Cardiac output were analyzed using ALOKA 5.500. Complete invasive data were
values were similar between left and right CCA (0.0884-0.02 mm and 0.094-0.02
observers as the mean .31 two measurements. Inter- and intra-observer variability
diastolic frame was digitally acquired and saved on a DICOM server. CIMT was
defining an echo-free space (blood-intima and media-adventitia boundaries). End-
sis and is associated with an increased risk for cardiovascular events. Although
diabetics exhibited increased proximal and peripheral aorta stiffness at the beginning of their
hermodyalisis compared to non-DM, but this difference disappears after 5 years of
hemiodyalisis.

911
Carotid artery intima-media thickness evaluation during a routine	ranslith obsessed echocardiogram. Methods and feasibility
A. Cantù, E. Rocchi, L. Freni, A. Tedesco, A. Bravosi, P. Tramaire,
Cardiology Unit, Ospedale Grassi, Verona, Italy
Background: Carotid intima-media thickness (CIMT) is a marker of athero-
sclerosis and is associated with an increased risk for cardiovascular events. Although a
well-validated research tool, CIMT is not used widely in the clinical setting. Thus, the
aim of this study was to evaluate the feasibility of CIMT during a rou-
	ine translith obsessed echocardiogram (TTE).

Methods: We studied 95 consecutive pts (M/F=48/47; mean age 59
years, range 40-93) during a routine Echocardiographic Laboratory for a routine TTE. A
standard examination, left common carotid artery (CCA) was scanned in longitudinal
planes using a 10 MHz ultrasound probe. In a subgroup of 30 pts, both left and right CCA were
simultaneously. Gain setting and digital zoom were adapted in order to achieve optimal visualization in the
far wall of two linear parallel echo defining an echo-free space (blood-intima and media-adventitia boundaries). End-
diastolic frame was digitally acquired and saved on a DICON server. CIMT was
measured (leading edge to leading edge) 1 cm above the bulb by two independent observers as
the mean of two measurements. Inter- and intra-observer variability was
assessed in 14 and 30 pts, respectively.

Results: CIMT was not measured in 2 patients due to sub-optimal image quality. The acquisition time was <3 min
for left CCA and <5 min for both left and right CCA. The time required for off-line measurements of CIMT was <2 min. Inter-

and intra-observer variability were 0.029 mm (95% CI 0.019 to 0.04; SE 0.0022) and
-0.0015 mm (95% CI -0.0045 to 0.0022; SE 0.0017). Mean left CCA was
0.09±0.02 mm. In the 30 pts who underwent bilateral CIMT measurement, mean
values were similar between left and right CCA (0.09±0.02 mm and 0.09±0.02 mm,
respectively, n.s.).

Conclusions: This study shows that evaluation of CIMT during a routine trans-
translith obsessed echocardiogram is feasible. Time for image acquisition and analysis are
limited and inter- and intra-observer variability are clinically acceptable.
Measurement of left CCA only may be adequate for quantification of the
atherosclerotic burden and further classification of coronary heart disease risk.

912
Non-invasive arterial-ventricular coupling parameters assess
hemodynamic deterioration better than standard invasive and
non-invasive parameters in patients with end-stage dilated
cardiomyopathy
H. Sinisalo, M. Jurmann, A. Unbehaun, H. Lehmkuhl, R. Hetzer, Deutsches
Herzcentrum Berlin, Berlin, Germany
Objective: Waveform intensity (WI) was used to assess arterial-ventricular coupling in pts referred
for transplantation to predict the risk of clinical deterioration and shock development. We compared to standard invasive and non-invasive parameters.

Patients: The ambulatory group (group 1) consisted of 150 consecutive outpts (age 48±12 years; 110 men) with end-stage DCM and studied between July 2001 and April 2004. The follow-up period depend on vascular Doppler ultrasound. Group 2 consisted of 11 consecutive pts (age 50±11 years; 6 men) with sinus rhythm and "truly uncompensated", admitted for assist device implantation.

Ther: Non-invasive WI from common carotidartery, Doppler mitral filling and cardiac output were analyzed using ALOKA 5.500. Complete invasive data were also recorded on the day of investigation. Data are expressed as mean±SD. Statistical significance was assumed for p<0.05. Multivariate analyses were used for risk factor assessment.

