±14	56±18
Male (%)*	66	48
eGFR*	43±21	96±30
Syst/Diast BP	133/80 ±20/11	134/80 ±19/11
Adj PWV*	9.0±2.5	7.8±1.8
Adj AIx*	26.0±9.2	19.3±8.5

Methods: Cardiovascular risk factor data, aPWV and AIx were obtained from CKD patients at 8 UK renal centres and participants in ACCT, a study of the general population. Those with diabetes and/or vascular disease were excluded. The relationship of age to aPWV and AIx was compared between patients with CKD (stages 1-5, not on dialysis, non-vascular diagnosis, n=524) and controls (eGFR >60mL/min, n=1535). Controls were stratified by age and gender to ensure comparability.



Results: Adjusted aPWV and AIx were higher in CKD patients (P<0.001). There was a significant interaction (P<0.001) between age and the presence of CKD on aPWV, but this was not seen for AIx (P=0.19).
Conclusions: Kidney disease in the absence of co-morbidities is associated with increased arterial stiffness compared to controls. In CKD patients aPWV increases more rapidly with age than controls but there was no difference in the pattern of change of AIx with age between groups.

P9.10
IN THE ELDERLY, ENDOTHELIAL DYSFUNCTION AND LOW-GRADE INFLAMMATION DO NOT PLAY A PROMINENT ROLE IN LOCAL ARTERIAL STIFFENING — THE HOORN STUDY -

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Purpose: To investigate, in the elderly, the association between plasma biomarkers of endothelial dysfunction (ED) and low-grade inflammation (LGI) on the one hand and greater local arterial stiffness of the carotid, femoral and brachial arteries on the other.
Methods: Plasma biomarkers for ED (vWf, sVCAM-1, sE-selectin, sICAM-1) and LGI (CRP, SAA, IL6, TNF-α, sICAM-1) were determined and combined into mean z-scores, in a cohort stratified by glucose tolerance status (GTS) (n=745; DM2=275, IGM=183, NGM=287; age 68.7±7.0 years). Ultrasonography was used to measure arterial properties and local arterial stiffness estimates were calculated: distensibility (DC) and compliance coefficients (CC), in all arteries, and the carotid Young's elastic modulus (YEM). Linear regression analyses were used to investigate the above associations.
Results: The study population was characterized by a high prevalence of prior cardiovascular disease (CVD) (48%), hypertension (70%) and use of lipid-lowering (17%) and anti-hypertensive (39%) medication. After adjustment for sex, age, mean arterial pressure and GTS, ED was not associated with carotid, femoral or brachial stiffness (e.g. for the carotid artery (β (95%CI): DC: 0.19(-0.24;0.62), CC: -0.01(-0.03;0.02) and YEM: 0.03 (-0.03;0.08)). LGI was not associated with carotid, femoral or brachial stiffness, except for YEM (0.07(0.02;0.12); other data not shown).
Discussion: In an elderly population at high CVD risk, ED and LGI were not associated with local arterial stiffness, except for LGI and YEM. This suggests that ED and LGI, as estimated by these markers, do not play a prominent role in arterial stiffening, as estimated by these local arterial stiffness estimates.

P9.11
ARTERIAL STIFFNESS IS ASSOCIATED WITH DECREASED KIDNEY FUNCTION IN A PRIMARY CARE POPULATION: RESULTS FROM THE HIPPOCRATES-STUDY

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Introduction: Chronic kidney disease (CKD) is associated with cardiovascular morbidity and mortality. A common observation in both CKD and cardiovascular disease is increased arterial stiffness. Although many studies have focussed on patients with advanced CKD or established cardiovascular disease, relatively few studies have investigated whether increased arterial stiffness is predictive of renal damage in a less selected primary-care population.
Objective: In this study, we aimed to investigate whether increased arterial stiffness is associated with impaired renal function in a primary care population without overt CKD.
Design and Method: We performed a cross sectional analysis of data from the HIPPOCRATES-study, a study investigating hypertension and cardiovascular complications in a primary care population. Carotid-femoral Pulse-Wave Velocity (cfPWV), blood-pressure measurements and laboratory data were available. The estimated Glomerular Filtration Rate (eGFR) was calculated using the Cockroft-Gault formula, adjusted for the Body Surface Area.
Results: We studied 587 patients (283 males). The mean age of the population was 61.1 ± 10.6 years. The mean GFR was 69.8 ± 15.6 ml/min. In a linear regression model unadjusted for age the mean CF-PWV was inversely associated with GFR. (ß -0.16; p<0.0001). However, this relationship did not persist after correction for age. Body-mass index was an independent determinant of eGFR in both models.
Conclusion: In a primary care population carotid-femoral PWV is significantly associated with decreased kidney function, however this effect is mainly determined by age and body-mass index.

Therapeutic Aspects

P10.01
AORTIC STIFFNESS IN POLYMYALGIA RHEUMATICA: EFFECTS OF STEROID TREATMENT

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Increased arterial stiffness and cardiovascular risk have been observed in inflammatory diseases. Polymyalgia rheumatica (PMR) is a disease which affects primarily the elderly and exhibits evidence of a systemic inflammatory response, but little is known about aortic involvement in PMR. We investigated whether aortic stiffness is increased in PMR and whether it improves after steroid treatment.
Thirty-nine PMR patients (age 72±8 years, men 45%, blood pressure 134/75±16/9 mmHg) and 39 age-, sex- and blood pressure-matched control subjects underwent aortic pulse wave velocity (PWV) determination (applanation tonometry, Sphygmocor). Aortic augmentation as a measure of the impact of the reflection wave on central hemodynamics was also measured, and corrected for heart rate. Twenty-nine of the PMR patients were reexamined after 4-week treatment with prednisone (starting dose, 12.5-50 mg/day).
Aortic PWV was significantly higher in PMR patients than in control subjects (12.4±4 *vs* 10.2±2 m/s, p<0.01). Treatment was followed by a reduction in heart rate (from 78±12 to 70±10 bpm, p<0.001), and no significant change in BP (from 134/75±16/8 to 134/75±15/9 mmHg, both p=n.s.). As shown in the Figure, aortic PWV decreased significantly after steroid treatment (from 11.8±4 to 10.5±3 m/s, p=0.015), and the difference was independent from blood pressure and heart rate changes. Treatment was also associated with a significant reduction in aortic augmentation. Augmentation index