

Poster Presentations

PP01

[Co-morbidities and Heart failure]

Insulin Resistance In Nondiabetic Ischemic Cardiomyopathy

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Objectives: Ischemic Cardiomyopathy is a globally increasing chronic disease and a frequent cause of hospitalization. In this population insulin resistance may develop regarding to the differences in enzymatic activity and glucose metabolism. In this study, we searched insulin resistance in nondiabetic ischemic cardiomyopathic patients who were hospitalized.

Methods: We included nondiabetic patients who were hospitalized in our department and had a history of myocardial infarction or invasive anti-ischemic treatment (PTCA, STENT, CABG) and developed cardiomyopathy. We had totally 50 nondiabetic ischemic cardiomyopathy patients (46 male and 4 female) and a control group of 25 healthy individuals (21 male and 4 female). Electrocardiogram and transthoracic echocardiography were performed. Insulin and C-peptide levels were measured. The results were evaluated using SPSS statistical analysis method.

Results: Insulin levels were higher in nondiabetic ischemic cardiomyopathic patients compared to control group and the difference was statistically significant ($P = 0.001$). Also, C-peptide levels were higher in nondiabetic ischemic cardiomyopathic patients compared to control group and the difference was statistically significant ($P = 0.001$). This difference suggested presence of insulin resistance in nondiabetic ischemic cardiomyopathic patients.

Conclusion: Insulin resistance is highly prevalent among nondiabetic ischemic cardiomyopathic patients. Different etiological mechanisms are suggested. The increased concentration of free fatty acids decreases glucose use in cardiac and skeletal muscles in those patients. Oxidative and lipolytic enzyme distribution changes the response to insulin at tissue level. Reduced exercise capacity and the change in aldosterone levels affect insulin sensitivity. Insulin resistance is also important with its consequences. Insulin has antidiuretic effect which interferes with the treatment of cardiac failure and myocardial insulin resistance decreases the glucose use in cardiac muscle cells which might worsen the failure symptoms. In a study; increased heart failure risk was found in normal-weight people with metabolic syndrome when compared with metabolically healthy obese individuals. Metformin prevented the development of chronic heart failure in insulin resistant rat model in another study. Considering these results with ours, we might conclude that; there are potentially reversible metabolic changes in insulin resistant cardiomyopathy patients and those changes can be considered as targets for therapy in these patients.

PP02

[Cardio-Renal Syndrome]

Early Identification Microalbuminuria In The Patients With Chronic Heart Failure

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Objective: To determine microalbuminuria (MAU) and serum creatinin in the patients with chronic heart failure (HHF), functional class (FC) I-III.

Methods: The study included 35 patients at the age from 50 to 80 years. All the patients were divided into three groups in relation to CHF FC: 1

–FC I (n = 10), 2–FC II (n = 12), 3–FC III (n = 13). All the patients were performed clinical investigations, EchoCT, measurement of the serum level of creatinin, MAU.

Results: Kidney dysfunction in CHF was revealed at early stage of disease development in 60.3% of patients, characterized by moderate increase in creatinin content in the majority of cases. In patients with CHF FC III there were identified more marked changes in kidney functions, the level of serum creatinin was higher by 25.3% in comparison with patients with CHF FC I. There were found laboratory parameters of the damage of the kidney glomerular apparatus: proteinuria was found in 33% of cases, microalbuminuria—in 40% of cases, which level had direct correlation with functional class of CHF ($r = 0.40$; $P < 0.05$). The results of investigation showed that determination of the serum creatinin and microalbuminuria are the early predictors of kidney dysfunction in the patients with CHF.

Conclusions: It was found that in the patients with CHF the kidney functional disorders occurred accompanied by increase in level of the serum creatinin and microalbuminuria associated with progressing CHF.

PP03

[Cardio-Renal Syndrome]

Kidney Dysfunction Early Determination In The Patients With Ischemic Heart Disease Complicated By Chronic Heart Failure

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Objective: Early identification of the kidney dysfunction by measurement of fermenturia level and glomerular filtration velocity (GFV) in the patients of functional class (FC) II-III of chronic heart failure (CHF).

Methods: The study included 52 patients with ischemic heart disease with FC II (n = 27) and III CHF (n = 25). Control group included 20 healthy persons. All the patients were performed complex clinical examination, measurement of blood serum creatinin level, residual nitrogen and urine enzymes concentrations: alaninaminotransferase (ALT), aspartataminotransferase (AST), alkaline phosphatase (AP), cholinesterase.

Results: There was found preservation of normal findings of GFV and residual nitrogen content in the blood serum in the patients with FC II and III CHF, however GFV in the patients with FC II and III CHF reliably lower by 17.4% and 35.1%, respectively, and residual nitrogen level was reliably higher by 61.4% and 85.7%, respectively, in comparison with control group ($P < 0.05$). In the patients with FC II CHF there was noted reliable ($P < 0.05$) increase in fermenturia level in comparison with control group: ALT-by 52.2%, AST-by 39%, AP-by 82.7%, CE-by 37.8%. In the patients with FC III of CHF there was revealed reliable increase in ALT, AST, AP, CE by 87.0%, 52%, 114.8%, and 53%, respectively, ($P < 0.01$) that indicated about damage of congruency of cytoplasmatic membranes of tubular epithelium of the kidney tubules.

Conclusions: There was noted reduction in GFV and increase in residual nitrogen levels in rising of FC of CHF without clinical manifestations of kidney dysfunction. It was established that in patients with FC II and III of CHF there was noted reliable increase in urine levels of enzymes, that is early sign of the impairment of tubuloeptithelial kidney apparatus and it may be considered as predictor of kidney dysfunction in the patients with CHF.

PP04

[Epidemiology and Prognosis]

Cumulative Survival in Patients with Chronic Heart Failure Associated with Chronic Kidney Disease

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Objective: To investigate the dynamics of cumulative survival depending on renal function in patients with chronic heart failure (CHF).

Methods: 251 patients with CHF (males 133, females 118) were studied. Mean age was 56.2 ± 11.6 years. Causes of CHF were: arterial hypertension in 63 (23.7%) patients, coronary artery disease (CAD) - 35 (13.2%), CAD and arterial hypertension - 168 (63.1%). 76 (28.6%) patients had functional class I of CHF, 154 (57.9%) - Class II, 31 (11.7%) - Class III, 5 (1.8%) - Class IV according to NYHA classification. Diabetes mellitus had 39 (14.7%) patients. History of myocardial infarction had 52 (19.5%) patients. The estimated glomerular filtration rate (eGFR) was calculated using MDRD (Modification of Diet in Renal Disease) formula. Chronic kidney disease (CKD) was diagnosed according to NKF K/DOQI, Guidelines, 2002. eGFR < 60 mL/min/1.73 m² had 88 (35.1%) patients. Observation period for patients with CHF was 71.3 ± 18.7 months (from 2 till 96 месяцев, median-77 months). The primary endpoint was all-cause mortality.

Results: Patients with CKD were elder and had higher class of CHF. Atrial fibrillation and mitral regurgitation had registered more common in the group of patients with CHF associated with CKD. Also, lower left ventricular ejection fraction (LVEF) and anemia were detected more frequently in those patients. 66 (26.3%) patients died during the observation period, including 38 patients without CKD and 28 patients with CKD. The relatively low percentage of patients died within 5 years in our study can explain the fact, that 227 (90.4%) patients had functional class I-II of CHF at the beginning of the study.

During the first 4 years relative risk (RR) of death for the group of patients with CHF associated with CKD was significantly higher than in the group of patients with CHF without CKD, and then it gradually decreased: after 12 months of observation RR was 9.3 (95% CI 2.7-32.5), after 24 months-3.4 (95% CI 1.6-7.2), after 36 months -2.0 (95% CI 1.1-3.6), after 48 months-1.7 (95% CI 1.1-2.7), after 60 months-1.4 (95% CI 0.95-2.1). There was statistically significant reduction in the average number of months people lived after inclusion in the study in the group of patients with eGFR < 60 mL/min/1.73 m² versus patients without CKD (66.1 ± 22.3 months vs. 74.1 ± 15.3 months, $P < 0.001$).

During multivariate regression analysis the independent effect of high systolic and diastolic BP, anemia, CKD, EF < 50% on life expectancy of patients with CHF was detected.

Conclusions: 1. Chronic kidney disease worsens prognosis in patients with CHF. 2. Chronic kidney disease, anemia, left ventricular ejection fraction < 50%, high systolic and diastolic BP are independent factors affecting prognosis of CHF patients. 3. Reducing the impact of the original state of renal function on the relative risk of death with increasing observation time was established.

PP05

[Animal Models and Experimentation]

The Effectivity of Combined Action of N-acetyl-L-carnitine And Inosine in Comparison with Separate Actions of Them in a Rat Experimental Model of the Myocardial Ischaemia

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Objective: The objective of the present work was to research role of the combined action of N-acetyl-L-carnitine and inosine as medicine's components in comparison with the separate action of these substances for the arterial pressure suppression and prevention of developing of the associated miocardial ischaemia in spontaneous-hypertensive rats.

Methods: The males of spontaneous-hypertensive (SH) rats (n = 35) and Wistar-Kyoto rats (n = 5) as biological control at 5 months old were involved in this research. SH rats (n = 5) were administrated per os the pharmaceutical composition (Carnitine+Inosine) manufactured from the N-acetyl-L-carnitine (Carnitine) and Inosine in 200 mg/kg dose, SH rats (n = 5)-in 130 mg/kg dose; SH rats (n = 5) were treated with Carnitine in dose of 105 mg/kg, SH rats (n = 5) - in 70 mg/kg dose; SH rats (n = 5) were treated with Inosine in 70 mg/kg dose, SH rats (n = 5) - in 60 mg/kg dose; SH rats (n = 5) were treated with starch solution for 3 months. The systolic and diastolic pressure was measured by noninvasive method (complex NIMP-8 Columbus Instruments, USA). The electrocardiographic findings were registered by means of the multichannel complex (Biopac, USA). Experimental work with animals was executed according rules of the humane treatment with animals. One-way method ANOVA was used for the statistical analysis of data. Statistical discrepancy were significant at the confidence level $P < 0.05$.

Results: Miocardial ischaemia is known to arise in rats with congenital hypertension at 5-years old. SH rats were observed the sufficient elevation of ST-segment, depression of Q. When composition Carnitine+Inosine was introduced in rats in doses 200 and 105 mg/kg, it was registered 3-fold reduction of ST-segment elevation ($P < 0.05$). The effect of separate components of the composition Carnitine+Inosine is not such sufficient as combined action of them. Introducing of Carnitine in dose 105 mg/kg and Inosine in dose 95 mg/kg for 3 months was caused the depression of ST-segment at 1.1 versus 1.2 times respectively. The administrations Carnitine in dose 70 mg/kg and Inosine in dose 60 mg/kg were not caused sufficient effect of depression of ST-segment. The systolic pressure was lowered by 8% in rats treated with Carnitine+Inosine in dose 200 mg/kg (140 to 130 mmHg, $P < 0.05$). Systolic pressure was increased by 6% in rats treated with separate components Carnitine (105 mg/kg) and Inosine (95 mg/kg) (140 to 148 mmHg, 138 to 145 mmHg respectively, $P < 0.05$). Diastolic pressure was lowered by 6% in rats treated with composition Carnitine+Inosine in dose 200 mg/kg.