Results: There were no significant differences in echocardiographic parameters or
hemodynamics. A diagnostic index between the groups was 0.55±0.75 vs. 0.2±0.7
than shock pts (540±200 vs. 290±120 p=0.005) but the second peak did not vary significantly. Lower first to second peak relation, as well as a significant (p<0.01) elevation of PCP (6±7 mmHg vs 27±5.3 mmHg), was observed in group 2. 2. PCP (p<0.01) and high (OR 2.7, CI 1.04-7.0, p<0.05). Non invasive (including PCP and cardiac output) or non-invasive (EF, EDD, mitral flow pattern) data were statistically significant for the risk of death.

Conclusions: Standard invasive and non-invasive parameters do not enable reli-
able prediction of hemodynamic deterioration in pts referred for transplantation. 
New arterial-ventricular coupling parameters (WI, p) can potentially be used to
distinguish pts at high risk for true deterioration and death.

913
Is there a marker for significant carotid artery disease in patients
referred to ACGE?
B. Obrenovic-Kirancic, A. Pavlovic-Zemunik, D. Pantic, G. Klijnac, N. Stajic, Ospedale Grassi, Verona, Italy
Introduction: Carotid intima-media thickness (CIMT) is a well-validated research tool, CIMT is not used widely in the clinical setting.

Methods: We evaluated the prevalence of significant CAD (>50% stenosis) assessed by carotid duplex exams in 272 consecutive pts with significant CAD referred to ACGE (mean age 57.04±11.24 yrs, male 70.98%). Pts were divided according to the presence of significant CAD. Following variables were analyzed: age, gender, body mass index (BMI), presence of hypertension, diabetes, smoking, HDL cholesterol and the presence of significant carotid disease. The aim of this study was to evaluate potential markers for CAD in pts referred to ACGE.

Methods: We studied 95 consecutive pts (M/F=48/47; mean age 59 years, range 40-93) during
a routine Echocardiographic Laboratory for a routine TTE. For the standard examination, left common carotid artery (CCA) was scanned in longitudinal planes using a 10 MHz ultrasound probe. In a subgroup of 30 pts, both left and right CCA were simultaneously. Gain setting and digital zoom were adapted in order to achieve optimal visualization in the far wall of two linear parallel echo defining an echo-free space (blood-intima and media-adventitia boundaries). End-diastolic frame was digitally acquired and saved on a DICOM server. CIMT was measured (leading edge to leading edge) 1 cm above the bulb by two independent observers as the mean of two measurements. Inter- and intra-observer variability was assessed in 14 and 30 pts, respectively.

Results: CIMT was not measured in 2 patients due to sub-optimal image quality. The acquisition time was <3 min for left CCA and <5 min for both left and right CCA. The time required for off-line measurements of CIMT was <2 min. Inter- and intra-observer variability were 0.029 mm (95% CI 0.019 to 0.04; SE 0.0022) and -0.0015 mm (95% CI -0.0045 to 0.0022; SE 0.0017). Mean left CCA was 0.09±0.02 mm. In the 30 pts who underwent bilateral CIMT measurement, mean values were similar between left and right CCA (0.09±0.02 mm and 0.09±0.02 mm, respectively, n.s.).

Conclusions: This study shows that evaluation of CIMT during a routine trans-
translith obsessed echocardiogram is feasible. Time for image acquisition and analysis are
limited and inter- and intra-observer variability are clinically acceptable.
Measurement of left CCA only may be adequate for quantification of the
atherosclerotic burden and further classification of coronary heart disease risk.

914
Peripheral endothelial dysfunction and inflammation in cardiac
disease syndrome X patients
A. Di Gregorio, A. Saiotti, A. Santoliquido, A. Sgueglia, F. Incluso, P. Terrin, F. Greco, O. Lanzisera, Istituto per Angiologia, Universita Cattolica del Sacro Cuore, Rome, Italy
Background: Previous studies have shown that endothelial dysfunction is present in patients with
cardiac syndrome X (XSD). Furthermore, recent data have shown increased levels of inflammation in these patients, however, no previous study, however,
determined whether inflammation is correlated with endothelial dysfunction in these
patients.

Methods: We studied 17 SX patients (6.6%) had significant CAD. Pts with CAD were older compared with those without CAD (72.6±7.14 vs. 57.94±0.29, p<0.05) and 67% were male. Risk for significant CAD in pts older than 60 yrs was higher than in pts younger than 60 yrs (OR 2.58; 95% confidence interval 0.98-7.67; p=0.047). Frequency of hypertension (68% vs. 79%) and diabetes (33% vs. 19%) were non-

