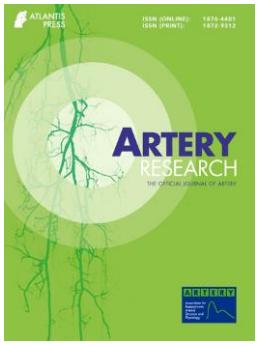

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P7.12: CENTRAL HAEMODYNAMICS COULD EXPLAIN THE INVERSE ASSOCIATION BETWEEN HEIGHT AND CARDIOVASCULAR MORTALITY

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moving the patients to the high risk group was detection of carotid artery plagues (100%). The contribution of ultrasound parameters to risk stratification has been compared: plagues were detected in 59% patients, IMT >0,9 mm was found in 5%. Moreover, the IMT >0,9 mm occurred only in 7% patients with plagues and only 0,8% without plagues.
Conclusion: The assessment of CV risk should include carotid duplex ultrasound studies to reveal plagues. The level of CV risk was affected by carotid plagues presence to substantially greater extent than by IMT.

P7.09
PULSE WAVE ANALYSIS REVEALS THAT MYOCARDIAL ISCHAEMIA IS NOT LIKELY TO EXPLAIN THE 'J-CURVE' ASSOCIATION BETWEEN DIASTOLIC BLOOD PRESSURE AND MORTALITY

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Background: There is a well-established 'J-curve' relationship between brachial DBP and mortality. A purported, although unconfirmed mechanism for the "J-curve" is reduced myocardial perfusion due to low DBP. However, we hypothesised this would be unlikely because DBP may be a poor marker of myocardial perfusion. This study aimed to determine the relationship between DBP and subendocardial perfusion in patients with and without coronary artery disease (CAD).
Methods: 134 patients with CAD (aged 76±7 years; 69% male) and 134 matched healthy controls (HC) (aged 77±2 years; 69% male) underwent measurement of brachial DBP and radial tonometry to derive subendocardial viability ratio (SEVR), a marker of subendocardial perfusion. These measures were additionally undertaken in 47 patients (aged 63±10 years) at baseline and during peak dobutamine stress echocardiography in presence or absence of myocardial ischaemia.
Results: There was no difference in DBP or SEVR between HC and CAD patients ($P>0.05$), nor was there a difference in SEVR across quartiles of DBP in CAD ($P=0.07$) or HC ($P=0.14$) patients. Associations between DBP and SEVR in HC ($r=0.185$, $P=0.03$) and CAD patients ($r=0.204$, $P=0.02$) were non significant after adjustment for age and height ($p=0.07$ and $p=0.11$, respectively). At peak dobutamine stress, SEVR was significantly reduced in patients with ischaemia versus those without inducible ischaemia (84±17 vs. 101±22 mmHg.s.min^{-1}, $P=0.01$). However, DBP was not significantly different (65±14 vs. 67±15 mmHg, $P=0.32$).
Conclusion: Brachial DBP is a poor marker of subendocardial perfusion, suggesting the 'J-curve' relationship between DBP and mortality is unlikely attributable to reduced myocardial perfusion.

P7.10
RENAL FUNCTION DOES NOT MODIFY PREDICTIVE VALUE OF CENTRAL PULSE PRESSURE AND PULSATILITY IN PATIENTS WITH CAD

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Background: The differences between central and peripheral blood pressure (BP) values have been known for decades. Although the predictive value of central BP in coronary patients with impaired renal function has not been studied so far. Therefore, the aim of the study was to assess the influence of renal function on the predictive value of ascending aortic pulse pressure (PP) and pulsatility (the ratio of PP to mean BP) in patients with coronary artery disease.
Methods: The study group consisted of 755 patients (214 women and 545 men; mean age: 57.7±10.0 years) with preserved left ventricular function (EF>40%) undergoing coronary angiography. Demographic and clinical information as well as invasive ascending aortic BP were obtained at baseline. The follow-up was 53.1±18.7 months. The primary end point was: cardiovascular death, myocardial infarction, stroke, cardiac arrest or myocardial revascularization. The Cox proportional hazard regression analysis was used to assess the relation between BP and primary end point.
Results: The primary end point occurred in 152 (20.1%) patients whereas CV death, myocardial infarction (MI) or stroke in 79 (10.5%) subjects. Both ascending aortic PP (increase per 10 mmHg: HR 1.12 [95% CI 1.01-1.24]) and pulsatility (increase per 0.1: 1.18 [1.04-1.34]) predicted the risk of primary end point as well as of CV death, MI, or stroke (1.14 [1.00-1.33] and 1.30 [1.10-1.54], resp.). HRs according to the stage of chronic renal disease are presented in the table.
Conclusion: Renal function does not modify predictive value of central pulse pressure and pulsatility in patients with CAD.