Conclusion: Administration of the composition Carnitine+Inosine in doses of 200 mg/kg and 130 mg/kg for 3 months in rats with progressive arterial hypertension and associated miocardial ischaemia was produced the depression of arterial pressure and reduction of the elevation of ST-segment. The effect of combined action of two components was more sufficient than the effect of separate components' actions.

PP06

[Co-morbidities and Heart failure]**Atrial Septal Defect - Cause of Heart Failure in an Old Woman**

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Objective: Atrial septal defect is one of the most commonly congenital anomalies in adults, but is rarely diagnosed. It is characterized by a defect in the interatrial septum that allows pulmonary venous return to pass from the left to the right atrium. We describe the case of a 75-year old female who presented to the Emergency Department for progressive dyspnea, orthopnea, lower extremities swelling, palpitations. She had a 3 years history of atrial fibrillation and 1 year history of heart failure NYHA (New York Heart Association) class II, diagnosed by her family doctor.

Methods: We performed clinical examination, ECG, 2-dimensional transthoracic echocardiography in this patient.

Results: Physical examination revealed an irregular pulse 80 beats/min, blood pressure 100/60 mmHg, bi-basal crackles on chest auscultation, lower extremities swelling. Heart sounds examination detected a pansystolic murmur grade IV at the sternal left border. The jugular veins were dilated. The patient complained of pain in the upper right abdominal region, enhanced by palpation. ECG: atrial fibrillation 80/min, right bundle branch block. Transthoracic echocardiography revealed a dilated right atrium 74.2 mm, dilated left atrium 55.2 mm, dilated left ventricle 64/72.3 mm, dilated right ventricle 44.4 mm. Atrial septal defect ostium secundum type, with left-to-right shunt. Severe tricuspid insufficiency with maximum gradient 55.4 mm Hg. Grade 4 mitral insufficiency. Severe pulmonary hypertension 75 mm Hg. The ejection fraction 29%. Atrial fibrillation. Flattening of the interventricular sept, with paradoxical motion.

Conclusions: Ostium secundum defect is the most common type of atrial septal defect and accounts for 60–70% of all cases. The malformation often goes unnoticed for decades because symptoms may be absent and because physical signs are subtle. Sometimes it takes 30–40 years for symptoms to develop. They are the consequences of pulmonary hypertension, atrial tachyarrhythmias and, sometimes, associated mitral valve disease. Secundum atrial septal defect occurs more commonly in females than males, with a female-to-male ratio of 2:1. Patients are usually asymptomatic through infancy and childhood. Symptoms appear with advancing age. By the age of 40 years, 90% of untreated patients have symptoms of exertional dyspnea, fatigue, palpitation or sustained arrhythmia. The echocardiography can establish the size and location of the atrial septal defect, the magnitude and hemodynamic impact of the left-to-right shunt, and the presence and degree of pulmonary hypertension. The particularity of this case is that the patient lived over 70 years almost asymptomatic.

PP07

[Co-morbidities and Heart failure]**Heart Failure: Risk Factors and Comorbidities in Hypertensive Patients**

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Objective: The purpose of the study was to determine the clinical features of cardiac failure, associated risk factors and co-morbidities in a group of 82 consecutively hospitalized hypertensive patients.

Methods: In all the patients we performed clinical examination, ECG, laboratory tests, X-ray studies and transthoracic 2-D echocardiography.

The diagnosis of heart failure was established according to ESC guidelines.

Results: Of the 82 patients, 21 (25.6%) presented clinically manifest chronic heart failure or asymptomatic left ventricular dysfunction. The age of these patients ranged from 33 to 84 years (mean age 56.9 years). Of the 21 patients, 13 were men (61.09%) and 8 women (38.91%). 9 patients (42.85%) had at least one comorbidity and 8 patients (38.09%) had multiple co-morbidities. These co-morbidities were renal dysfunction, overweight and obesity, dyslipidemia, chronic obstructive pulmonary disease, gout, anaemia, diabetes mellitus, atrial fibrillation, stroke and ischaemic heart disease.

Conclusions: Heart failure is common in patients treated for hypertension and is often associated with other co-morbidities. Hypertensive patients should be monitored by the family doctor regarding symptoms of heart failure (exertional dyspnoea, leg edema, etc.) and referred to cardiological evaluation, including echocardiography. Echocardiography should be performed in all hypertensive patients, especially if they have co-morbidities, for early diagnosis of asymptomatic ventricular dysfunction.

PP08

[Co-morbidities and Heart failure]**The Clinical Features of Patients With Premature Coronary Artery Disease Combined With Arrhythmias and Long-Term Follow-Up**

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Objective: Patients with coronary artery disease (CAD) combined with arrhythmias belong to a special patient cohort and deserve more medical care. The aim of this study was to investigate the clinical features and 2 year follow-up results in patients with premature CAD (male < 55 years and female < 65 years) combined with arrhythmias.

Methods: 339 patients with premature CAD were divided into group A (n = 85), premature CAD combined with arrhythmias (premature ventricular contractions, atrial fibrillation, atrial flutter, left/right bundle branch block, left anterior hemiblock, second degree plus atrioventricular block, ventricular fibrillation/ventricular flutter; supraventricular/ventricular tachycardia); and B group (n = 254), premature CAD without arrhythmias. The clinical characteristics, 6-, 12- and 24 month follow-up results in the two groups were analyzed. The composite end-point events include re-hospitalization for heart failure, cerebral infarction and all cardiac death. Multivariate analysis were used to determine the association between clinical parameters and prognosis.

Results: Patients in group A had a higher proportion of acute myocardial infarction (49.4% vs. 15.7%), hypertension (87.1% vs. 76.8%), smoking (42.4% vs. 30.7%) and lower values of left ventricular ejection fraction [(0.55 ± 0.10) vs. (0.63 ± 0.09), $P < 0.05$] than in group B (all $P < 0.05$). The ratios of lesions in the left main coronary artery (8.2% vs. 0.4%), left circumflex coronary artery (55.3% vs. 34.6%) and right coronary artery (70.6% vs. 44.8%) in group A were higher than that in group B (all $P < 0.05$). The incidence of composite end-point events in 6 month (15.3% vs. 7.9%), 12 month (22.4% vs. 8.7%) and 24 month (29.4% vs. 12.2%) were higher in group A compared to group B (all $P < 0.05$). Multivariate regression analysis revealed that left ventricular ejection fraction < 0.5 [OR 9.563, 95% CI: 2.498–36.614, $P = 0.001$], acute myocardial infarction [OR 2.673, 95% CI: 1.263–5.659, $P = 0.010$] and combination with arrhythmias [OR 4.868, 95% CI: 2.237–10.592, $P = 0.000$] were independent predictors of composite end-point events during follow-up in patients with premature CAD.

Conclusion: Patients with premature CAD combined with arrhythmias have more clinical risk factors and worse 2 year outcomes. Decreased left ventricular ejection fraction, acute myocardial infarction and combination with arrhythmias are independent predictors of composite end-point events during follow-up.

PP09

[Cardio-Renal Syndrome]

Chronic Kidney Disease is Associated with Poor Prognosis in Patients with Early-Onset Coronary Artery Disease

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Objective: Chronic kidney disease (CKD) has become a worldwide public health problem. In the updated guidelines for the management of dyslipidemia issued by ESC/EAS, CKD is acknowledged as a coronary artery disease (CAD) risk equivalent. This study was performed to determine the prevalence of CKD as well as its association with 2 year prognosis in patients with stable early-onset CAD in a Chinese population.

Methods: From January 2005 to May 2009, 512 patients with a confirmed diagnosis of stable early-onset CAD (men < 55 years, women < 65 years) were enrolled in the present study and an estimated glomerular filtration rate (eGFR) was used to determine the presence of CKD. All patients underwent elective coronary angiography (CAG) for evaluation of coronary stenosis. Patients with $\geq 50\%$ stenosis in one coronary artery were assigned to the single-vessel disease group, while patients with $\geq 50\%$ stenosis in two or three coronary arteries or in left main artery were classified as multi-vessel disease. The patients were then monitored over a 2 year follow-up during which major adverse cardiac events (MACEs) were recorded and analyzed. MACEs include recurrent angina, recurrent myocardial infarction, target vessel revascularization, re-admission for heart failure, and cardiac death.

Results: One hundred and eighty three patients (35.74%) were determined to have CKD. Having CKD was associated with a higher ratio of type 2 diabetes mellitus, multi-vessel disease, higher levels of fasting blood sugar and lower levels of left ventricular ejection fraction (all $P < 0.05$). Patients with CKD had significantly higher incidences of composite MACEs than the non-CKD group at the end of the two- (45.35% vs. 30.72%, $P = 0.001$) but not 1 year follow-up (30.64% vs. 25.32%, $P = 0.209$). Furthermore, as eGFR decreased, more MACEs occurred (all $P < 0.05$). Multivariate analysis confirmed that multi-vessel disease (OR 1.292, 95% CI: 1.103–2.327; $P < 0.001$) and CKD (OR 1.575, 95% CI: 1.012–2.588, $P < 0.001$) are independent risk factors of MACEs in patients with stable early-onset CAD.

Conclusion: Chinese patients diagnosed with stable, early-onset CAD and CKD have more risk factors and worse 2 year outcomes than those with only early-onset CAD. Multi-vessel disease and CKD are independent risk factors of MACEs in patients with stable early-onset CAD.

PP10

[Drug Therapy]

Effect of Low-Dose Aspirin on Heart Rate Variability in Healthy Middle-Aged Males

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Background: Analysis of heart rate variability (HRV) has gained prominence for the clinical investigation as a noninvasive tool of autonomic function. Variables of HRV are suitable to explore the influence of various pharmacological agents on sympathetic and parasympathetic input to the heart. Despite the growing knowledge about (in) direct

effects of many medications on the autonomic nervous system, there are presently no clinical data available with regard to the impact of low-dose aspirin on measures of HRV.

Objective: The present study estimates effects of aspirin 100 mg daily on cardiovascular autonomic input as assessed by measures of HRV in a group of middle-aged men.

Subjects: Twenty-five healthy males (mean age 51.8 ± 6.5 years) free of pre-existing ischemic heart disease were studied. For the subjects, echocardiographic measurements and exercise test were required to be normal to be included the study. All participants were normotensive, non-diabetic, presenting no signs of peripheral vascular disease. None of the participants used any medication, including vitamin supplements, at least 4 weeks before the study. During the study, any medication apart from aspirin was prohibited.