Conclusions: Old age and presence of LMS were strongly associated with significant
CAD in pts referred to ACGE. Therefore they might be considered as markers for
significant carotid disease in advanced coronary sclerosis.
and endothelium-dependent vasodilation reduced (5.6±5.3 vs 15.7±14.7\%, p=0.042) in the two groups compared to controls. Furthermore, a significant correlation was found between endothelium-dependent vasodilation and serum CRP levels in the whole population of subjects (r=0.38, p<0.05), with a tendency to a correlation in the group of SX patients (r=0.44, p=0.086) but not in controls (r=0.19, p=0.549), separately. No differences were observed in endothelium-independent vasodilation results between SX patients and controls (19.5±29 vs 19.8±23.5\%, respectively, p=0.029). The vasodilator response to nitroglycerin was also significantly correlated to serum CRP levels both in the whole population of subjects (r=0.44, p=0.014) and in syndrome X patients (r=0.37, p=0.15) and in controls (r=0.11, p=0.74), separately.

Conclusions: Our data confirm the presence of peripheral endothelial dysfunction and of higher serum CRP values in SX patients. There was, however, only a tendency to a correlation between CRP levels and flow-mediated vasodilation, suggesting that other mechanisms may contribute to endothelial dysfunction in these patients.

915 Correlation between aortic distensibility and body weight in obesity - a transthoracic echocardiographic study
H. Gavrilé1, A. Nemes2, E. Csajbók2, T. Forstör1, M. Caoaday1
1University of Szeged, 2Department of Medicine, Szeged, Hungary;
2University of Szeged, Department of Endocrinology, Szeged, Hungary

Background: Increased cardiovascular risk can be observed in patients with obesity. The aortic distensibility can be characterized by the following calculated parameters: elastic modulus (E), Young's circumferential static elastic modulus (E0), and aortic elastic moduli can be calculated from ascending aortic parameters and blood pressure data evaluated by means of transthoracic echocardiography (TTE). The aim of this study was to find relationship between elastic moduli and body weight in nonobese patients.

Patients and methods: 113 healthy subjects (73 men and 40 women; mean age: 46.1±12 years) with mild to severe obesity were involved in the present study. All of them underwent a routine TTE to evaluate aortic elastic moduli. Aortic parameters (diameter and intima-media thickness) were measured from parasternal long-axis views before TTE.

Results: The mean E(p) was 0.63±0.93 mm Hg, while the mean E0 was 5.60±0.55 mm Hg. The mean body weight found to be 92.2±21 kg. Both the E(p) and E0 correlated with the body weight (r=0.413, p<0.001, and r=0.337, p=0.018, respectively).

Conclusions: There were correlations between aortic elastic properties evaluated by means of a routine transthoracic echocardiography and body weight in nonobese patients with mild to severe obesity.

916 Aortic elastance and coronary atherosclerosis
V.A. Kuznetsov, S.V. Vdovenko, D.V. Kirochkin, E.A. Doniy, I.P. Zhanov, G.V. Kolchin, Tyumen Cardiology Center, Tyumen, Russia

Background: increased elastance of the central arteries is a surrogate marker of generalized atherosclerosis. But relation between aortic elastance and coronary artery disease is not well defined.

Methods: Specific aortic wall elastance (E) was estimated by transthoracic 2D and Doppler echocardiography, applying the biharmonic polynomials of pulse wave propagation in 68 symptomatic patients (age 52±1.7 years) who underwent coronary angiography for suspected ischemia.

Results: E was significantly higher in patients (n=45) with angiographically proven coronary atherosclerosis (>50% stenosis) compared with patients (n=23) with normal coronary arteries (1.87±0.97 vs 1.16±0.59, p=0.001) as well as in patients (n=22) with multivessel coronary artery disease compared to patients (n=23) with single vessel disease (2.12±1.03 vs 1.63±0.85, p=0.041). There was a significant correlation between E and the number of coronary arteries with significant narrowing (r=0.47, p=0.001).

Conclusion: The value of specific aortic elastance is related to coronary atherosclerosis and may be a useful noninvasive surrogate marker for the extent of coronary artery disease.

917 Relation between peripheral endothelial function and angiographic restenosis after coronary intervention in patients with acute myocardial infarction
R. Yuya1, T. Yusa1, Y. Takayama1, K. Yoshida2, H. Yoshio1, T. Sugihara1, T. Daisaka1, K. Kanai1, H. Nishiguchi1, K. Iwase1, K. Iwasa1, T. Yone1, M. Tanabe1, K. Takahashi1, A. Yamada1, Y. Kurihara1, H. Nonaka1, K. Fujita1, N. Kawasaki1, K. Nishida1, K. Ishii1, M. Hori1, T. Izumi1, Y. Takahashi1, T. Yamaoka1, T. Ogasawara1, T. Fujii1, Y. Kato1, T. Kato1, T. Ishii1, T. Nishimura1, T. Ohta1, T. Inoue1, T. Kato1, T. Yoshitani1, T. Hori1, T. Takeuchi1, T. Iwasaka1
1Medical school, Clinical Laboratory Medicine, Kochi, Japan; 2Cardiology Department, Rakusai NT hospital Kyoto, Japan; 3Kochi Medical School, Tokyo, Japan; 4Athens, Greece; 5General Hospital of Athens "G. Genissiata", Cardiology Department, Athens, Greece

