about diet and physical training and all of them were under doctor’s observation (group 1). 355 patients with AD got life style recommendations and were examined in 3 years (group 2). Body mass, waist circumference (WC), body fat, BMI, levels of cholesterol, insulin, HOMA-IR, TCHO, CRP were measured before and after a 3-years outpatient intervention program.

Results: At baseline, 92% patients with AD had some metabolic disorders or metabolic syndrome. Age, BMI, WC, BP metabolic values didn’t differ between groups before investigation (p>0.05). 77.8% patients from gr.1 and 20.1% in gr.2 keep recommendations (p<0.01). As a result weight loss was reached in 71.9% and 12.7% (p<0.001), stable weight was in 15.7% and 48.6% (p<0.001) and weight gain was defined in 12.4% and 11.5% patients from gr.1 and 2 respectively. In 3 years coronary artery disease was verified in 4.3% patients, arterial hypertension in 8.3%, DM in 3.2%, stroke and cancer in 1.6% patients from gr.2. In patients from gr.1 arterial hypertension and DM appeared in 1.9% and 2.6% respectively and didn’t reveal another diseases.

Conclusion: Effectiveness of abdominal obesity treatment was higher and frequency of cardiovascular disease and diabetes mellitus development was lower in individual treated patients.

P728 | BEDSIDE
Waist circumference versus other obesity parameters as predictors of coronary artery disease in essential hypertensive patients: a 6-year-follow-up study
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Purpose: There is still controversy over which obesity parameter has the strongest cardiovascular predictive value. The aim of the present study was to assess the predictive role of body mass index (BMI), waist circumference and waist to hip ratio (WHR) for the incidence of coronary artery disease (CAD) in a cohort of middle-aged hypertensive patients.

Methods: We followed up 1755 essential hypertensives (mean age 58.3 years, 965 males, office blood pressure (BP)=143/91 mmHg) free of cardiovascular disease for a mean period of 6 years. All subjects had at least one annual visit and at baseline underwent complete echocardiographic study for determination of left ventricular mass index (LVMi) and blood sampling for assessment of metabolic profile. In addition, weight and height were measured by standard techniques and waist circumference was estimated at the midpoint between the iliac crest and the iliac crest. LV hypertrophy (LHV) was defined as LVMi >125 g/m2 in males and LVMi >110 g/m2 in females, while CAD was defined as the history of myocardial infarction or significant coronary artery stenosis revealed by angiography or coronary revascularization procedure.

Results: The incidence of CAD over the follow-up period was 2.56%. Hypertensives who developed CAD (n=45) compared to those without CAD at follow-up (n=1710) had at baseline greater waist circumference (102.1±11.4 vs 96.6±11.9 cm, p<0.001), LVMi (146.2±28 vs 104.6±27.2 g/m2, p<0.002) and prevalence of LHV (43% vs 26%, p=0.02). No difference was observed between hypertensives with CAD and those without CAD with respect to baseline office BP, BMI and WHR values (p>NS for all). In subsequent multivariate Cox regression models waist circumference (HR 1.036, p=0.005) and LVMi (HR 1.011, p=0.042) turned out to be independent predictors of CAD.

Conclusions: In essential hypertensive patients baseline waist circumference predicts the development of CAD, whereas BMI and WHR have no independent prognostic value. These findings suggest that among obesity indices waist circumference constitutes the easy clinical tool to assess risk in hypertension.

P729 | BEDSIDE
Visceral fat is stronger associated with electrocardiographic measures of sympathetic activation than subcutaneous fat in individuals with structurally normal hearts: the NEO study
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Purpose: Adiposity is associated with sympathetic activation, but the role of different fat depots is unclear. Furthermore, subclinical cardiovascular disease (CVD) may have resulted in the previously observed associations between adiposity and sympathetic activation. We investigated the association of subcutaneous adipose tissue (SAT) and visceral adipose tissue (VAT) with electrocardiographic measures of sympathetic activation in a population with structurally normal hearts.

Methods: The Netherlands Epidemiology of Obesity (NEO) study is a population-based prospective cohort study including men and women aged 45 to 65 years. In the initial assessment of the baseline measurements (2008-2012), abdominal SAT (cm²) and VAT (cm²) were measured using magnetic resonance imaging (MRI). A standard 10 seconds 12-lead electrocardiogram (ECG) was obtained in rest. Vector cardiograms (VCG) were synthesized from the ECGs using the Kors matrix. From the ECG and VCG, resting heart rate (RHR) in beats/min, ventricular gradient (VG) in mm/ls, QRS-T angle (*) and T-peak end duration in ms were calculated. We performed linear regression analyses adjusting for age, sex, smoking, ethnicity and physical activity.

Results: Participants with prevalent CVD (n=74), diabetes (n=100), cardiac MRI abnormalities (n=49), cardiac medication (n=77) and missing data (n=58) were excluded. We included 467 participants with a mean age (SD) of 55 (6) years, 50% men. After adjustment for confounders SAT was associated with resting heart rate and the ventricular gradient. No association was found with the QRS-T angle and T-peak end (Table shows results per SD). VAT was associated with resting heart rate, the ventricular gradient and the QRS-T angle. No association was found with T-peak end (Table).

