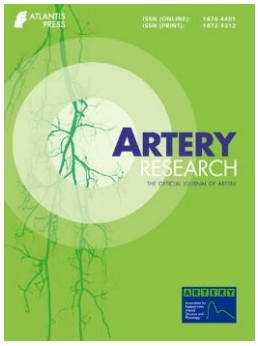

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P7.03: SUBCLINICAL MEASURES OF ATHEROSCLEROSIS ASSOCIATE DIFFERENTLY WITH PREVALENT CORONARY HEART DISEASE IN INDIAN ASIANS AND EUROPEANS

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P7.02
RELATION OF MEAN AND PULSATILE BLOOD PRESSURE COMPONENTS TO ATHEROSCLEROSIS AND ARTERIOSCLEROSIS: A 10-YEAR FOLLOW-UP STUDY

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Background: Blood pressure (BP) can be separated into mean arterial pressure (MAP) and pulsatile (pulse pressure, PP) components which may relate differently to atherosclerosis and arteriosclerosis. The aim of the study was to examine the association between longitudinal measures of MAP and PP (central and peripheral) with measures of atherosclerosis and arterial stiffness.
Methods: Subjects comprised 411 apparently healthy female twins, which had measures of central and brachial BP made between 1996-2001 (aged 24-72 years) and second between 2006-2010, as part of the TwinsUK programme of research. Central BP was estimated using the SphygmoCor system from transformed radial waveforms. Carotid-femoral pulse wave velocity (cfPWV) and presence of carotid/femoral plaque was determined at follow-up. Associations of cfPWV and plaque to BP components at baseline and the progression of these over the 10 year follow-up period were examined using linear and logistic regression analysis.
Results: Baseline predictors of cfPWV at follow-up were age and MAP (standardized beta coefficients, $\beta = 0.42$, and 0.12, respectively). When progression of BP components was included in the model, cfPWV correlated positively with progression of central PP, HR and MAP ($\beta = 0.33$, 0.33, 0.16, respectively). Using logistic regression analysis, the only baseline predictor of plaque was MAP ($\beta = 0.03$, $P < 0.05$), progression of BP components was not significantly correlated with presence of plaque.
Conclusion: MAP is an independent predictor of both plaque and increased arterial stiffness at 10 year follow-up, whereas PP progression correlates with cfPWV but not plaque. These findings suggest a differential association between atherosclerosis and arteriosclerosis to BP components.

P7.03
SUBCLINICAL MEASURES OF ATHEROSCLEROSIS ASSOCIATE DIFFERENTLY WITH PREVALENT CORONARY HEART DISEASE IN INDIAN ASIANS AND EUROPEANS

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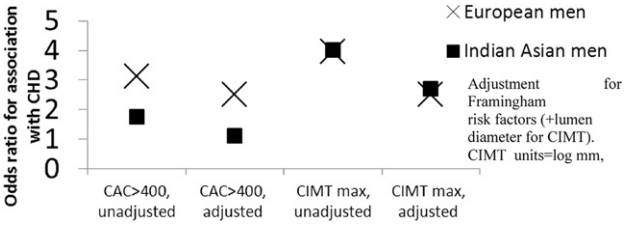
Background: Globally Indian Asians have increased risk of coronary heart disease (CHD). Subclinical markers of atherosclerosis, such as carotid intima media thickness (CIMT) and coronary artery calcification scores (CACS), play an increasingly important role in risk prediction, but need to be validated in different ethnic groups.
Method: We studied 415 Indian Asian men and 485 European men in a population-based study in London. Prevalent CHD was identified from primary care medical records. CIMT (maximum) was measured in the far wall of the left common carotid artery using B mode ultrasound. CACS were measured using computed tomography.
Results: Participants were aged 70±6 years. Indian Asians had more CHD (38% vs 20%, $p<0.001$), diabetes (42% vs 17%, $p<0.001$) and hypertension (80% vs 62%, $p<0.001$). Despite this, there were no ethnic differences in CIMT and CAC scores. Geometric means (95%CI) for CIMT in Indian Asians and Europeans were 0.96 (0.94, 0.98) and 0.95(0.93, 0.97), $p=0.56$. Median CACS scores were 127 (IQR:17, 468) and 150 (30, 475) In Indian Asians and Europeans respectively($p=0.42$). Associations between CIMT/CAC and CHD risk factors were similar in the two ethnic groups. CAC score >400AU was strongly associated with CHD in Europeans, but there was no association in IA (fully adjusted odds ratios: E: 2.21, $p=0.026$, IA: 1.12, $p=0.75$). CIMT was strongly and significantly associated with CHD in both ethnic groups(Figure).
Conclusion: CACS are a valid indicator of CHD in European but not in Indian Asian men. In contrast, CIMT is a valid surrogate in both ethnic groups.



P7.04
AORTIC STIFFNESS IS ASSOCIATED WITH ALBUMINURIA IN THE GENERAL POPULATION

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Background: Albuminuria has been associated with increased cardiovascular risk. We hypothesised that this may be mediated through increased central arterial stiffness and subsequent transmission of pulsatile strain to the renal microvasculature.
Methods: In a prospective community cohort of 850 caucasians, albumin: creatinine ratio (ACR) was measured from random urine samples. Routine bloods were checked for biochemistry. Arterial stiffness was measured through aortic pulse wave velocity (aPWV) and wave reflections through augmentation index (AIx; SphygmoCor, Sydney). Albuminuria was classified by normal (1=<3.4 mg/mmol), mild (2=3.4–5.6 mg/mmol) and significant (3=6.8-166.7 mg/mmol).
Findings: (See table) A stepwise increase in aPWV with ACR category was seen in men but not women. This association not evident with AIx. Among Caucasian men, in multivariate analysis, eGFR and brachial pulse pressure were independently associated with albuminuria ($R^2 = 0.31$, $p < 0.001$). Age, smoking, AIx and aPWV were not retained in the model.
Conclusions: In this cross-sectional study, a stepwise increase in PWV was seen with ACR. This relationship was not independent of confounding factors. Further studies are required to assess the influence of increased pulsatility in the renal microvasculature.

	Men (n=389)				Women (n=461)			
	ACR 1	ACR 2	ACR3	P value	ACR 1	ACR2	ACR 3	P value
Age	43 ± 23	53 ± 23	60 ± 21	< 0.001	44 ± 21	38 ± 23	42 ± 22	0.22
eGFR	94 ± 28	81 ± 20	73 ± 27	< 0.001	90 ± 21	90.8 ± 21.7	80.2 ± 21.7	0.12
Chol	4.4 ± 0.9	4.1 ± 0.9	4.1 ± 0.9	0.65	4.8 ± 1.1	4.8 ± 1.1	4.4 ± 1.3	0.17
Diabetes	5.2%	4.8%	9.1%	0.84	3.5%	4.8%	0%	0.52
Smoker	7.7%	4.8%	9.1%	0.03	8.3%	4.8%	9.5%	0.44
SBP	134 ± 17	144 ± 22	147 ± 20	<0.001	126 ± 20	125 ± 20	124 ± 24	0.73
DBP	79 ± 10	80 ± 12	81 ± 10	0.26	75 ± 10	78 ± 10	73 ± 11	0.97
AIx	0.06 ± 0.2	0.08 ± 0.1	0.14 ± 0.1	0.03	0.13 ± 0.2	0.07 ± 0.1	0.15 ± 0.2	0.40
aPWV	7.8 ± 2.7	9.0 ± 3.1	9.4 ± 3.0	0.002	7.3 ± 2.5	7.2 ± 2.7	7.5 ± 3.1	0.93