Methods: All subjects underwent 24 h ambulatory electrocardiographic recording (SpaceLabs Medical model FT2000 TM /FT3000 TM, 3-channel recorders). All recordings were obtained on out-patient basis. Four time domain variables were obtained for each subject: (1) SDNN - the standard deviation of all R-R intervals over 24 h (ms); (2) SDNN index - mean of the standard deviations of all N-N intervals for all 5 min segments over 24 h (ms); (3) pNN50 - the proportion of adjacent normal RR intervals that are greater than 50 ms apart, computed over the 24 h ECG (%); (4) RMSSD - the square root of the mean of the sum of the squares of differences between adjacent NN intervals. A fast Fourier transform was used for spectral analysis of heart rate. We computed the 24 h power spectral density and calculated the power (in units of milliseconds squared) within two frequency bands: (1) 0.04–0.15 Hz, low frequency power (LF), (2) 0.15–0.4 Hz, high frequency power (HF). In addition, we calculated the total power (power in the band, < 0.50 Hz), and the ratio of LF to HF power, a measure that has been used as an indicator of sympathovagal balance.

Results: In respect to HRV variables, no statistically significant differences between the pre- and after-treatment data were observed (Table 1).

Conclusion: Unchanged values of HRV in the present study point towards indifferent action of low-dose aspirin on autonomic cardiovascular regulation. The indifferent action of short-term administration of aspirin on HRV, however, does not exclude the possibility that long-term treatment might potentially influence the autonomic cardiovascular tone, contributing possibly to the cardiovascular benefits of the drug.

Table 1 Indices of heart rate variability in the study group before and after the treatment with low-dose aspirin

Parameter	Before aspirin	After 6 months of aspirin
Mean RR (ms)	780.1 \pm 68.0	788.9 \pm 76.0
SDNN (ms)	138.8 \pm 30.4	134.1 \pm 32.6
SDNN index (ms)	56.3 \pm 12.2	54.0 \pm 14.0
pNN50 (%)	4.7 \pm 4.4	4.6 \pm 4.1
RMSSD (ms)	26.8 \pm 8.1	25.9 \pm 8.8
LF (ms ²)	938.2 \pm 474.4	895.0 \pm 462.6
HF (ms ²)	196.4 \pm 129.0	206.5 \pm 162.2
LF/HF	5.6 \pm 1.6	5.2 \pm 1.7
TP (ms ²)	2670.0 \pm 1141.1	2640.3 \pm 1290.2

Data are given as mean \pm SD. Mean RR, mean RR interval over the entire 24 h ECG recording; ms, millisecond; SDNN, standard deviation of all RR intervals; SDNN index, mean of the standard deviations of all RR intervals for all 5 min segments; pNN50, percent of differences between adjacent normal R-R intervals > 50 ms over the entire 24 h ECG recording; RMSSD, square root of the mean of the squared differences between adjacent normal RR intervals over the entire 24 h ECG recording; HF, high-frequency power; LF, low-frequency power.

PP11

[Acute Heart Failure]

Usefulness of Neutrophil to Lymphocyte Ratio in Predicting in Hospital Mortality in Patients with Acute Heart Failure

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Background: Previous studies have demonstrated the role of inflammation in acute heart failure (AHF). Neutrophil to lymphocyte ratio (NLR) was found to be a useful inflammatory marker to predict adverse outcomes. This study tested the hypothesis that in patients with AHF, the NLR is a predictor of in-hospital mortality.

Methods-Results: The study cohort consisted of 162 AHF patients with EF < 50%. The primary end point was in-hospital mortality. Patients were stratified according to quartiles of the mean neutrophil/lymphocyte ratio. Relative to patients in the other three lower NLR quartiles, patients in the highest quartile were more likely to die during hospitalization. By multivariate Cox regression analysis including baseline demographic, clinical, and biochemical covariables, the NLR in the highest quartile remained an independent predictor of mortality (β : 2.997 P : 0.025).

Conclusion: An elevated NLR in patients with AHF is associated with an increased risk of in-hospital mortality. This simple test may add to risk stratification of these high-risk patients.

PP12

[Acute Heart Failure]

Assessment of Serum Vaspin, Apelin, Pentraxin and Troponin Levels in Patients with Acute Heart Failure Before and After Therapy

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Objectives: Troponin levels increase in acute heart failure and decrease to normal values with treatment. However, adipocytokines remain to be assessed in acute heart failure. The purpose of this study was to investigate serum troponin, vaspin, apelin and pentraxin-3 levels in patients with acute heart failure before and after the medical treatment.

Method: Forty-four patients with acute heart failure and 33 control cases were enrolled in the study. Blood samples were taken both from patients and controls at admission and just before discharge and stored at -20°C until analysis. Serum troponin, vaspin, apelin, pentraxin-3 levels were measured using an enzyme immunoassay method and were reported as ng/mL.

Results: The patient group included more male and elder patients than the control group. Troponin and vaspin levels increased in the patient group; apelin levels increased in control group whereas both groups were similar with regard to pentraxin-3 levels. A statistically significant decrease in serum troponin levels ($P = 0.023$), besides a significant increase in serum pentraxin-3 levels ($P = 0.043$) with medical treatment in acute heart failure patients were detected (Figure 1–4). Troponin levels were independently associated with vaspin levels ($\beta = -0.560$, $P = 0.001$), cigarette smoking ($\beta = 0.222$, $P = 0.014$) and ejection fraction ($\beta = -0.430$, $P = 0.006$), whereas serum pentraxin-3 levels were independently associated with apelin levels ($\beta = 0.187$, $P = 0.007$). Vaspin levels were independently associated with troponin levels ($\beta = 0.467$, $P = 0.001$) and cigarette smoking ($\beta = 0.278$, $P = 0.010$).

Conclusions: Troponin levels increased during the acute phase and decreased with medical treatment and, pentraxin-3 increased with treat-

ment contrary to unchanged serum pentraxin-3, vaspin and apelin levels.

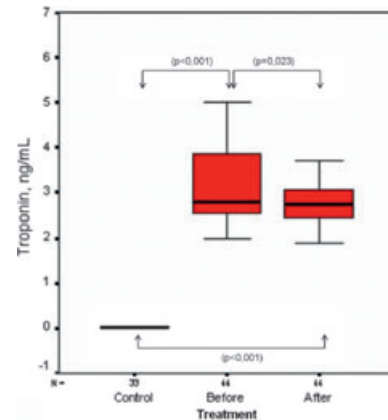


Figure 1 Comparison of troponin levels in the control and patients

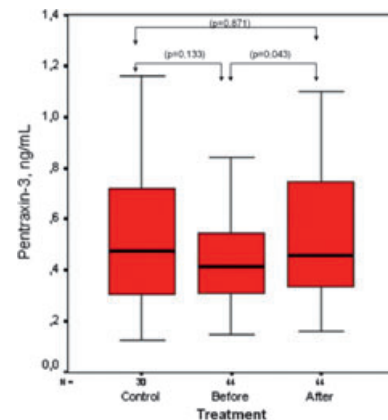


Figure 2 Comparison of pentraxin-3 levels in the control and patients

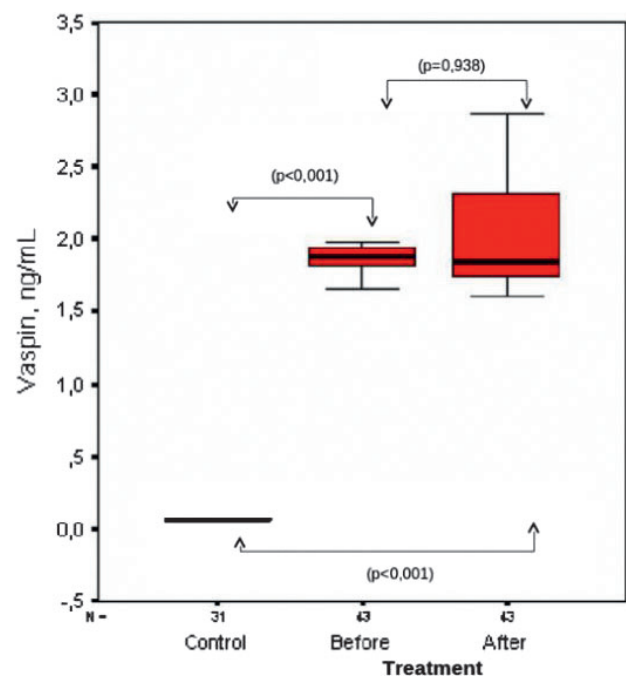


Figure 3 Comparison of vaspin levels in the control and patients

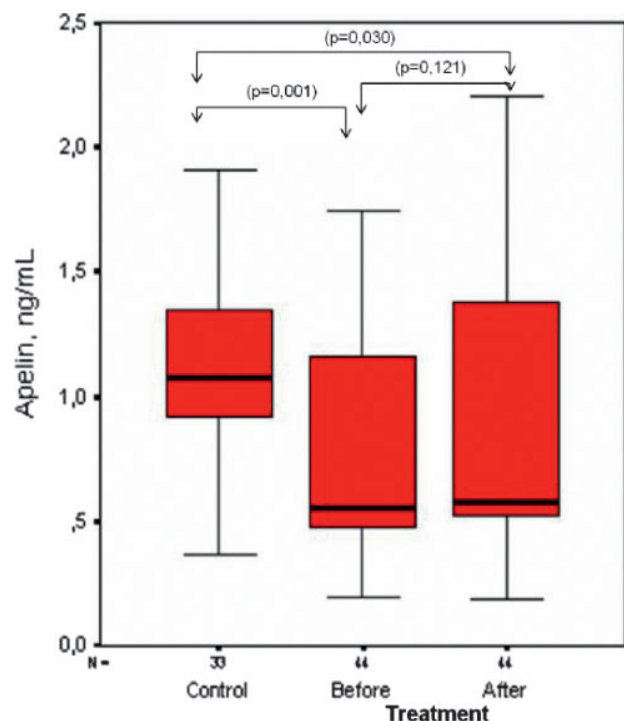


Figure 4 Comparison of apelin levels in the control and patients

PP13

[Co-morbidities and Heart failure]

Anemia at Patients with Peripartum Dilated Cardiomyopathy

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Aim: To evaluate the relation between the severity of anemia in patients with CHF caused by peripartum dilated cardiomyopathy (PDC).

Methods: We examined 24 young women who are diagnosed with PDC, mean age 28 ± 5 , 25 years with the development of heart failure signs after birth or at the end of III trimester of pregnancy without any established cardiovascular pathology earlier. NYHA class, 6 min walking test results, echocardiography - options and also cardiothoracic index (CTI) in relation to hemoglobin level were analyzed. For this purpose, pts on the basis of anemia, issued according to WHO criteria, were divided into two: I (n = 13, Hb- 100.85 ± 9.07 g/l and II group (n = 11, Hb- 126 ± 5.96 g / l).

Results: Pts of I gr were relatively younger than the comparison, where the average age was 27.7 ± 5.2 years versus 29.5 ± 6.28 years. Analyzing the anamnesis of previous pregnancies and births, it was noted that in pts with anemia prevalent number of pregnancies discontinued by abortion (spontaneous or medically indicated), compared with I gr (17 vs. 12; $P < 0.05$).

