including age, gender, body mass index, diabetes, hypertension, angina, previous myocardial infarction, previous CABG, previous PTCA, and valvular disease. Correlation by univariate and multivariate analysis was determined for each of these characteristics with PWV. **Results:** Arterial stiffness by PWV measurements correlated strongly and independently with age and hypertension ($p<0.0001$ and $p<0.0250$, respectively). Coronary artery disease as defined by angiography as present or absent, as obstructive or non-obstructive, and as three vessel or less than three vessel disease, did demonstrate a significant correlation with PWV measurements in univariate analysis ($p=0.0095$). However, in multivariate analysis with correction for age and blood pressure, PWV was not a significant predictor of the presence and severity of coronary atherosclerosis ($p=0.9968$). The presence of diabetes and of elevated homocysteine levels did also show a statistically significant and independent correlation with PWV ($p=0.0204$ and $p=0.0061$, respectively). **Conclusion:** Arterial stiffness by PWV measurements correlates well with age, hypertension, diabetes and homocysteine levels, but does not independently predict the presence or severity of coronary artery disease.

1105-119 A Comparison of Noninvasive ad Invasive Aortic Pulse Wave Velocity

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Background: Aortic stiffness, an independent risk factor for cardiovascular disease, can be assessed noninvasively by measuring aortic pulse wave velocity (PWV). The technique is easy and reproducible, and this is reflected in its widespread use in clinical studies. However data are lacking on its comparison with invasively derived PWV. Our aim is to compare noninvasive aortic PWV (NIx-PWV) with invasive aortic PWV (Ix-PWV).
Methods: 15 patients undergoing elective coronary angioplasty underwent NIx-PWV assessment that morning with the Sphygmacor Pulse Wave Analysis™ system. All vasoactive drugs had been withheld. Noninvasive transit distance (NIx-D), the estimated distance traveled by the pressure wave in the aorta, was measured over the body surface from the sternal notch to the femoral pulse. Noninvasive transit time (NIx-T) was obtained using electrocardiogram (ECG) gated pressure traces recorded from sequential carotid-femoral artery tonometry. Prior to intervention, an angioplasty guide wire with a pressure sensor tip (RADI PressureWire™) was positioned in the aortic root and then in the femoral artery, to obtain ECG gated pressure traces for calculation of the invasive transit time (Ix-T). The aortic root-femoral pullback distance (Ix-D) was marked on the wire. Noninvasive and invasive measurements were repeated 3 times. Noninvasive blood pressure was recorded at the time of all measurements. PWV was calculated as: D/ T m/s.
Results: NIx-PWV correlated with Ix-PWV after correcting for mean arterial pressure ($R=0.73$, $p<0.01$). However, there was a mean difference between them of 1.3 m/s (14% of absolute mean) with a considerable variation in this difference, the standard deviation (SD) of the difference being 1.8 m/s (20%). There was also a difference between NIx-D and Ix-D, the mean difference being 70 mm (12% of absolute mean) and the SD of the difference, 39 mm (7%).
Conclusion: Noninvasive aortic PWV can be used as an index of aortic stiffness. However it varies considerably with invasive PWV. This may partly be due to errors in estimating noninvasive transit distance. Thus, refining the technique may further increase the power of this tool to predict adverse cardiovascular outcome.

1105-152 Brachial Artery Compliance in Hypertension: Effect of Losartan and Atenolol After One-Year of Treatment--A LIFE Substudy

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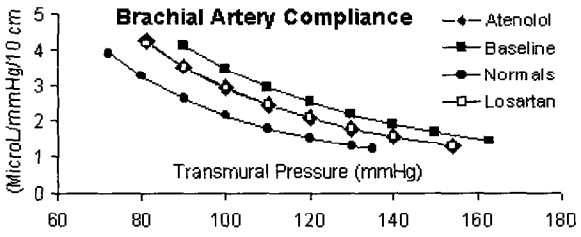
Introduction: Central arterial compliance is an independent risk factor for mortality whereas matters concerning peripheral arterial compliance and effect of different treatments are unsettled.
Methods: Fifty-six patients (24 females) from the LIFE study aged 69 years (55-80) with ECG-determined LVH were examined after 14 days on placebo treatment and again after 1 year of treatment with either losartan or atenolol in equipotent dosages. Brachial arterial compliance was measured using a volume-oscillometric method (Artcomp®, Critikon®).
Results: BP was 163±21/89±15 mmHg at baseline and 154±18/81±12 mmHg after 1 year and was similar in the treatment arms (ns). Isobaric compliance decreased after 1 year ($p<0.05$) but was still elevated compared to matched controls ($p=0.002$). Compliance at MAP was unchanged (ns). No difference was seen according to treatment after adjusting for gender, age and body surface area (ns).
Conclusions: Brachial artery compliance is maintained normal, only at a higher BP in hypertension accompanied by LVH. Isobaric brachial compliance decreases towards normal after 1 year of treatment, apparently irrespective of treatment with losartan or atenolol.



