

### OP.7B.07 IMPACT OF LEFT VENTRICULAR GEOMETRIC REMODELLING ON INSULIN-RESISTANCE-ASSOCIATED DECREASES IN DIASTOLIC FUNCTION IN A COMMUNITY SAMPLE

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**Objective:** The impact of obesity or associated metabolic risk factors on left ventricular (LV) diastolic dysfunction (DD) may be modest in comparison to the effects of co-morbidities, such as increases in blood pressure (BP). We aimed to assess whether the impact of obesity (or associated insulin resistance) on LV diastolic function is enhanced by the presence of concentric LV remodelling.

**Design and method:** Echocardiographic LV mass index (LVMI), relative wall thickness (RWT) and diastolic function (ratio of early-to-late transmitral blood flow velocity (E/A) and E/the mean of lateral and septal wall myocardial tissue lengthening at the level of the mitral annulus [e'] [E/e'] [n = 430]) were determined in 737 randomly recruited participants of a community-based study with a high prevalence of excess adiposity (43% obese).

**Results:** Independent of LVMI and confounders, indexes of adiposity and the homeostasis model of insulin resistance (HOMA-IR) were modestly, but independently associated with E/A (p = 0.01), and E/e' (p = 0.01). In addition, RWT was similarly modestly, but independently associated with E/A (p < 0.005), and E/e' (p = 0.005). Importantly, independent of the individual terms and additional confounders (including LVMI), an interaction between HOMA-IR and RWT was related to E/A and E/e' (p < 0.05). This translated into a significant independent relationship between HOMA-IR and E/A (partial r = -0.17, p < 0.002) and between HOMA-IR and E/e' (partial r = 0.19, p < 0.01) in those with a RWT above the median for the sample, but a lack of relationship between HOMA-IR and E/A (partial r = 0.01, p = 0.79) and between HOMA-IR and E/e' (partial r = -0.004, p = 0.98) in those with a RWT below the median for the sample. Similarly, HOMA-IR was independently associated with LV diastolic dysfunction in those with a RWT above (p < 0.05) but not below (p > 0.19) the median for the sample.

**Conclusions:** The relationship between insulin resistance and LV diastolic function, and hence possibly the progression to heart failure with a preserved ejection fraction in obesity, may be markedly modified by the presence of concentric LV remodelling.

### OP.7B.08 INFLUENCE OF GENDER ON THE RELATIONSHIPS BETWEEN NEW INDICES OF ADIPOSITY AND LEFT VENTRICULAR MASS AND HYPERTROPHY IN HYPERTENSIVE PATIENTS

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**Objective:** The unfavourable effects of the association of obesity with hypertension on cardiac structure and function have been extensively studied. However, controversy still exists about the influence of gender on the relationship between obesity and left ventricular mass (LVM) and hypertrophy (LVH). Even if body mass index (BMI) and waist circumference (WC) are widely used as anthropometric predictors for cardiovascular diseases (CVD), their validity has been questioned. Recently, Body Shape Index (ABSI) and Body Roundness Index (BRI) were proposed as alternative measures of adiposity that may better reflect health status (1–2). Our study was aimed to assess the ability of ABSI and BRI in identifying LVH and to determine whether they are superior to BMI and WC. Moreover, the influence of gender on the relationships between all these indices of adiposity and LVM was also evaluated.

**Design and method:** We enrolled 724 subjects with EH (mean age 45 ± 12 years, 63% men) without cardiovascular complications. In all subjects the anthropometric indices (weight, height and waist circumference) and the routine biochemical parameters were determined. BMI, ABSI and BRI were calculated. Furthermore, all patients underwent a 24-h blood pressure monitoring and an echocardiogram. LVM was indexed for body surface area (LVMI) and for height<sup>2.7</sup> (LVMH2.7).

**Results:** The univariate correlations of LVMI and LVMH2.7 with the measures of adiposity evaluated are shown in the table 1. ROC curves analysis revealed that in

overall population (table 2) and in men BRI has a greater ability to identify LVH defined as LVMH2.7 > 51 g/m2.7.

Table 1. The univariate correlations of LVMI and LVMH2.7 with measures of adiposity

	LVMI				LVMH <sup>2.7</sup>			
	BMI	WC	ABSI	BRI	BMI	WC	ABSI	BRI
Overall Population (n=723)	0.129*	0.147*	0.127*	0.155*	0.316*	0.257*	0.164*	0.423*
Men (n=456)	0.052	0.072	0.109*	0.160*	0.235*	0.220*	0.136*	0.373*
Women (n=258)	0.217*	0.194*	0.119	0.213*	0.411*	0.370*	0.272*	0.455*

\* Statistically significant

Table 2. Comparison of ROC curves exploring the ability of the measures of adiposity to identify LVH in overall population

	AUC	95% CI
ABSI*	0.59	0.56 to 0.63
BMI**	0.64	0.6 to 0.67
BRI***	0.72	0.68 to 0.75
WC	0.61	0.57 to 0.64

\*p<0.0001 vs BRI

\*\*p<0.0001 vs BRI

\*\*\*p<0.0001 vs WC

**Conclusions:** Our results seems to suggest that in men, but not in women, the BRI has a greater sensitivity to detect LVH than ABSI and the traditional measures of adiposity.

### OP.7B.09 CHEMERIN AND BLOOD PRESSURE AND METABOLIC SYNDROME IN POSTMENOPAUSAL WOMEN

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**Objective:** Chemerin is recently identified adipose hormone, which plays a role in adipogenesis, energy metabolism and inflammation. Increased levels of chemerin have been linked to obesity and development of diabetes mellitus. During the transition from premenopause to postmenopause, many women experience weight gain and central fat deposition, hence we hypothesized that circulating level of chemerin can play a role in the pathogenesis of hypertension and cardiometabolic risk in postmenopausal females.

**Design and method:** Methods: The study included 80 women (mean age 57.6 ± 5.4 years), 54 subjects with arterial hypertension and 26 normotensive age matched controls. In all subjects anthropometrical measurements and 24-hr ABPM were performed. Fasting blood samples were taken for glucose, insulin and serum lipids concentration. Serum levels of chemerin, nesfatin and obestatin were measured using an immunochemical assay. Asymptomatic organ damages were analyzed including echocardiographic examination with assessment of left ventricular mass (LVM), (GE Vivid 7.0); carotid ultrasound with measurement of intima-media thickness (IMT), and carotid-femoral pulse wave velocity measurement (PWV) (Sphygmocor).

**Results:** Results: Compared with controls, subjects with hypertension had higher serum chemerin levels (147,8 ± 29,7 vs 132,2 ± 23,6; p = 0,05). Nesfatin and obestatin concentrations did not differ between hypertensive and normotensive groups. Chemerin was significantly associated with metabolic characteristics including BMI (r = 0,32, p = 0,003), waist circumference (r = 0,48, p = 0,0001), fasting glucose (r = 0,27, p = 0,02), and triglycerides (r = 0,20, p = 0,07). In logistic regression analysis, chemerin concentration was an independent predictor of the presence of hypertension, but the association lost its significance after adjustment for BMI.

**Conclusions:** Conclusions: In postmenopausal women serum chemerin is independently associated with left ventricular mass, left atrial volume and components of metabolic syndrome. Association of chemerin with hypertension is mediated by body adiposity.

### OP.7B.10 EFFECT OF BARIATRIC SURGERY ON VASCULAR AND RENAL BIOMARKERS IN MORBIDLY OBESE, NORMOTENSIVE, NON-DIABETIC PATIENTS

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