Conclusions: Associations were stronger for VAT, suggesting that excess visceral fat is stronger related with alterations of the sympathetic nervous system than subcutaneous fat. Since our study only included participants with structurally normal hearts, these results indicate that VAT is associated with sympathetic activation before the onset of CVD.

P730 | BEDSIDE
Successful long-term weight reduction improves left ventricular diastolic function and physical performance in severe obesity
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Background: Obesity is a risk factor for left ventricular diastolic function (LVDD), yet the impact of long-term weight reduction (LTWR) on diastolic function remains unclear. We assessed the effect of LTWR on diastolic function in morbidly obese subjects over a 1-year period.

Methods: Eligible participants with a BMI ≥30 kg/m² and stable body weight over the preceding 3 months underwent a 1-year WR program. Echocardiography and exercise capacity (6-minute walk test) were performed at baseline and at 1 year. Subjects were dichotomized according to weight reduction above 8% after 1 year.

Results: From a total of 127 subjects completing follow-up, 66 achieved LTWR and 61 did not. Baseline clinical and echocardiographic parameters were broadly similar in both groups. At follow-up, LTWR was associated with improvement in all parameters of body composition, decrease in both systolic and diastolic blood pressure as well as marked reduction of fasting glucose, insulin, HOMA-IR, and triglyceride levels. Those with LTWR demonstrated a significant improvement in individual echocardiographic parameters of LVDD (including E/A, e', e'/a', Ard and Ard-Ad) and a greater likelihood of improvement in multiple parameters compared to those without LTWR. LTWR was also associated with significantly greater improvement in 6-minute walk distance. A multiple linear regression model identified fat index (estimated fat mass – height²) as an independent factor influencing improvement in LVDD.

Conclusions: In morbid obesity, LTWR was associated with improved LV diastolic function and improved exercise capacity. Moreover, reduction of fat mass independently correlated with improved diastolic function following LTWR.

P731 | BEDSIDE
Reclassification of LV geometric patterns in morbidly obese patients. A CRM study
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The echocardiographic definition of LV geometric pattern has limitations in terms of accuracy and reproducibility of measurements and the geometric assumptions on LV geometry to calculate volume from linear dimensions. A Cardiac Magnetic Resonance- based volumetric analysis overcomes the limitation of the use of linear assumptions.

Table 1. Patient characteristics, echo and CRM data in morbidly obese patients (n=37)

<table>
<thead>
<tr>
<th>Age</th>
<th>Sex, female (%)</th>
<th>Body mass index (kg/m²)</th>
<th>Systolic blood pressure (mmHg)</th>
<th>Diastolic blood pressure (mmHg)</th>
<th>Echo E/A index (g/m²)</th>
<th>CRM E/A index (g/m²)</th>
<th>Echo Relative wall thickness</th>
<th>CRM Relative volume ratio (g/mL)</th>
</tr>
</thead>
<tbody>
<tr>
<td>43.6±10.6</td>
<td>34 (82.9)</td>
<td>45.98±5.4</td>
<td>122.8±21.9</td>
<td>75.3±13.9</td>
<td>50.14±16.2</td>
<td>50.4±5.8**</td>
<td>0.39±0.08</td>
<td>0.38±0.04</td>
</tr>
</tbody>
</table>

Data are expressed as mean (SD). *Denotes p<0.05.
ear parameters to calculate volume and is highly reproducible. Objective: Comparison of LV pattern in morbidly obese patients by echocardiography and CMR.

**Methods:** 57 morbidly obese patients underwent echocardiography and CMR.

**Results:** CMR L-UM index was lower than echo LV mass index and LV mass/Volume ratio was normal (table, figure).

**Figures:**
- Figure 1. LV geometric pattern by Echo vs CRM

**Conclusions:** In morbidly obese patients, CMR reclassifies most abnormal echo-based LV patterns into normal. Eccentric remodeling is more common than concentric with either Echo or CMR.

**P732 | BEDSIDE**

Steeper increase of body weight and BMI in acute myocardial infarction patients than in control subjects from the general population: learning from a case control study

**Methods:** To study body weight, height, and BMI in first, acutely myocardial infarction (AMI) patients and, secondly, their control subjects both at enrollment to a case control study and at health survey around 15 years before enrolment as cases and controls. We hypothesized a steeper increase among AMI patients.

**Purpose:** We previously demonstrated that bariatric surgery (BS), in morbidly obese patients, results in a significant weight loss, which is maintained at long-term follow up. Similarly, a significant improvement of CBF response to ADP and to CPT was found both at 3 months and at follow up (Table). Our data show that, in morbidly obese patients, BS exerts beneficial and long-lasting effects on peripheral endothelial function and on coronary microvascular dilator function, which can significantly contribute to the reduction of cardiovascular risk reported to be associated with this intervention.

