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3.9: ASSOCIATIONS OF BLOOD PRESSURE THROUGHOUT CHILDHOOD WITH LEFT VENTRICLE MASS IN ADOLESCENCE

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(PWV) and Augmentation Index (AIx) and their determinants from childhood may underlie ethnic variability in CV risk as young adults in the 'DASH' longitudinal study.

Methods: DASH, at <http://dash.sphsu.mrc.ac.uk/>, includes representative samples of 6 main UK ethnic groups [3]. PWV and AIx were recorded using Arteriograph device at ages 21-23y in a sub-sample (n=666) psychosocial, anthropometric and blood pressure (BP) measures were collected then and in 2 previous surveys at the age of 11-13y and 14-16y. For n=334, physical activity (PA) was measured over 5 days (ActivPal).

Results: Unadjusted values and regression models for PWVs were similar or lower in ethnic minority than in White UK young adults [4], while AIx was higher - Caribbean (14.9, 95%CI 12.3-17.0, %), West African (15.3, 12.9-17.7, %), Indian (15.1, 13.0-17.2, %) and Pakistani/Bangladeshi

Methods: Echocardiography and sitting brachial systolic BP (SBP) measurements were performed on 2065 17yr olds. 1377 participants (742 females, 635 males) had complete BP data measured at age 7yrs, 9yrs, 11yrs and 15yrs. LVM was calculated and indexed to height^{2.7} (LVMI). Linear regression was used to investigate associations.

Results: Elevated LVMI at 17yrs was associated with increased SBP at all ages in females and in males at 9yrs, 11yrs, 15yrs and 17yrs (Table 1). Adjustment for cardiometabolic risk factors at age 17 (age, free-fat mass, height, height² and smoking (Model 1)) did not substantially attenuate all LVMI and BP associations and associations at earlier ages remained significant after further adjustment for SBP at age 17.

Table 1

Age (yrs)	Unadjusted		Model 1		Model 1+ SBP at 17yrs	
	Male	Female	Male	Female	Male	Female
7	0.01±0.03	0.09±0.02**	0.02±0.03	0.06±0.02**	-0.02±0.03	0.07±0.02**
9	0.06±0.03*	0.06±0.02*	0.02±0.02	-0.007±0.02	0.02±0.02	-0.006±0.8
11	0.15±0.03**	0.06±0.02**	0.09±0.03**	0.008±0.02	0.09±0.03**	0.009±0.02
15	0.05±0.02*	0.06±0.02**	0.02±0.02	0.04±0.02*	0.02±0.02	0.03±0.02*
17	0.16±0.03**	0.14±0.02**	0.13±0.03**	0.09±0.02**		

Data are $\beta \pm SE(g/m^{2.7})^* = p < 0.05$ ** $p < 0.0001$

(15.7, 13.7-17.7, %), compared with White UK (11.9, 10.2-13.6, %). In multivariate models, adjusted for gender, central sysBP, height and heart rate, Indian and Pakistani/Bangladeshi young adults had higher AIx ($\beta = 3.35, 4.20$ respectively, $p < 0.01$) than White UK with a similar trend for West Africans and Caribbeans but not statistically significant. Unlike PWV, PA, psychosocial or deprivation measures were not associated with AIx, with borderline associations from brachial BP but no other childhood variables.

Conclusion: Early adult AIx, but not arterial stiffness, may be a useful tool for testing components of excess CV risk in some ethnic minority groups.

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3.9

ASSOCIATIONS OF BLOOD PRESSURE THROUGHOUT CHILDHOOD WITH LEFT VENTRICLE MASS IN ADOLESCENCE

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Background: High blood pressure (BP) is a major risk factor for elevated LV mass (LVM) in adults. Evidence suggests that BP tracks from childhood into adolescence and adulthood, however findings on the association between childhood BP and LVM are inconsistent and the temporal relationship between BP in childhood and elevated LVM in adolescence is unknown.

Conclusion: These results show that high antecedent childhood BP from as early as age 7 is associated with higher LVMI in adolescence independent of current BP.

4.1

TNF- ANTAGONISTS IMPROVE ARTERIAL STIFFNESS IN PATIENTS WITH RHEUMATOID ARTHRITIS: A META-ANALYSIS

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Purpose/Background/Objectives: Patients with rheumatoid arthritis (RA) have a higher arterial stiffness than their age-matched healthy counterparts and an increased inflammatory burden that might be associated with their increased cardiovascular risk. Tumor necrosis factor alpha (TNF)-antagonists have been found to reduce inflammatory markers in RA however it is debatable if they have favorable effects on surrogate markers of cardiovascular outcomes. We conducted a meta-analysis to assess the effect of TNF-antagonists on arterial stiffness, a predictor of cardiovascular events and mortality, in RA patients.

Methods: A search of PUBMED was conducted to identify studies into the effect of TNF-antagonists on arterial stiffness in RA patients. Data were available on 3 TNF-antagonists: infliximab, adalimumab, and etanercept.

Results: 10 studies (n=208 patients) out of 14 eligible studies in total, measured changes in carotid-femoral PWV after treatment with anti-TNFs. Subjects under therapy with anti-TNFs significantly decreased their arterial stiffness (mean change in PWV: -0.53 m/s, $p = 0.001$) (Figure). No significant heterogeneity was observed across the studies ($I^2 = 8.5\%$, $p = 0.364$). By subgroup analysis, improvement in PWV after therapy was independent of age, sex, nationality and clinical response to treatment and dependent of the type of the TNF- antagonist used.