	GFR<60 ml/min/1.73m2	GFR 60-90 ml/min/1.73m2	GFR≥90 ml/min/1.73m2	P for interaction
Primary end point				
Central PP	1.09	1.19	1.09	NS
Central pulsatility	1.07	1.30	1.12	NS
CV death, MI or stroke				
Central PP	1.11	1.11	1.24	NS
Central pulsatility	1.37	1.32	1.32	NS

Values are hazard ratios for 10 mmHg increase in PP and 0.1 in pulsatility

P7.11
NORMAL VALUES OF PULSE WAVE VELOCITY AND AUGMENTATION INDEX AMONG OMANI VOLUNTEERS; PRELIMINARY REPORT

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Background: Stiffness of large arteries has been found to be an independent predictor of adverse cardiovascular events in the general population, in patients with essential hypertension, diabetes mellitus and end-stage renal disease. Of the several indices used to reflect arterial stiffness, aortic pulse wave velocity (AoPWV) is considered to be the gold standard. Determining the normal distribution of AoPWV and AIx of a population is important to apply them clinically. This study therefore aims at determining normal values for arterial stiffness indices in normal Omani subjects.
Method: Augmentation index (AIx) and aortic pulse wave velocity (AoPWV) were measured using applanation tonometry (SphygmoCor®; Atcor medical) in 43 (23 women and 20 men) healthy Omani volunteers.
Result: The mean age of women was 30 ± 9 years and for men was 36 ± 6 years. Reference values were estimated using 97.5 and 2.5 percentiles. The estimated values for AIx corrected for heart rate was -16 to 38 in women and 0 to 26 in men. The AoPWV were 4.6 to 7.1 m/s and 5.2 to 9.6 m/s in women and in men respectively. Men had significantly higher AoPWV compared to women (6.9 ± 0.9 Vs 5.7 ± 0.7, P = 0.001) but there was no significant gender difference in the AIx (11.1 ± 12.2 Vs 10.1 ± 8.3, P = 0.77).
Conclusion: Preliminary data of this study show that men had significantly higher AoPWV than women with no gender difference in the AIx. Recruitment of more subjects is needed to confirm the above findings.

P7.12
CENTRAL HAEMODYNAMICS COULD EXPLAIN THE INVERSE ASSOCIATION BETWEEN HEIGHT AND CARDIOVASCULAR MORTALITY

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Introduction: Mechanisms underlying the inverse relationship between height and cardiovascular mortality are unknown, but could be related to central haemodynamics. This study aimed to determine the relation of height to central and peripheral haemodynamics.
Methods: Study population comprised 1161 randomly selected community-dwelling adults (aged 67.7±12.3; 48% male). Brachial BP was recorded by

sphygmomanometry, central BP and aortic pulse wave velocity (PWV) were estimated by applanation tonometry. Stepwise multiple regression analysis (corrected for multiple covariates related to cardiovascular risk) was used to determine independent predictors of central and peripheral haemodynamics.

Results. Results from the multiregression analysis of gender-specific associations with height are presented in the table. Height was not significantly associated with aortic PWV in men or women. Height was (borderline) associated with brachial SBP in women ($r=0.27$ $p=0.051$), but not in men ($r=0.19$ $p=0.087$). Conversely, central SBP, augmentation index (AIx) at 75 bpm and time of reflected wave (T_R) were independently associated with height in both men and women. Moreover, both men and women of above median height were less likely to be taking vasoactive medication (38% vs 56%; $p<0.001$) or have hypertension (40% vs 53%; $p=0.002$) compared to participants of below median height.

Conclusions. After correcting for conventional cardiovascular risk factors, taller individuals have more favourable central haemodynamics and reduced prevalence of hypertension and antihypertensive therapy compared with shorter men and women. These findings may help explain the decreased cardiovascular risk associated with being taller and have important clinical consequences regarding therapy.

Dependant variable	Gender	Beta	*p*-value	Adjusted R^2
Brachial SBP (mmHg)	Women	-0.115	0.051	0.84
	Men	-0.096	0.087	0.82
Central SBP (mmHg)	Women	-0.172	<0.001	0.88
	Men	-0.139	0.002	0.89
AIx@75 bpm (%)	Women	-0.224	<0.001	0.33
	Men	-0.189	<0.001	0.52
Aortic PWV (m/s)	Women	0.025	0.067	0.34
	Men	0.014	0.148	0.39

P7.13
WHICH ARTERIAL STIFFNESS PARAMETER IS THE BEST PREDICTOR OF CARDIOVASCULAR MORTALITY IN HEMODIALYSIS PATIENTS?

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According to previous studies different parameters characterize arterial stiffness relate to cardiovascular mortality in patients on haemodialysis. However, its relative prognostic value and the optimal time of measurement have not previously been examined in one cohort.

The carotid-femoral pulse wave velocity (PWV), the carotid augmentation index (AI), the carotid pulse pressure (CPP) and the carotid-brachial pulse pressure amplification (AMP) were determined in 98 patients before and after haemodialysis procedure. Patients were followed for 29 months (median; range 1—34) and the association of these parameters with the risk of cardiovascular mortality was assessed using log-rank tests and Cox proportional hazards regression.