**Table 1**

<table>
<thead>
<tr>
<th>Measurement</th>
<th>Baseline</th>
<th>3-month follow up</th>
<th>4-10 years follow up</th>
<th>For groups</th>
</tr>
</thead>
<tbody>
<tr>
<td>FMD (%)</td>
<td>6.6±2.8</td>
<td>8.6±1.6</td>
<td>9.9±2.8</td>
<td>&lt;0.01</td>
</tr>
<tr>
<td>CBF to ADP</td>
<td>1.9±0.4</td>
<td>2.6±0.7</td>
<td>2.0±0.5</td>
<td>&lt;0.01</td>
</tr>
<tr>
<td>CBF to CPT</td>
<td>1.3±0.2</td>
<td>2.2±0.4</td>
<td>2.4±0.4</td>
<td>&lt;0.01</td>
</tr>
<tr>
<td>BMI (kg/m²)</td>
<td>46.3±5.8</td>
<td>36.3±6.1</td>
<td>29.3±6.3</td>
<td>&lt;0.01</td>
</tr>
</tbody>
</table>

**Conclusions:** We studied 20 morbidly obese patients (age 43±9 years, 12 women) without any evidence of cardiovascular disease, who underwent BS. Peripheral vascular dilator function was assessed by brachial artery diameter changes in response to post-ischemic forearm low flow hyperaemia (FMD). Coronary microvascular function was assessed by measuring coronary blood flow (CBF) velocity response to i.v. adenosine (ADO) and to cold pressor test (CPT) in the left anterior descending coronary artery by transthoracic Doppler echocardiography. Patients were studied before BS, after 3 months from BS and at 4±1.5 years follow up.

**Results:** Patients showed a significant improvement of anthropometric variables from baseline, both after 3 months and at follow up. Compared to baseline, FMD improved significantly at 3 months, and this improvement was observed also at long-term follow-up. Similarly, a significant improvement of CBF response to ADO and to CPT was found both at 3 months and at follow up (Table).

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**Conclusions:** Our data show that, in morbidly obese patients, BS exerts beneficial and long-lasting effects on peripheral endothelial function and on coronary microvascular dilator function, which can significantly contribute to the reduction of cardiovascular risk reported to be associated with this intervention.

**P734 | BEDSIDE**

Short-term impact of bariatric surgery on structural and functional parameters of arterial remodeling in morbidly obese patients

**Purpose:** To assess if severe obesity results in structural and functional remodeling of arteries and to evaluate if weight reduction as a result of bariatric surgery leads to the improvement of these parameters.

**Material and methods:** For the prospective analysis we included 40 patients with severe obesity, assessed before bariatric surgery procedures (OB1) and six months later (OB2). The control group comprised 15 women with normal body mass. Anthropometric measurements, hsCRP, HbA1c, glucose, insulin, MMP-2, MMP-9, adiponectin, E-selectin, CD40L, PAI-1, echocardiogram, intima-media thickness (IMT), pulse wave velocity (PWV), flow-mediated dilatation (FMD%) and nitric oxide-mediated dilatation (NTG-MD%) were assessed in all subjects and were revaluated in OB2.

**Results:** BMI of patients with severe obesity decreased during the 6-month follow-up period on surgery (kg/m²): from 47.73 to 38.22. We found hypoadiponecetnemia in 90% patients in OB1, in 35% patients in OB2, and in 29% patients in the control group. IMT varied between OB1, OB2: 0.59 vs. 0.52; p<0.0001, and were within the reference value range. In OB1 IMT correlated significantly with body mass (r=0.472, FMD=0.0427, p<0.0001), BMI (r=0.423), FM (r=0.368), BMI (r=0.423), PWV. NTG-MD % differed between OB1 and OB2 (21.47 vs. 28.54; p<0.0001) and were lower in comparison to the control group (31.42±5.95%; p<0.0005). NTG-MD% values correlated with E-selectin values in OB1 (r=0.380, p=0.015).

**Conclusions:** It seems that weight reduction following bariatric surgery improves both structural and functional indices of large arteries.

**P735 | BEDSIDE**

Clinic, metabolic and hemodynamic benefits of bariatric surgery

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**Purpose:** Obesity is associated with a significant increase in cardiovascular risk. Bariatric surgery has been demonstrated to result in an efficient and long-term weight loss and consequently the improvement of most obesity-associated cardiovascular risk factors. This study aims to evaluate the cardiovascular benefits of bariatric surgery on a cohort of obese patients.

**Methods:** Patients were prospectively examined before and after bariatric bypass surgery. Anthropometric parameters, lipid profile and glycemia were obtained, a six-minute walk test was performed and endothelial function was evaluated to determine reactive hyperaemia index.

**Results:** Sixty-eight obese patients were included (mean age43 years ± 10; 62 women). A significant decrease of all anthropometric and biochemical parameters

**Methods:** We studied 20 morbidly obese patients (age 43±9 years, 12 women) without any evidence of cardiovascular disease, who underwent BS. Peripheral vascular dilator function was assessed by brachial artery diameter changes in response to post-ischemic forearm low flow hyperaemia (FMD). Coronary microvascular function was assessed by measuring coronary blood flow (CBF) velocity response to i.v. adenosine (ADO) and to cold pressor test (CPT) in the left anterior descending coronary artery by transthoracic Doppler echocardiography. Patients were studied before BS, after 3 months from BS and at 4±1.5 years follow up.