Assessing the results of 6WT it was found that pts with anemia characterized by 32% less distance (172.5 ± 63.5 m, against 114.25 ± 50.5 m, $P < 0.05$). Analysis of echocardiography parameters in both groups showed signs of LV dysfunction in the form of increased left ventricular dimensions (EDVIgr. - 67.24 ± 9.11 mm, EDVIIgr. - 67.83 ± 6.27 mm, ESV Igr- 53.35 ± 10.31 mm, ESVIIgr.- 53.66 ± 4.03 mm) and reduced ejection fraction (EF Igr.- $42.74 \pm 13.16\%$, EF IIgr.- $40.75 \pm 11.15\%$), which indirectly reflected in the heart size on chest radiographs (CTI Igr.- $65.15 \pm 6.30\%$, CTIIgr.- $64.18 \pm 6.0\%$) (all $P > 0.05$). We have

revealed differences in thickness of PWLV, which were 9.72 ± 1.2 mm and 8.6 ± 1.7 mm, respectively, while not having a significant nature ($P = 0.12$).

Thus, it was noted that patients with PDC and anemia characterized by relatively low exercise capacity, with no significant differences of intracardiac hemodynamic parameters. Noteworthy, the differences in outcome of previous pregnancies in women depending on the level of hemoglobin.

PP14

[Drug Therapy]

Levosimendan and Dobutamine are Equally Effective in Improving Functional Status in Patients Hospitalized with Acute Decompensated Heart Failure

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Purpose: Short-term administration of inotropic support relieves symptoms and signs of congestion in patients with decompensated heart failure (HF). Levosimendan (LEVO) has been shown to have a superior hemodynamic profile over dobutamine (DOB) in increasing cardiac output and reducing pulmonary wedge pressure in these patients. However, it is not clear that in addition to its hemodynamic advantages, LEVO does also provide a better functional improvement when compared to DOB. So, the aim of this study was to investigate the effects of LEVO and DOB on functional status measured by a 6 min walking test in patients hospitalized with acute decompensated HF.

Methods: Fifty patients with NYHA class III-IV decompensated HF requiring inotropic support and left ventricular ejection fraction (LVEF) $< 35\%$ were randomly assigned to receive LEVO (n = 25) or DOB (n = 25). Both inotropic agents were administered as a continuous 24 h infusion (LEVO at a dose of $0.2 \mu\text{gr}/\text{kg}/\text{min}$ with a preceding bolus dose of $12 \mu\text{gr}/\text{kg}$ and DOB at a dose of $10 \mu\text{gr}/\text{kg}/\text{min}$ without a bolus dose). A 6 min walk test was performed before and 24 h post-treatment with LEVO or DOB. LVEF, heart rate (HR), systolic and diastolic blood pressure (SBP and DBP) before and at the end of inotropic infusion were also noted.

Results: There was no significant difference in baseline characteristics and laboratory parameters between LEVO and DOB group. As compared with their baseline values, 6 min walk distance and LVEF were found to be significantly increased 24 h post-inotropic support with LEVO or DOB with a similar extent in both groups (table). LEVO decreased SBP and DBP with no significant change in HR, while DOB increased HR and SBP with no significant change DBP.

Conclusions: The results of this study suggest that short-term administration of LEVO or DOB provides functional benefit and both inotropic agents appear equally efficacious in improving functional status in patients hospitalized with acute decompensated HF.

Changes in clinical parameters during inotropic therapy

	Before			After		
	Dobutamine	Dobutamine	P	Levosimendan	Levosimendan	P
LVEF,%	28.53 ± 4.4	31.46 ± 4.3	0.0001	25.8 ± 5.9	30.1 ± 6.3	0.0001
6-MWT, m	179 ± 68	222 ± 79	0.0001	191 ± 83	232 ± 88	0.0001
SBP, mmHg	104 ± 12	115 ± 14	0.001	120 ± 16	95 ± 13	0.0001
DBP, mmHg	65 ± 11	69 ± 10	0.09	79 ± 18	65 ± 8.8	0.005
HR, bpm	80 ± 16	89 ± 17	0.008	88 ± 11	85 ± 11	0.281

PP15

[Advanced/End-Stage Heart Failure]**Extremely High Dose Furosemide Infusion in Low Ejection Heart Failure; a Case Report**

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A 32-year old man with heart failure was sent to our center for a possible heart transplantation evaluation. He had a short history. Having a height of 196 cm with long extremities (probably he had an undiagnosed Marfan Disease), the patient had a sudden chest and back discomfort which ended up with a diagnosis of aortic dissection involving the right coronary artery (RCA) and evolving inferior myocardial infarction. He had an emergent aortic valve replacement and by-pass surgery (RCA-saphene aorta). He could be discharged from the hospital but in a few weeks he had to come back with severe heart failure symptoms and hypervolemia. His physicians initiated heart failure treatment and performed a coronary angiography which ended up with normal coronaries and dialysis requiring (6 episodes) acute renal failure. On admission he seemed exhausted, he was dyspneic and tachypneic. He had overt hypervolemia, blood pressure was 90/60 mmHg, pulse was regular, filiform. His serum creatinine was 3.5 mg/dl. An urgently performed echo study revealed an ejection fraction of 20% with severe mitral regurgitation. His initial treatment was low to moderate doses of dopamine and dobutamine with increasing doses of furosemide infusion upto 20 mg per h. Perhaps, not surprisingly, there was no adequate diuretic or clinical response after 6 h. Then we elected to insert IABP for the patient and treated him with dobutamine, nitroglycerin, dopamine and increasing doses of furosemide infusion. Since the patient had very low GFR, poor LV, and overt hypervolemia we interpreted the case as high / very high doses might help for the necessary urinary output, renal and cardiac functions. For furosemide infusion we went up and down as needed. For several days we treated the patient with 10 ampules per h (200 mg/h), 4 800 mg/day of furosemide continuous infusion. His hypervolemia and clinical status improved, his creatinine values decreased to 0.9–1.2 mg/dl interval (for several weeks). He never needed a dialysis during his 65 day hospital course which ended with progressive pump failure and death. He had a highly complicated hospital course in terms of infection. Even on admission, he already had a wound infection in his leg, later on multi pathogen, multisite infections not only worsened the course but also impeded us to go with assist devices or heart transplantation. To the best of our knowledge, the furosemide doses used daily in this patient is a record reported up to date. Main side effects were electrolyte imbalances, and metabolic alkalosis. We advocate that in similar clinical scenarios high/very high doses of furosemide infusion might be elected for treatment

PP16

[Acute Heart Failure]**Beta 1 Adrenoceptor Autoantibody Immunoabsorption in a Peripartum Cardiomyopathy Patient**

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Background: Peripartum cardiomyopathy is a rare disease leading to left ventricle systolic dysfunction generally presenting in the last months of pregnancy up to the 6 months postpartum. Although the etiology remains unknown autoimmunity is proposed as an etiologic factor. Studies in patients with idiopathic dilated cardiomyopathy suggested a

role of antibodies against beta-1 adrenoceptors in initiation and the progression of the disease. The extracorporeal removal of these receptors through a colon with antibodies against polyclonal human immunoglobulin, namely immunoabsorption, have been associated with hemodynamic improvement.

Case Report: A 19-year old female patient was hospitalized 9 months postpartum with decompensated heart failure. Echocardiography revealed severe left ventricular dysfunction with an ejection fraction (EF) of 8% in radionuclide ventriculography. She was resistant to medical therapy with iv diuretics and inotropes. She was listed for cardiac transplantation. After being tested positive for beta-1 receptor antibodies, immunoabsorption with intravenous immunoglobulin infusions was performed for 5 consecutive days through a double lumen jugular central venous catheter. Hemodynamic and clinical improvement was achieved with a 6 min walk test of 420 meters in the previously bed-bound patient and the follow up EF was 22%. The patient was discharged. She was hospitalized again with decompensation and hemodynamic instability a month later. Intravenous inotropes and diuretics as well as intraaortic balloon counterpulsation (IABP) was initiated and a second course of immunoabsorption was started. With the initiation of immunoabsorption the patients blood pressure was raised to 110/60 mmHg from 80/50 mmHg and her urine output increased. The patient could be weaned off the IABP. Unfortunately she was decompensated again 5 weeks later. Medical therapy and intraaortic balloon counterpulsation was initiated again but the patient was lost due to multiorgan failure after systemic fungal infection.

Discussion: Although peripartum cardiomyopathy is reversible in nearly half of the patients it is a cause of mortality in this young age group. The treatment strategies are similar to other causes of heart failure. Beta-1 adrenergic antibodies are responsible from myocyte injury, apoptosis and fibrosis with permanent myocardial damage. Immunoabsorption, passing the blood of the patient extracorporeally through a colon containing antibodies against polyclonal human immunoglobulin, is a method of removal of beta-1 adrenergic antibodies from the circulation. Immunoabsorption has been shown to improve cardiac index and end systolic volume index and ejection fraction up to 3 months in idiopathic dilated cardiomyopathy patients. Although data regarding peripartum cardiomyopathy patients are scarce our patient had a short term clinical and hemodynamic improvement after both sessions of immunoabsorption.

PP17

[Co-morbidities and Heart failure]**Depression and Anxiety; Relationship to Inflammation in Patients Hospitalized for Congestive Heart Failure**

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Aim: There has been increasing evidence on high prevalence of depression and its relationship to poor prognosis in patients with congestive heart failure. The exact mechanisms in depression that lead to worse outcomes are unknown. Depression like heart failure itself causes neurohumoral activation, increased inflammatory activity, rhythm disturbances and hypercoagulability. The goal of this study is to determine the relationship between depression and inflammatory markers such as white blood cell (WBC) and platelet counts, erythrocyte sedimentation rate (ESR) and high sensitivity C-reactive protein (hsCRP) levels in patients hospitalized for congestive heart failure.

Methods: A total of 45 hospitalized patients with New York Heart Association (NYHA) functional class II-IV and ejection fractions (EF) $\geq 40\%$ were given Beck Depression and Anxiety Inventories to assess depression and anxiety levels. Depression was defined as a score on the Beck Depression Inventory ≥ 10 . Scores from 0 to 21 in the Beck Anxiety Inventory revealed a

low level of anxiety, 22 to 35 revealed moderate anxiety and scores 36 and higher were defined as severe anxiety. Fasting blood samples were drawn for WBC and platelet counts, ESR and hsCRP levels.

Results: 80% of the patients scored as depressed. Only 11% of the depressed patients received antidepressant medication. Eighty-four percent of the patients had low levels of anxiety and none had severe anxiety. Depression and anxiety were not related to age, gender, etiology and duration of heart failure, hospital admissions in the past 2 years and EF. A significant relationship was observed between NYHA class and Beck Depression Inventory scores ($P < 0.01$) but not with Beck Anxiety Inventory scores. Platelet counts were higher in the depressed group (253.36 ± 77.12 and $180.33 \pm 80.14 \times 10^3/\text{mL}$ respectively, $P = 0.048$). Correlation analyses revealed significant correlations between Beck Depression Inventory scores and hsCRP levels ($r = 0.345$, $P = 0.049$) also between Beck Depression Inventory scores and Beck Anxiety Inventory scores ($r = 0.557$, $P < 0.001$). The patients who had more frequent social interactions with their neighbours scored less on the Beck Depression Inventory ($P < 0.05$). Both depression and anxiety scores increased as the number of people per household increased ($r = 0.527$, $P < 0.001$ and $r = 0.0457$, $P < 0.01$ respectively). hsCRP levels increased as the disease severity determined by NYHA class and EF increased.

