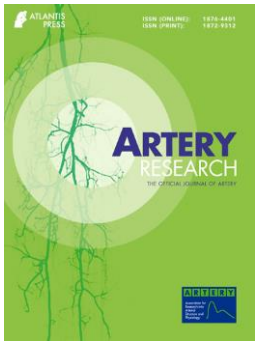

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P9.09: LARGE ARTERY FUNCTION AND VENTRICULAR ARTERIAL COUPLING DURING PROLONGED BED REST

F. Santini, C. Morizzo, E. Malshi, M. Kozakova, P. Salvi, S. Pedri, M. Pagani, C. Palombo

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Results:	CIMT with Plaque	CIMT without Plaque	*p* value
	N = 38 (age 59)	N = 231(age 58)	
CIMT (mm)	0.78 ± 0.12	0.74 ± 0.09	NS
BMI (>30 kg/m^2)	16%	10%	<0.01
Smoking	20%	15%	<0.01
Systolic BP >135 mmHg	62%	44%	<0.05
Diastolic BP > 85 mmHg	40%	21 %	<0.01
LDL-c mmol/l	3.9	3.6	NS
HDL-c mmol/l	0.95	1.05	NS

These findings indicate that normal/high CIMT values were present in both populations. Individual risk factors were only significantly correlated to risk factors if **P** was present.

Conclusion: assessment of only a CIMT in a population group above 45 years old does not add much to the standardized SCORE risk factor stratification. If a **P** is present, the addition of a measurement of CIMT plus **P** has incremental value to manage the subclinical disease in clinical practice. These findings underscore that in subclinical disease several frames should be assessed to maximize quality. CIMT alone adds little value to a SCORE measurement procedure.

Summary:

1.Plaque assessment seems a critical component to manage disease in clinical practice to provide incremental value in addition to SCORE and CIMT alone.

2. Multiple frames should be assessed to maximize yield on image quality.

P9.09
LARGE ARTERY FUNCTION AND VENTRICULAR ARTERIAL COUPLING DURING PROLONGED BED REST

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Background: prolonged circulatory unloading associated with head-down tilt bed rest (HDTBR) is followed by cardiovascular deconditioning.

Aim of the study was to investigate to what extent large artery function and arterial-ventricular coupling (VA) are involved.

Methods: ten healthy male volunteers (age 23 ± 2) were studied before and after a 35-day HDTBR. Left ventricular (LV) volumes were investigated by echocardiography; carotid diameter and intima media thickness were assessed by high resolution ultrasound (Q-IMT, Esaote Europe). Contour Wave Analysis, performed by tonometer (PulsePen, DiaTecne, Milan Italy), was used to explore large artery function. Carotid-femoral pulse wave velocity (PWV) was also estimated (Complior, Alam, Paris).

Results: no changes were observed for systolic and diastolic blood pressure, PWV and QIMT vs baseline, while LV volumes showed a significant reduction ($p < 0.05$). Arterial Elastance (Ea= end systolic pressure/stroke volume) and LV Elastance (Elv= end systolic pressure (ESP)/end systolic volume (ESV)) increased after HDTBR (for Ea: 1.08 ± 0.198 vs 1.31 ± 0.21, $p = 0.01$; for Elv 1.478 ± 0.32 vs 1.765 ± 0.42, $p = 0.04$) with unchanged Ea/Elv (0.74 ± 0.09 vs 0.76 ± 0.1). Contour wave analysis showed no significant changes for Augmentation Index (Aix), a reduction for PPI (Pulse Pressure Index: pulse pressure/mean arterial pressure, from 0.55 ± 0.14 to 0.45 ± 0.09, $p < 0.05$), SEVR (subendocardial variability ratio: 1.84 ± 0.33 vs 1.55 ± 0.25, $p = 0.008$) and LVET (left ventricular ejection time: 304.6 ± 19.8 vs 291.5 ± 11.2 ms, $p = 0.05$), and an increase in heart rate (from 58 ± 2 to 73 ± 6, $p < 0.05$).

Conclusions: no significant alterations in intrinsic arterial stiffness and structure were detected after HDTBR. The observed changes in large arteries function appear secondary to changes in LV performance.

P9.10
PULSE WAVE REFLECTION IN SUPINE AND STANDING HEALTHY YOUNG AND ELDERLY

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Objective. Pressure wave reflection poses a load on the heart often augmenting pressure and adversely affecting cardiac output. Reflection effects are age dependent and may be altered by sympathetic activation by postural stress. We sought to determine the influence of standing on wave reflection and total peripheral resistance (TPR), in healthy elderly and young individuals. Wave reflection is believed to be increased by higher TPR.

Design. Analysis of aortic pressure reconstructed from noninvasive finger arterial pressure and calculated aortic flow.

Subjects. Healthy elderly (n = 15) and healthy young subjects (n = 15).

Interventions. At least 5 minutes supine followed by 5 minutes standing.

Measurements. Calculated aortic pressure and flow were used to derive forward (Pf) and backward (Pb) pressure waves, Reflection Magnitude (RM, amplitude ratio of Pb and Pf), Augmentation Index (AI), and TPR in supine position, and after 60 s and 300 s of standing.

Results. RM and AI were higher in the elderly group as expected. Upon standing, in both groups, diastolic pressure and heart rate increased while pulse pressure, stroke volume and cardiac output decreased; RM and AI decreased but TPR increased. Pb decreased in both groups, but Pf remained the same in the elderly group whereas it decreased in the young group.

Conclusions. With standing, hemodynamic variables change similarly in elderly and young healthy subjects. The opposite changes in RM and TPR during postural stress in both young and elderly suggest that wave reflections do not solely originate from the periphery.