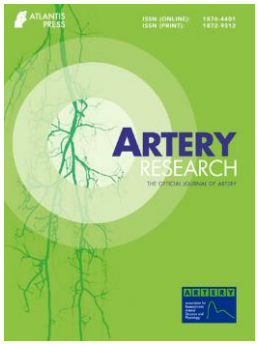

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P11.10: ARTERIAL STRUCTURE AND FUNCTION ARE INFLUENCED BY ANTIRETROVIRAL THERAPY AND BY THE PRESENCE OF RENAL DAMAGE IN HIV POSITIVE PATIENTS

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(*continued*)

	PPEP	PNP	P
C WK (ml mmHg^{-1})	1.28±0.42	1.40±0.45	0.239
C PPM (ml mmHg^{-1})	1.03±0.33	1.14±0.30	0.104
Ea (mmHg ml^{-1})	1.45±0.39	1.27±0.28	0.004
Amplitude Forward Wave (Pf; mmHg)	36±9	30±6	0.001
Amplitude Backward Wave (Pb; mmHg)	22±8	19±4	0.017
Reflection magnitude (Pb/Pf)	0.60±0.13	0.64±0.13	0.145

Mean±SD. $p<0.05$ (unpaired t-test). WK = C obtained using windkessel model fit; PPM= pulse pressure method.

P11.10
ARTERIAL STRUCTURE AND FUNCTION ARE INFLUENCED BY ANTIRETROVIRAL THERAPY AND BY THE PRESENCE OF RENAL DAMAGE IN HIV POSITIVE PATIENTS

F. Cesana [1], A. Maloberti [1], M. Pozzi [1], M. Corciulo [1], G. Grosso [1], D. Dozio [1], F. Citterio [1], M. Alloni [1], S. Nava [1], M. Stucchi [1], A. Capra [1,2], C. Giannattasio [1,2], G. Mancia [1,2]
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Purpose: Antiretroviral therapy (ART) has dramatically reduced AIDS—related mortality, but it has been associated to an increased cardiovascular risk, even in absence of hypertension. The aim of this study was to describe the influence of renal damage (RD) and ART on arterial function and structure.
Methods: We studied 4 groups of normotensive, normocholesterolemic, euglycemic patients; one of HIV+ on ART with RD (A; n=25; age 50.2±10.4 years; means±SD), one of HIV+ on ART without RD (B; n=25; 49.4±6.2 years), one of HIV+ not on ART and without RD (C; n=13; 40±8.3 years) and one of healthy controls (D; n=25; 50±6.8 years). RD was defined by microalbuminuria and/or eGFR < 60 ml/min. Arterial stiffness was measured by aorto-femoral Pulse Wave Velocity (PWV), central BP by tonometry (Sphygmocor), carotid IMT and distensibility were measured by semi-automatic echotracking.
Results: Group A showed higher aortic SBP and PP than other groups and their aortic SBP was not significantly different from systemic one. PWV was higher in both therapy groups compared to others. Aortic distensibility was significantly impaired in A compared to B and C groups (no data for D group). IMT didn't show any difference among groups.
Conclusions: HIV+ patients are characterized by arterial functional abnormality that might account for their increased cardiovascular risk due to either ART and/or presence of RD.

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P12.01
LOCAL CAROTID STIFFNESS VERSUS CAROTID-FEMORAL PULSE WAVE VELOCITY IN NORMAL SUBJECTS AND PATIENTS WITH RISK FACTORS

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Aim of this study was to compare a local carotid pulse wave velocity (C-PWV) measured by high resolution radiofrequency (RF) ultrasound (Q-AS®, Esaote) with carotid-femoral PWV (CF-PWV, Complior), and their relationships with age and BP in normal subjects and in patients (ABN) with risk factors and/or atherosclerotic clinical disease (CVD).
We studied 64 subjects (37 men and 27 women, mean age 49 ±15, BP 124±19/73±9 mmHg), including 33 NL and 31 ABN. Arterial distension curves were obtained by averaging 15 parallel RF-lines obtained with a 10 MHz linear probe through a 1-cm long ROI in CCA. Local carotid stiffness index was calculated after introducing BP values, and C-PWV was obtained by Bramwell-Hill's equation.
Results: C-PWV in both sides and CF-PWV obtained in the overall population and separately in NL and ABN are shown in Table:

	Carotid PWV (right) (m/s)	Carotid (left) PWV (m/s)	CF-PWV (m/s)
ALL SUBJECTS	7.6±2.1	7.5±2.0	8.5±1.6*
NORMALS	6.2±1.1	6.2±1.0	7.9±1.5*
ABNORMALS	8.5±1.1	8.8±1.8	9.1±1.6

*: $p< 0.01$ for CF-PWV vs local C-PWV.