Conclusions: Depression is common and undertreated in hospitalized patients with heart failure. Depression is associated with higher platelet counts and depression scores are correlated to hsCRP levels. This increased inflammatory activity may have a negative impact on the outcome of heart failure.

PP18

[Pulmonary Hypertension in Heart Failure]

Successful Labor of Idiopathic Pulmonary Arterial Hypertension Patient with Severe Pulmonary Hypertension Diagnosed in the Second Trimester

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Pulmonary Arterial Hypertension (PAH) is a rare condition with dismal prognosis. The last 15 years witnessed important therapeutic progress in the field. With a maternal mortality around% 30–50, pregnancy in PAH is strictly forbidden in current guidelines. Very limited experience exists about how to manage pregnancy in PAH. A 32-year old lady who had a history of aborted pregnancy, complained of effort intolerance and palpitations in the 23rd week of her pregnancy. An echo study revealed an estimated pulmonary artery systolic pressure of 90 mmHg, mild tricuspid regurgitation and mild right ventricular enlargement. A detailed clinical evaluation ended up with a diagnosis of idiopathic PAH with severe pulmonary hypertension. Blood pressure was 110/70, heart rate was 86 beats/min, regular. BNP was in the normal range. She could walk 420 meters in the 6 min walk test (6MWT). Termination of the pregnancy was suggested to the family, which, itself had her own risks according to very limited reports in the field. The family decided to give birth to their child. Every parameter for the baby was normal. Then, sildenafil was initiated and up titrated up to 70 mg tid. We also added low molecular weight heparin (LMWH). Searching the literature, we came across some small series advocating parenteral prostanoid infusion just before and during labor. We decided to go with sildenafil, LMWH and initiate intravenous iloprost-up titrate to 1–2 ng/kg/min 7 days before and during planned delivery. During 23–34 weeks of her pregnancy the patient had frequent outpatient obstetric and cardiac controls. She had a

quite comfortable 2nd and 3rd trimester. The baby also did well. Her distance walked in six min increased to 480 meters despite ongoing weeks of her pregnancy. Since she was doing well, we (obstetrician, cardiologist, anesthesia physician) were encouraged to have a full term baby. On week 34 she was hospitalized in the cardiology department to plan how to proceed. On week 36 iv iloprost was added and up-titrated. Planned caesarean delivery was undertaken in the 37th week with dual PAH specific therapy (sildenafil and iv iloprost). A brief break was made for LMWH, which continued with coumadin after delivery. Delivery and post-op was smooth and uneventful. We changed iv iloprost to inhaled iloprost post operatively. Around the tenth day post-operatively the patient complained of fatigue and shortness of breath and we added bosentan. Two weeks post-operatively the patient was discharged. The baby was well. As of mid-august 2012 two and a half months have passed since her delivery. The mother is mildly symptomatic, on triple PAH specific therapy (sildenafil, bosentan, inhaled iloprost) and she can walk 550 meters in the 6MWT. Although contraindicated, some recent reports and our case indicate that successful delivery may be possible in PAH patients, with aggressive PAH specific therapy and multidisciplinary approach.

PP19

[Drug Therapy]

New Rational Therapy of Metabolic Syndrome in Ischemic Heart Disease and Arterial Hypertension

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Objective: Despite aggressive primary therapy of metabolic syndrome under arterial hypertension (AH) and ischemic heart disease (IHD), prognosis remains poor. An important role in the ischemic damage development play the molecule of NAD, which now considered as a signaling molecule for various critical cellular processes, such as cardiac metabolism, mitochondrial function, cellular redox reactions, calcium homeostasis, differentiation, genomic stability, aging and cell death. NAD also acts as the substrate of poly (ADP-ribose) polymerase 1 (PARP-1), which, once activated, catalyzes transfer of ADP-ribose moieties from NAD to target proteins. At the same time during ischemia, cellular ATP is degraded into AMP, adenosine, inosine and hypoxanthine. In contrast to adenosine which mainly acts via surface purine receptors, inosine might have more direct effect on intracellular signaling. We hypothesized that medicine Nadcin, containing NAD and inosine, in original ratio, could also cause effective cytoprotective effects by activation of lifesupporting protective pathway in the cell.

Materials: In 161 patients (57.8 ± 6.8 years) with IHD and AH accompanied with MS were study. The NAD content and the level of NAD/NADH were analyzed by NAD/NADH quantitation kit, USA.

Results: In 81 patients with MS under arterial hypertension (AH) and ischemic heart disease (IHD) it has been shown that treatment with Nadcin in comparing with the anti-ischemic effects of standard therapy with metoprolol, aspirin and niacin, leads to a significantly reduced the number of weekly angina attacks by the 78%, cyanosis disappeared in the 95% cases, functional class of angina pectoris decreased by 72%. The index of Opie reduced in main group by 30% and in the control group only by 17.5%. Nadcin increased duration of exercise, time to 1 mm ST segment depression, time to angina, and decreased ST segment depression at peak exercise. The level of HbA1c did not changed in control group and reduced by 16% in the main. A total of 21% of the patients were unable to tolerate niacin owing to reversible side-effects. This suggesting that NAD-replenishment therapy may be a feasible strategy in the treatment of MS under AH and IHD. Administered of Nadcin in IHD and AH normalized redox-potential of cardiomyocytes, the total content

of adenylyl and pyridine nucleotides and abolished the increasing of poly-(ADP-ribose)-polymerase activity and normalized the level and ration of catecholamine's in the blood. These suggesting that NAD-replenishment therapy may be a feasible therapeutic strategy in the treatment of AH and IHD.

Conclusion: We proposed that by modulating availability of NAD/NADH levels to the SIRT1 enzyme, CD38 regulates SIRT1 and PARP activity leads in the basis of the MS, energy homeostasis, and the correction of redox-potential is one of the first goal for target therapy.

PP20
[Co-morbidities and Heart failure]

The New Chelation Regims And Follow-Up The Children With Beta-Thalassemia Major By Ultrasound Screening in Clinical Practice

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Objectives: Prospective study in children with beta-thalassemia major regarding the utility of ultrasound evaluation in everyday practice, the early detection of heart failure and other complications, and follow-up of the disease, under the iron chelation therapy.

Methods: Transthoracic echocardiography; abdominal ultrasound; thyroid ultrasound; carotid ultrasound.

Results: The study group comprised 21 children with beta-thalassemia major follow-up 1 year, aged between 4 and 18 years, with iron chelation therapy. Echocardiografic evaluation revealed mild systolic dysfunction with EF 50% at 2 patients, no pulmonary hypertension or valvular lesions. All the children were under oral chelation therapy. The 2 patients with mild heart failure were asymptomatic. Abdominal ultrasound showed mild degree of splenomegaly and fat load of pancreas at 6 patients. Thyroid ultrasound revealed thyroiditis in 4 cases, confirmed by blood tests. IMT were in normal limits.

Conclusions: The new chelation treatments with increased compliance have contributed to the reduction in the cardiac morbidity in patients with thalassemia major. Ultrasound evaluation is very usefull in clinical practice for assessment the complications, especially to the asymptomatic patients. MRI is more efficient for detection early cardiac involvement, but it is very expensive and impractical in everyday practice.

PP21
[From Hypertension to Heart Failure]

The Effects Of Pulse Pressure On Left Atrium And Left Ventricle Geometry in Hypertensive Patients

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Objectives: An increased pulse pressure (PP) suggests aortic stiffening. New evidence suggests that PP is more sensitive measure of cardiac risk than other indexes of blood pressure.

We aim to study the effect of pulse pressure in hypertensive patients on left atrial and left ventricle diameters (LAD, LVD), left ventricle geometry [wall thickness (WT), left ventricle mass (LVM), regional wall thickness (RWT)] and the effects of age and sex on the PP.

Methods: Echocardiography study of LAD, LVD, left ventricle end diastolic diameter (LVEDD), aortic root diameter (ARD), ratios & left ventricle geometry was performed on 92 patients (61 female & 31 male). A correlation analysis between these variables and pulse pressure was done. Patients were grouped into high PP > 60 mmHg and normal PP < 59 mmHg and chi-square test was applied.

Results: We found strong positive correlation between age and PP ($P = 0.005$), positive correlation of PP with WT, LVM and SBP ($P < 0.05$) and positive correlation of LVM to LAD, LVD, RWT, LAD/ARD, LAD/LVEDD and the age ($P < 0.05$).

Conclusion: The PP which increased by age is the most important BP measurement (compared to SBP and DBP) that directly affects LV geometry mainly WT & LVM.

Table 1 Compare normal and abnormal values of both PP groups
43 pt (78%) of high PP group had increased LVM, compared to 15 pt (40%) of low PP group ($P < 0.05$).

LVM	Increased	15 (40%)	43 (78%)	0.005*
	Normal	22(60%)	12 (22%)	

Table 2 Correlation analysis between PP & other variables
There is a positive correlation between PP and age, WT, LVM.
Correlation analysis between LVM and other variables.

Pulse pressure correlated with	Mean	SD	(r)	P-value Sq (2-tailed)
Age	32.3	10.96	0.396	0.002*
LAD	29.39	3.89	0.169	0.106
LVEDD	44.29	3.39	0.39	0.014
WT	12.94	1.89	0.236	0.029*
LAD/ARD	1.190	0.19	0.016	0.881
LAD/LVEDD	0.662	0.091	0.232	0.121
LVM	206.92	30.2	0.249	0.017*
RWT	0.582	0.09	0.185	0.078

Table 3 Correlation analysis between LVM and other variables
positive correlation of LVM to LAD, LVD, RWT, LAD/ARD, LAD/LVEDD and age (P value < 0.05).

LVM correlated with	(r)	P-value
LAD	0.478	0.003*
LVEDD	0.402	0.002*
WT	0.092	0.43
LAD/ARD	0.262	0.009*
LAD/LVEDD	0.218	0.02*
RWT	0.348	0.003*
Age	0.275	0.007*

Table 4 Correlation analysis between SBP and other variables
There was a significant positive correlation between SBP and RWT, ($P = 0.011$).

SBP correlated with	(r)	P-value
age	0.182	0.077
LAD	0.138	0.238
LVEDD	0.011	0.917
WT	-0.172	0.108
LAD/ARD	-0.061	0.562
LAD/LVEDD	0.096	0.413
LVM	0.144	0.176
RWT	0.362	0.011*
PP	0.029*	0.003*
DBP	0.029*	0.003*

Table 5 correlation analysis between DBP and other variables
There was significant negative correlation between DBP and age ($P = 0.004$).

