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Methods: Our study evaluated global risk factors for coronary heart disease (CHD), structure and function of precerebral arteries in 41 HD subjects and 41 matched controls. HD subjects were divided into groups by the United Huntington disease rating scale (presymptomatic-PHD, early-EHD, mid-stage-MHD and late-LHD). CHD risk factors assessment and Doppler examination of precerebral arteries were performed, including measurements of the carotid artery intima-media thickness (IMT), and parameters indicating local carotid artery distensibility (stiffness index β , pulse wave velocity, pressure strain elasticity module and carotid artery compliance).

Results: In the HD and controls we identified a comparable number of non-obstructive plaques (<50% lumen narrowing). No obstructive plaques (>50% lumen narrowing) were found in patients or controls. There was significantly increased IMT in MHD patients. In PHD and EHD the parameters of arterial stiffness were significantly higher and the carotid artery compliance was significantly lower.

Conclusions: Our results reveal functional vascular pathology in PHD, EHD, and MHD. Precerebral arteries dysfunction in HD therefore appears to be mostly functional and in agreement with autonomic nervous system dysfunction in HD.

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INCREASED ARTERIAL STIFFNESS IS ASSOCIATED WITH POORER LEFT VENTRICULAR STRUCTURE AND FUNCTION IN ADOLESCENCE

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Introduction: Increased arterial stiffness (AS) in adults causes increased left ventricular (LV) afterload, putting additional strain on the heart. Long-term, this can lead to an adverse cardiovascular phenotype and AS has been found to be a determinant of CVD, independent of traditional cardiovascular risk factors. However, limited evidence exists for this association in children and adolescents.

Methods: 1625 young adults (age 17y; 46% male) from the Avon Longitudinal Study of Parents and Children (ALSPAC), a UK based birth cohort, underwent echocardiography and carotid-to-femoral pulse wave velocity (PWV) measures. Linear regression was used to investigate associations between PWV and LV structure and function, including LV mass, relative wall thickness (RWT), left atrial diameter (LAD), mitral inflow (E:A), midwall fractional shortening (MFS) and tissue Doppler peak systolic velocity (s').

Results: Elevated PWV was associated with increased LV mass and RWT and inversely associated with E:A and MFS (Table 1). Adjustment for age and sex attenuated the association with LV mass. Further adjustment for body mass index (BMI), systolic blood pressure (SBP), alcohol, smoking and socioeconomic status (SES) attenuated the association with RWT, whilst the associations with E:A and MFS remained.

Table 1.

	Unadjusted		Age and sex adjusted		Age, sex, BMI, SBP, alcohol, smoking, SES adjusted	
	Coefficient $\pm$ SE	P value	Coefficient $\pm$ SE	P value	Coefficient $\pm$ SE	P value
LV mass ^{2.7} (g/m ^{2.7})	0.55 $\pm$ 0.21	0.009	-0.066 $\pm$ 0.225	0.768	-0.123 $\pm$ 0.225	0.584
RWT	0.007 $\pm$ 0.002	<0.001	0.008 $\pm$ 0.002	<0.001	0.005 $\pm$ 0.00	0.069
LAD (cm)	-0.004 $\pm$ 0.015	0.784	-0.017 $\pm$ 0.015	0.268	-0.010 $\pm$ 0.016	0.516
E:A	-0.054 $\pm$ 0.014	<0.001	-0.073 $\pm$ 0.015	<0.001	-0.067 $\pm$ 0.019	<0.001
MFS (%)	-0.40 $\pm$ 0.079	<0.001	-0.246 $\pm$ 0.085	0.004	-0.232 $\pm$ 0.1	0.022
s' (cm/s)	0.078 $\pm$ 0.05	0.138	0.004 $\pm$ 0.057	0.937	-0.038 $\pm$ 0.067	0.567

Conclusion: Increased AS is already associated with poorer measures of LV structure and function in adolescence. Adjustment for potential confounders did not substantially attenuate these associations with LV function.

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INCREASED ARTERIAL STIFFNESS IS ASSOCIATED WITH HIGH INFLAMMATORY ACTIVITY IN RHEUMATOID ARTHRITIS

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Background: Patients with rheumatoid arthritis (RA) have a high cardiovascular (CV) risk. Relationships between inflammation and arterial stiffness (AS) in patients with RA are not well understood.

Aim: To evaluate parameters of AS and their associations with inflammation in patients with RA.

Methods: 62 patients with RA without known CVD were examined (73% females, age 58.5 $\pm$ 15.4 years, 13% smokers, 61% with AH). Median duration of RA was 8 years (IQR 3–17).

Median hsCRP 12.1 mg/dl (IQR 2.2; 23.4), median rheumatoid factor (RF) 32.5 IU/ml (IQR 8.3; 173 IU/ml). All patients received disease-modifying antirheumatic drugs.

Median duration of AH 6.1 years (IQR 0–10 years). Parameters of AS were assessed by applanation tonometry. Cardio-ankle vascular index (CAVI) and vascular age were measured by VaSera 1500. PWV > 10.0 m/s and CAVI > 9.0 were considered as AS increase. $p < 0.05$ was considered significant.

Results: Mean PWV was 9.3 $\pm$ 3.2 m/s. PWV > 10 m/s was observed in 32.3% patients, CAVI > 9.0 in 25.8%. Patients with PWV > 10 m/s were older (69.8 $\pm$ 8.5 vs 53.2 $\pm$ 15.1 years), had higher BMI (29.3 $\pm$ 6.5 vs 24.7 $\pm$ 4.8 kg/m²), duration of AH (median 11.5 [IQR 5.5; 17] vs 0 [IQR 0; 5] years), higher SBP levels (144 $\pm$ 20 vs 123 $\pm$ 14 mmHg), higher levels of hs-CRP (median 22 [IQR 13.3; 60] vs 6.7 [IQR 1.6; 17.2] mg/dl), higher CAVI (9.5 $\pm$ 1.1 vs 7.6 $\pm$ 1.4), vascular age (71 $\pm$ 8.4 vs 53.4 $\pm$ 17.5 years). There were positive correlations between PWV and age ($r = 0.7$), BMI ($r = 0.4$), SBP ($r = 0.6$), hs-CRP ($r = 0.3$), vascular age ($r = 0.6$). Multiple regression analysis confirmed that AH duration ($\beta = 0.2$, $p = 0.03$), SBP ($\beta = 0.6$, $p < 0.0001$) and hs-CRP ($\beta = 0.3$, $p = 0.00009$) were independent predictors of AS increase.

Conclusion: Elevation of hsCRP as well as other traditional risk factors is an independent predictor of PWV increase in patients with RA.

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CARDIO-ANKLE VASCULAR INDEX AND PLASMA LEVELS OF LEPTIN AND ADIPONECTIN IN PATIENTS WITH SYSTEMIC LUPUS ERYTHEMATOSUS

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Objective: Systemic lupus erythematosus (SLE) is a chronic inflammatory disease associated with vascular derangement [1]. Leptin and adiponectin

are adipokines with immunomodulatory and vascular functions [2]. We studied the association between arterial stiffness and plasma leptin and adiponectin levels in SLE patients in Ghana.

Methods: In a case control design involving 80 SLE patients and 90 non-SLE controls, arterial stiffness was assessed by cardio-ankle vascular index