1105-153 Lack of Association Between *Chlamydia Pneumoniae* Seropositivity and Thoracic Aortic Dilatation: A Population-Based Transesophageal Echocardiographic Study With Implications for Thoracic Aortic Aneurysm Formation

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Background: Atherosclerosis-related mechanisms may play a role in aortic dilatation and aneurysm formation. We examined whether infection with *Chlamydia pneumoniae* (Cpn), a pathogen presumably involved in atherogenesis, is associated with thoracic aortic dilatation in a sample of the general population. **Methods:** Thoracic aortic dimensions (diameters at the sinuses of Valsalva [SV], ascending aorta [AA], aortic arch, and descending aorta [DA]) were measured by transesophageal echocardiography in 373 subjects (median age 66 yr, range 51-101; 52% men) participating in a population-based study (SPARC: Stroke Prevention - Assessment of Risk in a Community), who were free of significant aortic valve disease. The association between Cpn IgG seropositivity and aortic dimensions was examined in 372 subjects (a single subject with positive IgM antibodies, indicating acute Cpn infection, was excluded from analysis). **Results:** Age, male gender, and body surface area (BSA) were significant determinants of aortic diameters, jointly accounting for 41%, 31%, 38% and 47% of the variability in aortic diameter at the SV (mean diameter ± SD: 33.7±3.8 mm), AA (33.3±3.8 mm), aortic arch (27.4±2.8 mm), and DA (25.9±3.0 mm), respectively. Cpn antibodies (titers ≥1:16) were present in 274 subjects (74%): low titers (1:16-1:32) in 57 (15%), intermediate titers (1:64-1:128) in 137 (37%), and high titers (≥1:256) in 80 subjects (22%). Cpn titers were not associated with the diameter of the SV ($P=0.79$), AA ($P=0.96$), aortic arch ($P=0.58$), and DA ($P=0.51$), adjusting for age, sex, BSA, and smoking status (P values are for the joint inclusion of all Cpn titer levels in the respective models). **Conclusions:** Cpn seropositivity is not associated with thoracic aortic dilatation in the general population. These findings do not support a role for Cpn infection in the pathogenesis of thoracic aortic dilatation and, probably, in aortic aneurysm formation.

1105-154 Sildenafil Improves Left Ventricular Systolic Function in Patients With Congestive Heart Failure: The Role of Wave Reflections

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Background: Sildenafil (S) is an effective drug for erectile dysfunction affecting the nitric oxide-cGMP pathway. Wave reflection is an important index of arterial stiffening and cardiac afterload and has been inversely associated with exercise capacity.
Methods: To investigate the effect of S on cardiac function and wave reflection in congestive heart failure (CHF) we studied 20 pts (age 48-88 yrs) in NYHA class II or III (EF<35%), in a randomized, double-blind, placebo-controlled, cross-over design (50 mg of S and placebo). Wave reflection was studied by measuring augmentation index (AIx) using a validated system (SphygmoCor®) that employs high-fidelity arterial tonometry and pulse wave analysis. Cardiac output was measured by echocardiography.
Results: S was well tolerated with no side effects in any patient. S led to a increase in cardiac index (by 0.38 l/min/m^2, $P<0.0001$, graph). This was associated with, and attributable to, a decrease in left ventricular load (aortic and left ventricular systolic pressure fell by 13.9 mmHg, $P<0.0001$). AIx was decreased by 3.5% ($P<0.0001$; graph) indicating reduced wave reflection from peripheral sites. Total systemic resistance fell by 478.5 dynes•sec•cm^{-5} ($p<0.0001$; graph).
Conclusions: S leads to an improvement in cardiac function in CHF patients which is associated with a favorable effect on central and peripheral arterial properties. This has important implications for the therapeutic profile of the drug in patients with compromised cardiac performance.