DBP correlated with	(r)	P-value
Age	-0.297*	0.004*
LAD	-0.098	0.352
LVEDD	-0.031	0.789
WT	-0.037	0.726
LAD/ARD	-0.131	0.213
LAD/LVEDD	-0.061	0.56
LVM	-0.036	0.73
RWT	0.149	0.156
PP	-0.021	0.84

PP22**[Coronary Artery Disease, Acute Coronary Syndromes]****Influence Of Ischemic Preconditioning On The Level Of N-Terminal B-Type Natriuretic Peptide In Patients With Stable Angina Pectoris**

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The purpose of the study was to examine the influence of ischemic preconditioning (IP) phenomenon to the level of N-terminated B-type natriuretic peptide in patients with stable angina (SA).

Methods: 52 patients (on average age 5.05 ± 1.5 years) with SA of II-III class were included into the study. For establishing the phenomenon of IP double loading tests on treadmill according to Bruce's protocol were hold with intervals in 20min between them. According to the results of the loading tests the patients were divided into two groups: 30 patients with IP phenomenon in the 1st group, and 22 patients without IP phenomenon in the 2nd one. The group did not include patients who had acute coronary syndromes during the last 6 month. The level of Nt-pro BNP in blood of the examined patients was tested not only in rest condition but also after each treadmill-test.

Results: The level of Nt-pro BNP in rest in the 1st group was noted as 95.5 ± 20 pg/mL, in the 2nd group 113.4 ± 18 pg/mL accordingly. Difference is mistaken ($P > 0.05$). After holding the first treadmill-test the level of Nt-pro BNP was increased up to 172.6 ± 21 pg/mL in the 1st group, and up to $181.5 \pm$ pg/mL in the 2nd one. Difference is mistaken to ($P > 0.05$). However, after the second treadmill-test the level of Nt-pro BNP in patients of the 1st group reached 185.6 ± 22 pg/mL, while in patients of the 2nd group it was 264.7 ± 27 pg/mL. Here the difference occurred to be statistically reliable ($P < 0.01$).

Conclusions: In holding double loading tests on treadmill, phenomenon of IP of the myocardium is characterized by relatively low increase of the level of Nt-pro BNP in comparison with people without IP and it serves as additional indicator of defensive effect of IP for patients with SA of pressure.

PP23**[Management Of Heart Failure, Patient Education, Tele-Monitoring Systems]****The Effect of Coq10 Supplementation on Serum Lipoproteins, Il-6, Icam-1 and Plasma Fibrinogen in Hyperlipidemic Patients with Myocard Infarction**Farzad Shidfar¹, Mona Mohseni¹, Mohammadreza Vafa¹, Seyed Javad Hajimiresmail², Abbas Rahimi¹¹*School of Health, Tehran University of Medical Sciences, Tehran, Iran*, ²*School of Medicine, Tehran University of Medical Sciences, Tehran, Iran*

Objective: It seems that CoQ10 may have beneficial effects on serum lipoproteins but it's effects on hyperlipidemic patients with myocard infarction is not clear. The aim of this study was "The effect of CoQ10 supplementation on serum lipoproteins, IL-6, ICAM-1 and plasma fibrinogen in hyperlipidemic patients with myocard infarction".

Methods: The study as a randomized double blind clinical trial, was conducted in 52 hyperlipidemic patients (TG > 150mg/dl, TC > 200mg/dl) in the 70–30 year age range who have suffered acute myocardial infarction. In this study, patients randomly assigned to CoQ10 (n = 26) 200mg daily supplement and control groups (n = 26) were taking the placebo for 3 months.

Results: At the end of study, serum levels of TC, TG, LDL-C in CoQ10 group compared with baseline ($P < 0 / 05$) was significantly reduced. In

CoQ10 group at the end of study, there was significant increase in serum HDL-C either compared with baseline ($P < 0 / 05$) or compared with control group ($P < 0.001$).

Serum levels of TC / HDL-C and LDL-C/HDL-C after 3 months of supplementation, only decreased significantly in CoQ10 group compared with baseline values and also significant difference was observed between the two groups at the end of the intervention ($P < 0.05$).

In the CoQ10 group, there was significant decrease in serum levels of IL-6 and ICAM-1 after 3 months of supplementation compared with baseline ($P < 0.001$). There was significant difference between two groups at the end of study ($P < 0.001$). After 3 months no significant change was seen in plasma fibrinogen in CoQ10 group compare to placebo.

Conclusion: 200mg daily CoQ10 supplement for 3 months in hyperlipidemic patients with myocard infarction had beneficial effects on serum lipoproteins, IL-6 and ICAM-1 but no effects on plasma fibrinogen.

PP24**[Management of Heart Failure, Patient Education, Tele-Monitoring Systems]****Clinical and Echocardiographic Profile and Pregnancy Outcomes in Patients with Rheumatic Heart Disease at the University of the Philippines-Philippine General Hospital**

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Rheumatic Heart Disease (RHD) remains prevalent in the Philippines and its onset commonly occurs in the younger age group. Women of childbearing-age affected with RHD are at risk of adverse outcomes once they become pregnant. This is a cross-sectional retrospective study of all admitted pregnant patients complicated by RHD from January 2010–October 2011. Clinical and echocardiographic data, such as type of valvular lesion were gathered. Data on medications, outcomes and complications were collected.

64 cases of RHD in pregnancy were included with median age of 26 years and median age of gestation of 38 weeks. Labor was the common reason for consult (80%) but 23% were in preterm labor. 80% of all patients had a known history of RHD prior to pregnancy, while 66% reported worsening of symptoms. The common types of lesions seen were mitral stenosis (73%), tricuspid regurgitation (58%), and mitral regurgitation (55%). Combined lesions occurred 33% of the time with mitral and aortic stenosis occurring most frequently (38%). Digoxin (59%) was the most frequently drug used and infective endocarditis prophylaxis was given 56% of the time. Preterm birth occurred in 22% and small for gestational age (SGA) babies occurred in 16%, with only 2 neonatal mortalities. Most preterm births were seen with patients with severe pulmonary hypertension (42%) and moderate to severe mitral stenosis (67%), while SGA was more often observed in patients with severe pulmonary hypertension (44%) and severe mitral regurgitation (44%). Maternal complications occurred in 17% of cases with all cases either having moderate to severe pulmonary hypertension or moderate to severe mitral and/or aortic stenosis. No maternal mortalities were observed.

RHD in pregnancy notably showed increased percentages of preterm births and SGA babies compared to the general population. These adverse events plus maternal complications were also noted in lesions with worse severity and those with higher pulmonary artery pressures. It can also be concluded that there is a strong need to educate patients regarding pregnancy and RHD, as majority of patients were fully aware of their disease before becoming pregnant.

PP25

[Heart Failure With Preserved Ejection Fraction]**The Correlation Of Diastolic Dysfunction With TIMI Frame Count In Patients With Chronic Stable Angina Pectoris Referred To Talaghani Hospital In Iran**Negar Omid¹, Babak Sharif Kashani¹, Mohammad Asad Poor Piranfar¹, Mohammad Rafee Khorghami²¹Department of Cardiology, Talaghani Hospital, Shahid Beheshti University of Medical Sciences, ²Department of Cardiology, Ragaii Hospital, Tehran University of Medical Sciences

Background & AIMS: The diagnostic methods with high sensitivity and availability of hospital facilities can best be involved in improving coronary situation. Evaluation of diastolic dysfunction and its relationship with TIMI frame count in patients with stable coronary artery disease in Ayatollah Taleghani Hospital in the years 1389–1390 is the purpose of this study.

Materials-Methods: Patients were divided into two groups: case and control. Both had chronic angina. Patient information on check list based on data provided by angiography and echocardiography.

Results: Cases had significantly higher values of corrected TFC for the LAD, TFC for Cx & RCA & mean TFC ($P < 0.001$). Correlation of Em & Sm with mean TFC in all 3 vessels were significant ($P = 0/0001$). E/A, in patient with TFC ≥ 21 was 0/7, & in patients with TFC ≤ 21 was 1. DT (Deceleration time) had no significant correlation with TFC. Mean of IVRT in cases was 91m/s & in controls was 72m/s. which was higher in patients with mean TFC ≥ 21 .

Conclusion: According to this study diastolic dysfunction which estimated by echocardiography showed significant correlation with TIMI frame count in chronic stable angina patients. due to simplicity, low cost, quality and reproducibility of this method, this will be helpful.

PP27

[Coronary Artery Disease, Acute Coronary Syndromes]**Evaluation of Left Atrial Functions by Measurements of Dimensions, Areas and Volumes in Patients with Acute Coronary Syndromes**Mesut Pinar¹, Okan Gulel², Zafer Kucukusu³, Murat Meric², Mahmut Sahin, Ozcan Yilmaz²¹Department of Cardiology, Dumlupinar University, Evliya Celebi Hospital, Kutahya, Turkey, ²Department of Cardiology, Ondokuz Mayıs University, Samsun, Turkey, ³Department of Cardiology, Erzincan University, Mengucek Gazi Hospital, Erzincan, Turkey

Objective: It is usually underestimated to evaluate left atrial functions by transthoracic echocardiography in acute coronary syndrome (ACS) patients. However, left atrium has important functions such as reservoir, conduction and contraction. In this study, we aimed to evaluate left atrial functions by echocardiographic measurements of dimensions, areas and volumes in patients with ACS.

Methods: Study was performed with 150 ACS patients (128 male, 22 female) and 25 healthy controls (19 male, 6 female). Their ages were between 18 to 70 years of age. ACS patients whose general condition were suitable for transthoracic echocardiographic evaluation were underwent echocardiography examination within 24 h of the onset of acute cardiac event. From apical 4-chamber, apical 2-chamber and parasternal long-axis views, left atrial dimensions (anterior to posterior, superior to inferior, medial to lateral), areas (minimum, maximum) and volumes (minimum, maximum) were measured. Atrial ejection fraction and atrial expansion index values were calculated from volume measurements.

Results: There was no difference between groups for age, gender, weight, height, body mass index, body surface area, heart rate, systolic and dia-

Table 1 Left atrial echocardiographic parameters evaluated in the acute coronary syndrome (ACS) patients and controls

Parameters	ACS		P-Values
	Patients (n = 150)	Controls (n = 25)	
Anterior to posterior diameter from parasternal long-axis view (mm)	35.8 ± 4.7	31.9 ± 3.7	< 0.0001
Superior to inferior diameter from apical 4-chamber view (mm)	48.2 ± 6.6	46.2 ± 6.2	NS
Medial to lateral diameter from apical 4-chamber view (mm)	37.3 ± 5.8	32.7 ± 4.5	< 0.0001
Superior to inferior diameter from apical 2-chamber view (mm)	48.8 ± 6.5	45.3 ± 4.2	0.004
Medial to lateral diameter from apical 2-chamber view (mm)	42.6 ± 6.0	38.5 ± 4.8	0.001
Mean maximum volume (cm ³)	47.5 ± 15.4	37.1 ± 10.0	0.001
Mean minimum volume (cm ³)	26.2 ± 11.6	15.3 ± 4.9	< 0.0001
Mean maximum area (cm ²)	18.5 ± 5.8	14.9 ± 2.6	0.002
Mean minimum area (cm ²)	11.5 ± 3.7	8.0 ± 1.8	< 0.0001
Atrial ejection fraction (%)	45.1 ± 12.5	58.2 ± 6.3	< 0.0001
Atrial expansion index (%)	93.1 ± 44.3	143.8 ± 34.7	< 0.0001

NS: not significant.

stolic blood pressure. However, there were significant differences between groups for left atrial dimensions, areas, volumes, ejection fractions and expansion indexes (Table 1).