In the whole population, C-PWV and CF-PWV correlated directly ($p<0.0001$) with age (r=0.82 and r=0.61 respectlvey) and SBP (r=0.72 and r=0.64). In multivariate analysis age was the strongest independent predictor of C-PWV (partial R2 = 0.67), followed by SBP (cumulative R2 = 0.82). By contrast, SBP was the best predictor of CF-PWV (partial R2= 0.41), followed by age (cumulative R2 =0.55). Similar results were obtained after introducing sex, risk factors and CVD as covariates. Conclusions: compared to CF-PWV, local C-PWV shows a stronger association with age and results significantly lower in normal subjects but not in patients with risk factors or CVD.

P12.02
RELATIONSHIP BETWEEN IMPAIRED LUNG FUNCTION AND CARDIAC FUNCTION IN OLDER INDIVIDUALS

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Background: Impaired lung function is associated with increased cardiovascular (CV) risk although the underlying mechanisms remain unclear. We have previously shown that lung function is inversely related to arterial stiffness in older men, and that patients with chronic obstructive pulmonary disease (COPD) have increased arterial stiffness. Furthermore, arterial stiffness is associated with impaired diastolic function in individuals with COPD. Our aim was therefore to examine the relationship between cardiac function and lung function in a population-based cross-sectional study.
Methods: Data from 1026 individuals, aged between 50-92 years, from the Anglo Cardiff Collaborative Trial, were available for the current analyses. Spirometry was performed (Vitalograph) to assess the degree of airways obstruction by measuring forced expiratory volume in 1 second: forced vital capacity ratio (FEV1:FVC). Peripheral blood pressure was recorded (Omron 711) in the supine position according to BHS guidelines. Cardiac function was assessed by measuring stroke volume (SV), using a non-invasive, inert gas re-breathing technique (InnoCor, Innovision A/S, Denmark).
Results: After entering all confounding factors of FEV1:FVC ratio (age, height, gender, smoking status, body surface area, heart rate, peripheral vascular resistance and mean arterial pressure) into a stepwise multivariate linear regression model, SV remained independently related to lung function (R=0.28, P=0.025).
Discussion: Stroke volume is independently associated with impaired lung function in this population based study, suggesting a mechanism whereby impaired lung function may increase CV risk. Increased arterial stiffness, which is associated with impaired lung function, may be an important mechanism mediating the relationship between cardiac function and lung function.

P12.03
RELATIONSHIP OF COMMON CAROTID ARTERY WAVE INTENSITY WITH AGE AND SEX IN HEALTHY NORMOTENSIVE PEOPLE

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Background: Wave intensity analysis (WIA) is a time domain-based approach [1] that provides useful insights into arterial haemodynamics. We assessed the relationship between the major waves identified by WIA and age and sex in healthy individuals.
Methods: 65 healthy people (age 21 — 78yr; 43 male) participated. WIA was performed using carotid artery tonometry and Doppler ultrasound. Linear regression or fractional polynomial regression was used to fit data after log transformation if appropriate.
Results: The initial compression wave (S wave) accompanying ejection declined non-linearly with age (adjusted r^2 for age and sex = 0.43; $p < 0.001$) and was significantly lower in women ($p = 0.01$). The decompression wave in protodiastole (D wave) showed a curvilinear relationship with age (adjusted r^2 for age 0.12; $p = 0.001$), but did not differ by gender. The peak intensity of the reflected wave from the head was higher in men ($p = 0.002$) but declined with age more markedly in men than women. Wave reflection from the head fell with age (beta (95% CI) = -0.01 (-0.02, -0.00); $p = 0.01$ (log transformed)) but did not differ significantly by gender.