During follow-up, 25 patients died of cardiovascular causes. Increasing pre- and postdialysis PWV tertiles and decreasing predialysis AMP tertiles were significantly related to cardiovascular mortality ($p = 0.012$ and 0.011 for PWV, respectively; and <0.001 for AMP). Neither the AI nor CPP was related to cardiovascular mortality. The adjusted hazard ratios for 1 m/s higher pre- and postdialysis PWV were 1.24 (1.07—1.44) and 1.17 (1.06—1.28), respectively. The hazard ratio for 10% lower predialysis AMP was 1.41 (1.03—1.92). When included in the same model, both predialysis PWV and AMP remained significantly associated with cardiovascular mortality.

Among different stiffness parameters, PWV is consistently related to cardiovascular mortality, irrespectively of the timing of measurement. Predialysis AMP seems to provide additional prognostic information.

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P7.14
C-REACTIVE PROTEIN AND MARKERS OF ARTERIAL STIFFNESS IN HIGH CARDIOVASCULAR RISK PATIENTS

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Introduction: The aim of the study was to investigate the relationship between C-reactive protein (CRP) and markers of arterial stiffness.

Methods: We have analyzed the data of 3163 high cardiovascular risk patients selected from a larger cohort of patients inspected in Vilnius University Hospital Santariškių Klinikos primary prevention cardiovascular unit. The criteria for inclusion was low value of CRP (<5 mg/l). The mean age of the selected sample was 54.03+/-6.10. Almost two thirds of them were females (65.7%). We divided all patients into two groups. The first group consisted of patients having CRP below 2 mg/l ($n=2041$), whereas the second group consisted of patients having CRP no less than 2 mg/l ($n=1122$). After that, these groups were compared with respect to the following markers of arterial stiffness: augmentation index (AiX), flow mediated dilatation (FMD), femoral and brachial pulse wave velocities (PWV (femoral), PWV (brachial)). Only femoral PWV significantly differed between the groups: (8.69+/-2.68 (CRP<2 mg/dl) vs 9.00+/-1.59 (CRP≥2 mg/dl); $p=0.003$), and there were no differences with respect to other markers. Division of patients into groups with CRP<3 mg/l ($n=2623$) and CRP≥3 mg/l ($n = 540$) yielded the same results. There was a significant difference only with regard to femoral PWV (8.74+/-2.45 (CRP<3) vs. 9,12+/-1,56 (CRP≥3); $p=0,004$).

Results: Our study suggests that there is a moderate relationship between CRP and arterial stiffness and it is best diagnosed by alterations of femoral PWV.

P7.15
MEASUREMENT OF ARTERIAL STIFFNESS IN THE PORTUGUESE POPULATION: THE GUIMARÃES STUDY (STUDY TO DETERMINE THE CARDIOVASCULAR RISK OF THE POPULATION OF GUIMARÃES/VIZELA: PREVALENCE OF ARTERIAL STIFFNESS AND EARLY VASCULAR AGING SYNDROME)

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We observed 1104 subjects of the Portuguese population coming from two adjacent cities in the north: Guimarães and Vizela. They were randomly selected from the population to be included in a cohort representative of the age and gender distribution. We evaluated their age, sex, clinical history, blood pressure (BP) (mean of three measurements), height, weight, lipidic profile, fasting glucose, HbA1c, serum creatinine, microalbuminuria (occasional sample); we also performed Pulse Wave Velocity (PWV) measurements (Sphygmocor®).

These 1104 subjects (56,4% females), had a mean global age of 47,6 years (18 — 94); 42% had hypertension, 10,7% had Diabetes, 80% had lipidic profile abnormalities, 3,1% had GFR < 60ml/min and 16,1% had microalbuminuria. The mean brachial systolic BP was 131,3 mmHg (84 to 243) and the mean brachial diastolic BP was 76,7 mmHg (44 to 128); The average BMI was 26,8 kg/m2 (16,8 to 46,2).

The mean PWV value recorded in the population was 7,4 m/sec (4,1 to 18); mean PWV values were distributed as follows, according to the different age classes: 18 to 30 years — 6,1 m/sec (4,1 to 9,7); 31 to 40 years — 6,6 m/sec (4,2 to 13,6); 41 to 50 years — 7,5 m/sec (4,7 to 14,1); 51 to 60 years — 7,5 m/sec (4,6 to 12,3); 61 to 70 years — 9,0 m/sec (4,5 to 18); 71 to 80 years — 9,4 m/sec (5 to 15,4); 81 to 90 years — 10,5 m/sec (6,7 to 15,7). These are, to our knowledge, the first arterial stiffness measurements performed on a population based cohort in Portugal.

P7.16
ASSESSMENT OF CENTRAL HAEMODYNAMICS AND ARTERIAL STIFFNESS IN THE COMMUNITY — ARE WE THERE YET?

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