Conclusion: Left atrial functions evaluated by echocardiographic measurements of dimensions, areas and volumes show important deteriorations in patients with ACS. As dimensions, areas and volumes increase, ejection fractions and expansion indexes decrease in these patients compared to healthy controls.

PP28

[Coronary Artery Disease, Acute Coronary Syndromes]**Effect of Left Ventricular Ejection Fraction on Left Atrial Tissue Doppler Parameters in Acute Coronary Syndrome Patients**Mesut Pinar¹, Okan Gulel², Zafer Kucukusu³, Murat Meric², Mahmut Sahin², Ozcan Yilmaz²¹Department of Cardiology, Dumlupinar University, Evliya Celebi Hospital, Kutahya, Turkey, ²Department of Cardiology, Ondokuz Mayıs University, Samsun, Turkey, ³Department of Cardiology, Erzincan University, Mengucek Gazi Hospital, Erzincan, Turkey

Objective: Systolic dysfunction after an acute coronary syndrome (ACS) causes a series of adaptive left ventricular anatomical and functional changes in addition to compensatory neurohormonal activation. With time, these changes may lead to sustained increase in left atrial afterload and may result in atrial remodelling. Based on this, we aimed to evaluate the effect of left ventricular systolic function on left atrial tissue Doppler parameters in ACS patients.

Methods: Study was performed with 150 ACS patients (128 male, 22 female). Their ages were between 18 to 70 years of age. ACS patients whose general condition were suitable for transthoracic echocardi-

Table 1 Left atrial tissue Doppler echocardiographic parameters for different ejection fraction values in the acute coronary syndrome patients.

Parameters	EF \geq 50% (n = 86)	EF < 50% (n = 64)	P-Values
Lateral Wall S' (cm/sec)	7.7 \pm 1.9	6.4 \pm 1.9	< 0.0001
Lateral Wall E' (cm/sec)	7.6 \pm 2.5	6.6 \pm 2.4	0.01
Lateral Wall A' (cm/sec)	10.4 \pm 2.9	8.8 \pm 2.9	0.004
Septal Wall S' (cm/sec)	6.5 \pm 1.2	6.0 \pm 1.9	0.009
Septal Wall E' (cm/sec)	7.1 \pm 1.9	6.4 \pm 2.2	0.03
Septal Wall A' (cm/sec)	8.7 \pm 2.3	7.5 \pm 2.3	0.003
Anterior Wall S' (cm/sec)	7.4 \pm 1.7	6.5 \pm 1.8	0.01
Anterior Wall E' (cm/sec)	7.7 \pm 2.2	7.0 \pm 2.2	NS
Anterior Wall A' (cm/sec)	9.9 \pm 2.5	8.7 \pm 2.8	0.01
Inferior Wall S' (cm/sec)	6.6 \pm 1.3	5.7 \pm 1.8	0.001
Inferior Wall E' (cm/sec)	7.4 \pm 2.4	6.8 \pm 2.3	NS
Inferior Wall A' (cm/sec)	8.7 \pm 2.2	7.8 \pm 2.4	NS
Mean S' (cm/sec)	7.0 \pm 1.2	6.2 \pm 1.6	< 0.0001
Mean E' (cm/sec)	7.5 \pm 1.9	6.7 \pm 1.9	0.01
Mean A' (cm/sec)	9.4 \pm 1.7	8.2 \pm 2.2	0.001

EF: ejection fraction, S': systolic tissue Doppler velocity, E': early diastolic tissue Doppler velocity, A': late diastolic tissue Doppler velocity, NS: not significant.

graphic evaluation were underwent echocardiography examination within 24 h of the onset of acute cardiac event. According to left ventricular ejection fraction (EF) values, two groups were identified (EF \geq 50%, EF < 50%). For the tissue Doppler analysis of left atrial functions, sample volumes were placed in the mid-segments of left atrial lateral, septal, anterior and inferior walls. From these segments systolic (S'), early diastolic (E') and late diastolic (A') velocities were measured. Same values at each wall were combined and averaged to obtain mean values.

Results: As left ventricular ejection fraction values decrease, left atrial systolic, early diastolic and late diastolic tissue Doppler velocities decrease also (Table 1).

Conclusion: In patients with ACS, left atrial tissue Doppler parameters show significant deteriorations with decreasing left ventricular systolic function.

PP29

[Coronary Artery Disease, Acute Coronary Syndromes]

Evaluation of Left Atrial Functions by Tissue Doppler Imaging in Patients with Acute Coronary Syndromes

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Objective: Left atrial function is an integral part of overall cardiac function. However, it is usually underestimated to evaluate this function. In this study, our aim was to evaluate left atrial functions by tissue Doppler imaging in patients with acute coronary syndrome (ACS).

Methods: Study was performed with 150 ACS patients (128 male, 22 female) and 25 healthy controls (19 male, 6 female). Their ages were between 18 to 70 years of age. ACS patients whose general condition were suitable for transthoracic echocardiographic evaluation were underwent echocardiography examination within 24 h of the onset of acute cardiac event. For tissue Doppler analyses, sample volumes were placed

Table 1 Left atrial tissue Doppler echocardiographic parameters evaluated in the acute coronary syndrome (ACS) patients and controls.

Parameters	ACS Patients (n = 150)	Controls (n = 25)	P-Values
Lateral Wall S' (cm/sec)	7.1 \pm 2.0	10.5 \pm 2.2	< 0.0001
Lateral Wall E' (cm/sec)	7.2 \pm 2.5	10.7 \pm 2.8	< 0.0001
Lateral Wall A' (cm/sec)	9.7 \pm 3.0	10.9 \pm 3.3	NS
Septal Wall S' (cm/sec)	6.3 \pm 1.6	8.9 \pm 1.6	< 0.0001
Septal Wall E' (cm/sec)	6.8 \pm 2.1	10.4 \pm 2.2	< 0.0001
Septal Wall A' (cm/sec)	8.2 \pm 2.4	9.0 \pm 2.9	NS
Anterior Wall S' (cm/sec)	7.0 \pm 1.8	10.0 \pm 2.1	< 0.0001
Anterior Wall E' (cm/sec)	7.4 \pm 2.2	11.1 \pm 2.1	< 0.0001
Anterior Wall A' (cm/sec)	9.4 \pm 2.7	10.4 \pm 2.9	NS
Inferior Wall S' (cm/sec)	6.2 \pm 1.6	9.4 \pm 2.0	< 0.0001
Inferior Wall E' (cm/sec)	7.2 \pm 2.3	10.2 \pm 2.1	< 0.0001
Inferior Wall A' (cm/sec)	8.4 \pm 2.3	9.5 \pm 2.9	NS
Mean S' (cm/sec)	6.7 \pm 1.4	9.7 \pm 1.6	< 0.0001
Mean E' (cm/sec)	7.2 \pm 1.9	10.6 \pm 1.8	< 0.0001
Mean A' (cm/sec)	8.9 \pm 2.0	9.9 \pm 2.4	NS

S': systolic tissue Doppler velocity, E': early diastolic tissue Doppler velocity, A': late diastolic tissue Doppler velocity, NS: not significant.

in the mid-segments of left atrial lateral, septal, anterior and inferior walls. From these segments systolic (S'), early diastolic (E') and late diastolic (A') velocities were measured. Same values at each wall were combined and averaged to obtain mean values.

Results: There was no difference between groups for age, gender, weight, height, body mass index, body surface area, heart rate, systolic and diastolic blood pressure. However, there were significant differences between groups for systolic and early diastolic tissue Doppler velocities (Table 1).

Conclusion: Acute coronary syndromes cause important alterations in the left atrial functions evaluated by tissue Doppler imaging. Systolic and early diastolic tissue Doppler velocities decrease in these patients compared to healthy controls.

PP30

[Coronary Artery Disease, Acute Coronary Syndromes]

Fistula from Left Coronary Artery to Left Ventricle After Myocardial Infarction Coexisting with Exertional Dyspnea

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Objectives: Coronary artery-cardiac fistulae are uncommon and usually congenital abnormalities. The majority of these fistulae communicate with the right heart chambers. Acquired coronary-left heart fistulae are very rare: secondary to trauma, cardiac surgery, angioplasty or endomyocardial biopsy. Fistulae secondary to myocardial infarction are rare but have been described. Herein, we describe the case of a 64 year-old man who had a fistula, located between the left anterior descending coronary artery and the left ventricle that caused myocardial infarction.

Methods: The patient with a history of systolic hypertension, dyslipidemia, smoking and coronary artery disease was admitted while experiencing atypical chest pain, exertional dyspnea (New York Heart Association functional class II), and fatigue for one month. His electrocardiogram showed signs of old anterior myocardial infarction (Figure 1). 1 year ago, he had undergone coronary angiography due to acute



Figure 1 Electrocardiogram shows signs of old anterior myocardial infarction (R loss of V1-4).

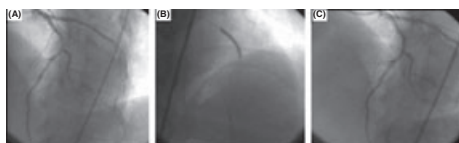


Figure 2 Severe total occlusion of proximal left anterior descending artery (LAD) (A), implantation of bare metal stent (B), and reperfusion of the artery (C).

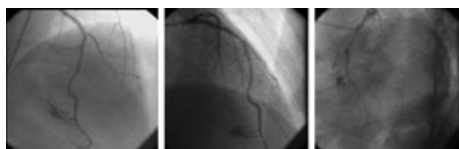


Figure 3 Fistula arising from distal part of the LAD.

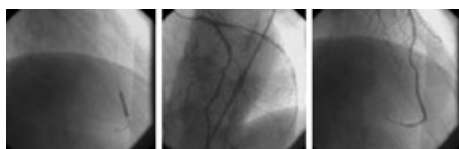


Figure 4 Implantation of graft stent and occlusion of fistula.

anterior myocardial infarction, which had shown severe total occlusion of proximal left anterior descending artery (LAD). A 3.5 mm bare metal stent has been implanted, which initiated immediate and rapid reperfusion of the LAD (Figure 2A-2B-2C). He also had no visible fistulae. Physical examination revealed a moderately obese man with blood pressure of 140/80 mmHg. He was taking furosemide, 40 mg daily, and spironolactone 25 mg daily. Chest x-ray examination showed a cardiac silhouette at the upper limits of normal size and no evidence of congestive heart failure. A loud S4 sound was present but no murmurs were heard. Ejection fraction was 35 percent. Coronary angiography showed significant stenosis at the proximal part of the LAD. In addition, coronary angiography showed a large coronary to left ventricle fistula arising from distal part of the LAD (Figure 3). Graft stenting was used to occlude the fistula in patient.