Objective: Abnormalities in endothelium-dependent, flow-mediated dilation (FMD) may be assessed noninvasively in the brachial artery by high frequency ultrasound. Lesosimendan is a calcium sensitizer with both a positive inotropic effect and a vasodilating effect, exerted on coronary as well as peripheral arteries. The aim of this study was to evaluate the effect of Lesosimendan on Endothelial Function in patients with Chronic Heart Failure (CHF).

Methods: The study population included 12 in-hospital patients (10 males, mean age 62±11.4 years) with uncomplicated AMI, in NYHA functional class III-IV and Left Ventricular Ejection Fraction (LVEF)<35%. All patients were receiving optimal medical treatment prior to their hospitalization. In all, FMD of brachial artery was studied by noninvasive ultrasound, before and 2 days after a 24 h i.v. infusion of Lesosimendan.

Results: The baseline brachial artery diameter was 4.67±0.63 mm before and 4.97±0.70 mm after reactive hyperemia. Following Lesosimendan infusion, there was a nonsignificant increase of the brachial artery diameter at rest (4.71±0.74 vs 4.82±0.78 mm, p=0.27), as well as reactive hyperemia (5.05±0.62 mm, p=0.77). However, FMD as a percentage (%) increased significantly from 6.29±2.59 to 7.36±3.23% after Lesosimendan infusion (p=0.04). The FMD absolute value also significantly increased from 0.30±0.13 mm to 0.34±0.15 mm after the infusion, while nitrate induced dilation did not significantly change (5.25±0.02 mm before, 5.31±0.06 mm after, p>0.19, percentage values:12.69±6.69% before, 12.90±5.94% after, p=0.10).

Conclusions: Our data suggest that Lesosimendan infusion has a favourable effect on endothelial function in patients with CHF, under optimal medical treatment. Further studies are due to throw more light on the role of Lesosimendan on endothelial function in CHF patients.

919 Endothelial function in patients with type 2 diabetes mellitus
R. Rudko1, T. Przewlocki1, A. Kablack-Ziemiecka1, W. Traczyk2, K. Krakow, Poland; 1Institute of Cardiology, Dep. of Cardiac and Vascular Diseases, Cracow, Poland

Objective: Patients with type 2 diabetes mellitus have greater incidence of atherosclerosis than patients without diabetes mellitus. It is believed that endothelial dysfunction plays a crucial role in development of atherosclerosis. We aimed to investigate the effect of atherosclerotic risk factors on endothelial function in patients with type 2 diabetes mellitus.

Methods: We studied 69 patients with type 2 diabetes mellitus aged 61±8.1 years. We assessed endothelial function on the basis of the relative dilation of brachial artery (%) after 5 minutes occlusion (flow-mediated dilation - FMD) by high-resolution ultrasound imaging. Just before ultrasound examination, we evaluated fasting glucose, insulinemia, glycated hemoglobin level, glycated end products level (theometric method), lipid level, fibrinogen level, TNF-alfa level (high sensitivity method), C-reactive protein level (high sensitivity method) and blood pressure. Insulin resistance was estimated by homeostasis model assessment of insulin resistance (HOMA-IR) according to the formula: fasting insulin (\(\mu\text{U/mL}\)) x fasting glucose (mmol/l)/22.5. Statistical correlation between examined factors and flow-mediated dilation was analyzed.

Results: Statistically significant correlation between FMD (13.05±5.25\%) and glycated hemoglobin level (9.44±1.37\%) (p<0.001, r = -0.58), glycated end products level (11.9±4.53\%) (p=0.018, r = -0.37), insulin resistance (7.66±5.87\%) (p=0.005, r=-0.34), fasting glucose (150.4±5.8\%) (p=0.005, r = -0.43) and triglyceride level (175±142 mg/dl) (p=0.001, r = -0.29).

Conclusions: These preliminary data suggest that endothelial dysfunction in patients with type 2 diabetes mellitus is associated not only with increased insulin resistance and triglyceride level but also with elevated glucose which may be correlated with intensified glycation process in these patients.