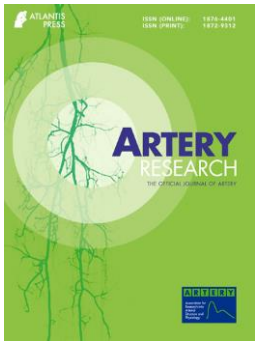

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P4.35
LARGE ARTERY DYSFUNCTION DOES NOT EXPLAIN OSTEOARTHRITIC BONE MARROW LESIONS

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Background: The pathogenesis of osteoarthritis (OA) has been linked to microvascular abnormalities. Since this is preceded by large artery dysfunction, there remains the possibility that adverse large artery function could play a role in OA. This study aimed to determine the relationship between central haemodynamic indices of large artery function and bone marrow lesions (BMLs) in patients with OA.
Methods: Study sample included 207 participants with OA (63 ± 7 years; 48% male) who underwent magnetic resonance imaging of their dominant leg for determination of tibia and femoral BMLs. Large artery haemodynamics were assessed by aortic stiffness (pulse wave velocity) and central blood pressure (including augmentation index) by radial tonometry. Brachial blood pressure was recorded by automated oscillometric device.
Results: BMLs were present in 145 participants. There was no significant difference between participants with and without BMLs for aortic stiffness (9.3 ± 2.3 vs 9.0 ± 2.3 m/s; P=0.49), central pulse pressure (43 ± 11 vs 43 ± 12 mmHg; P=0.89), augmentation index (25 ± 10 vs 26 ± 9 %; P=0.46) or brachial pulse pressure (56 ± 12 vs 55 ± 12 mmHg; P=0.65). Similarly, there were no significant relationships between BML size and any central or brachial haemodynamic measure (P>0.05 for all).
Conclusions: BMLs in patients with OA are not related to central or peripheral large artery haemodynamics. This suggests that although microvascular abnormalities may play a role in OA, there appears to be minimal contribution by large artery function.

P4.36
EFFECTS OF HYPEROXIA ON THE RELATIONSHIP BETWEEN HEART RATE VARIABILITY, BLOOD PRESSURE AND ARTERIAL WALL PROPERTIES IN HEALTHY SUBJECTS

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Objective: Previous studies reported that normobaric hyperoxia impacts heart rate, arterial pressure, cardiac output and systemic vascular resistance, but the mechanism of changes is not fully understood. Therefore, the aim of our study was to examine heart rate variability (as a - potential indicator of autonomic balance) and its relation to vascular tone and blood pressure in healthy volunteers during air and oxygen breathing.
Methods: In 12 healthy subjects (5 men; age 33.8±7.4 years) we assessed heart rate variability (HRV) and the relation between HRV parameters and blood pressure, respiratory frequency (PowerLab), common carotid artery diameter, wall distensibility and local pulse wave velocity (ArtLab System), changes in the digital pulse waveform (EndoPAT), stroke index and systemic vascular resistance (HOTMAN) during medical air (MAB) and 100% oxygen breathing (OXB).
Results: HRV parameters did not differ during MAB and OXB. However, the correlations between HRV and other parameters varied substantially during MAB and OXB. During MAB mean and systolic blood pressure, carotid artery diameter, reactive hyperemia index and mean arterial tone signal of finger artery correlated linearly with spectral HRV components while during OXB the above relations disappeared. In turn, augmentation index of finger artery, stroke index and systemic vascular resistance correlated during MAB with different HRV spectral parameters than during OXB.
Conclusion: Correlations of HRV and hemodynamic parameters reveal additional information regarding the effect of short-term hyperoxia. Our findings suggest that during OXB the regulation of blood pressure and vascular tone is mostly mediated by other factors than autonomic nervous system alterations.

SIGNIFICANT LINEAR CORRELATIONS OF SPECTRAL HRV PARAMETERS

	MEDICAL AIR	OXYGEN
Mean arterial pressure	VLF [%] (R= -0.78), LF [%] (R=0.77)	(-)
Systolic blood pressure	VLF [%] (R= -0.69), LF [%] (R=0.72), LF/HF (R=0.62)	(-)
Carotid artery diameter	LF [%] (R=0.74)	(-)
Mean arterial tone signal of finger artery	LF [%] (R=0.74)	(-)
Reactive hyperemia index of finger artery	LF [ms^2] (R=0.65)	(-)
Augmentation index of finger artery	HF [%] (R=0.66)	VLF [%] (R=0.64) LF [%] (R= -0.64)
Stroke index	LF [ms^2] (R=0.63)	HF [%] (R=0.59)
Systemic vascular resistance	VLF [ms^2] (R= -0.64)	HF [%] (R= -0.59)

P4.37
COMPARING THE ASSOCIATION OF CARDIOVASCULAR REACTIVITY AND END-ORGAN DAMAGE IN AFRICAN AND CAUCASIAN MEN: THE SABPA STUDY

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Objectives: The cardiovascular system was challenged to evaluate the possible contribution of vascular resistance and stroke volume (SV) reactivity on left ventricular mass and intima-media thickness, in both African and Caucasian men. Increased afterload as a result of increased vascular resistance may lead to impaired stroke volume and vascular and/or ventricular hypertrophy.
Methods: We included 101 African and 101 Caucasian men. Ambulatory 24-hour blood pressure measurements were conducted. Vascular resistance, compliance (Cwk) and stroke volume resting and reactivity values were obtained during the application of the Stroop color word conflict test. Left ventricular mass was determined using the Cornell product. The carotid-IMT was obtained and the cross-sectional wall area (CSWA) calculated. PWV was measured.
Results: In African men it was found, besides higher blood pressure, PWV and Cornell product values, that vascular resistance showed higher resting values as well as positive reactivity values, compared to Caucasian men. Vascular compliance and stroke volume reactivity was suppressed in African men. Diastolic blood pressure reactivity was also higher in Africans. Stroke volume showed a consisted association with markers of end-organ damage only in African men, namely with left ventricular mass and CSWA in partial and multiple regression analysis (Table 1).

Table 1 Multiple regression of CSWA and Cornell product in Africans.

	CSWA (mm^2)			Cornell product (mV)		
variables	Adj.R^2	β ± (SE)	P	Adj.R^2	β ± (SE)	P
SBP %	0.238	0.115 ± 0.09	0.225	0.138	0.06 ± 0.13	0.64
DBP %	0.267	0.208 ± 0.09	0.027	0.168-	0.206 ± 0.11	0.055
SV %	0.284	-0.240 ± 0.09	0.008	0.178	-0.212 ± 0.10	0.039
Cwk %	0.246	-0.219 ± 0.09	0.023	0.171	-0.196 ± 0.10	0.059

Conclusion: African men showed an increased vascular resistance reactivity accompanied by an impaired stroke volume reactivity, that indicate restricted ventricular function. For the same age the African men showed impaired ventricular function and vascular hypertrophy.