Results: The LAD was approached by means of a 7F left Judkins 4 guide catheter and the coronary guidewire, to deliver a 3 mm × 21 mm graft stent to the site of the distal LAD fistula. This stent-graft was then post-dilated using 18 atm of pressure with the graft stent balloon. Balloon dilatation was performed with 3.0 × 16 mm non-compliant balloon for proximal obstruction of LAD. Final angiography showed that the fistula were excluded (Figure 4). TTE was performed and no pericardial effusion was seen. The patient was discharged from the hospital 48 h later. At his 6 month follow-up, he remained asymptomatic.

Conclusion: Ruptures of localised micronecrosis of the subendocardium due to destruction of the microvasculature probably resulted in drainage to the left ventricular cavity. Transcatheter closure in adults of coronary fistulas with graft stents are safe and effective, and can be regarded as an acceptable alternative to surgery. Fistula should be kept in mind in myocardial infarction patients who had exertional dyspnea and a decrease in functional capacity after angioplasty had performed.

PP31

[Cardiac Imaging in Heart Failure]

Left Ventricular Dyssynchrony is an Early Manifestation of Heart Involvement in Sickle Cell Anemia

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Background: Sickle cell anemia (SCA) is the most common inherited anemia. Although heart involvement in SCA is well established, there is no data about changes of contraction synchrony in SCA. Therefore, we aimed to study the left ventricular contraction synchrony in SCA patients with narrow QRS and normal EF.

Methods: Thirty-six patients with SCA and 37 age- and sex- matched control subjects were included the study. Left ventricular dyssynchrony was investigated by color coded tissue Doppler imaging.

Results: The SCA patients had lower hemoglobin (Hb) and higher ferritin, left ventricular end-diastolic diameter, left ventricular end-systolic diameter, left ventricular mass index (LVMI) and pulmonary artery pressure. Peak A velocity, Dt and E/E' values were higher in the SCA group however, E/A ratio and average Em were higher in the control group. LV systolic dyssynchrony parameters including Ts-SD-12, Ts-12, Ts-SD-6, and Ts-6 were found to be higher in SCA group when compared to controls. In addition to that, the patients with ventricular dyssynchrony (a Ts-SD-12 > 34.4 ms) were higher in the SCA group than the control group (55.6% vs. 8.1%, p < 0.001). In the correlation analysis, systolic dyssynchrony parameters were found to be correlated with Hb, ferritin, LVMI, E/A, Dt, Em.

Conclusion: Heart involvement in SCA is of prognostic significance. We found out that in SCA patients with normal EF and narrow QRS, left ventricular systolic dyssynchrony is an early manifestation of heart involvement and may be coexisted with or preceded by diastolic dysfunction.

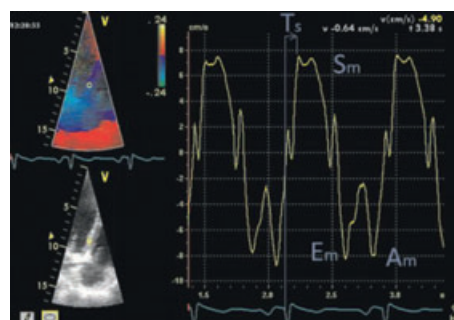


Figure 1 Echocardiographic analysis of tissue velocities using color-coded tissue Doppler.

Table 1 Comparison of dyssynchrony parameters between groups.

	SCA (n = 36)	Control (n = 37)	P
Ts-6 (ms)	85.4 ± 27.1	54.0 ± 20.3	< 0.001
Ts-SD-6 (ms)	33.1 ± 10.4	21.1 ± 8.1	< 0.001
Ts-12 (ms)	102.4 ± 20.8	74.6 ± 23.3	< 0.001
Ts-SD-12 (ms)	33.1 ± 10.4	24.0 ± 7.2	< 0.001
Systolic Dyssynchrony	20 (55.6%)	3 (8.1%)	< 0.001

PP32

[Coronary Artery Disease, Acute Coronary Syndromes]**Life Saving Necklace: Collateral Circulation From the Conus Artery to the Anterior Descending Artery**

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Introduction: Collateral circulation is important in preserving ventricular functions, especially in coronary artery disease with total occlusion. The conus branch of right coronary artery (RCA) has the capacity of angiogenesis and arteriogenesis. We report the case of hyperacute inferior myocardial infarction with life saving collateral circulation from the conus artery to the left anterior descending artery (LAD).

Case: A fifty four-year-old man was referred to emergency room with hyperacute inferior myocardial infarction. Coronary angiography demonstrated chronic total occlusion of the LAD at its proximal segment and acute total occlusion of the RCA at the proximal segment after the conus branch (Figure 1). The LAD was filled by the collateral circulation through a large conus artery that originated within the right sinus of Valsalva, very close to the ostium of the RCA. It coursed with the LAD at the medial segment (Figure 2). The circumflex artery was normal. Primary percutaneous transluminal coronary angioplasty of the occluded RCA was performed and one drug eluting stent (2.75x30 mm) was implanted. Coronary artery bypass graft surgery was recommended for the revascularisation of LAD.

Discussion: Collateral circulation is an important factor in the pathophysiology of coronary artery disease. The symptoms and prognosis among these patients depend on quality of collateral circulation. This case shows the importance of collateral circulation preventing from cardiogenic shock in patients with chronic occlusion of the LAD and acute occlusion of the RCA.

Conclusion: In conclusion this case shows that collateral supply of conus branch can prevent cardiogenic shock in patients with myocardial infarction.



Figure 1 Chronic total occlusion of the left anterior descending artery.

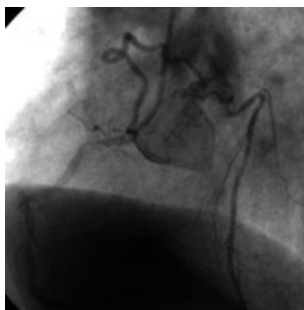


Figure 2 Collateral circulation from the conus artery to the left anterior descending artery.

PP33

[Heart Transplantation]**Osteoporosis in Heart Transplant Recipients**

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Aim: Osteoporosis and related fractures are frequent complications encountered after heart transplantations. The most common reason for this is associated with the immune-suppressive treatment initiated after transplantation. Preventive strategies have mainly focused on pharmacological prophylactic agents and, among these, bisphosphonates are the ones which are studied the most and whose efficacy is evidenced.

We aimed to study the changes in bone metabolism markers and bone mineral density (BMD) in heart transplant (HT) patients who undergo an alendronate therapy through a retrospective study covering 4 years.

Methods: Eighty two heart transplant patients (mean age: 46 [12-66] years, 69/13 male/female) were enrolled in the study. All the patients have taken bisphosphonate (alendronate sodium + cholecalciferol) and calcium vitamin D after having had the heart transplant. The BMD and hormonal and biochemical markers of all the participants were obtained at Months 12, 24, 36 and 48.

The patients were assessed for hip, lumbar BMD and T scores, biochemical (blood calcium, blood phosphate, 24 hour urine calcium, creatinin clearance, osteocalcin, deoxyypyridinoline) and hormonal [follicle-stimulating hormone (FSH), luteinising hormone (LH), free testosterone (sT), and parathyroid hormone (PTH), 25 OH vitamin D] markers.

Results: A significant decrease was found in femur neck and femur total T scores in the heart transplant patients after a 48 month observation. The patient follow-up also revealed an increase in the PTH level and a decrease in 25 OH vitamin D level ($P < 0.05$). Besides these, there were not any significant differences in the other parameters that were considered during the long-term follow-up period ($P > 0.05$).

Conclusion: The upper femur bone loss continued during the long-term follow-up of the heart transplant patients who were under a bisphosphonate therapy. The reason for this can be linked to a low level of vitamin D and a high level of parathormon.

PP34

[Cardiac Resynchronisation Therapy, ICDs]**Effects of cardiac resynchronization therapy on hemoglobin levels in responders**

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Objective: Anemia is common in patients with heart failure and is associated with worse symptoms and increased mortality. Cardiac resynchronization therapy (CRT) is widely used in advanced heart failure patients, which results in a significant reduction in mortality and heart failure hospitalizations and a significant improvement in functional capacity. In this study we sought to determine serial changes of hemoglobin levels in patients with response to CRT.

Methods: Seventy two responders were retrospectively analyzed for hemoglobin levels obtained at baseline, 6 and 12 after implantation. Response to CRT was defined as a combination of a reduction of LV end-systolic volume of $\geq 10\%$ and either an improvement in NYHA class by ≥ 1 or an increase in peak oxygen consumption of ≥ 1 mL/kg/min at 6 months. Clinical bleeding, blood and blood products transfusion, prescription of the anemia drugs (oral or

parenteral iron, vitamin B12, folate, erythropoietin and analogs), any surgery, and hospitalization for decompensated heart failure after implantation, and known hematological or immunological disorders, presence of moderate to severe liver dysfunction and estimated glomerular filtration rate < 30 mL/min were accepted as exclusion criteria. Repeated measures analysis of variance was used to test changes in hemoglobin levels.

Results: Demographic, clinical and laboratory findings of responders at baseline and 6 months follow-up were presented in Table 1 and hemoglobin trend from baseline to 12 months was represented in Figure 1. As expected, functional class significantly improved, left ventricular systolic volume significantly decreased and ejection fraction significantly increased at 6 months. Hemoglobin levels showed a significant and sustained increase after CRT implantation in responders (from 13.1 ± 1.7 g/dl at baseline to 13.9 ± 1.6 g/dl at 12 months, $P = 0.007$).

Conclusion: In responders of cardiac resynchronization therapy, hemoglobin levels significantly increase in addition to reverse remodeling and improved functional status.

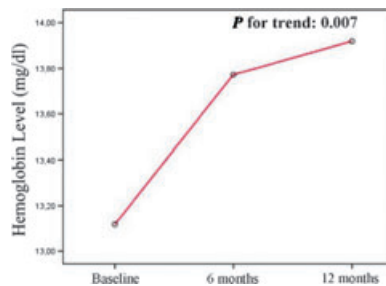


Figure 1 Trend of hemoglobin levels from baseline to 12 months after device implantation.

Table 1 Comparison of the baseline and 6 months follow-up variables in responders of the cardiac resynchronization

Variables	Baseline	6 months	p value
Age, years	62.7 ± 11.4	-	-
Men, n (%)	60 (83.3)	-	-
Ischemic heart disease, n (%)	53 (73.6)	-	-
QRS duration, msec	142.1 ± 11.2	-	-
Atrial fibrillation, n (%)	10 (13.9)	11 (15.2)	0.562
NYHA functional class	3.1 ± 0.3	2.1 ± 0.3	0.000
Left ventricular end-systolic volume, mL	123.9 ± 21.7	108.9 ± 18.5	0.000
Left ventricular ejection fraction, %	23.5 ± 5.7	28.6 ± 6.1	0.000
Creatinine, mg/dl	1.1 ± 0.3	1.1 ± 0.4	0.923

PP35

[Coronary Artery Disease, Acute Coronary Syndromes]

PCI Application, Before CABG, in A Patient with Resistant Heart Failure as Bridge Treatment

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Heart failure is a disease, having high mortality and morbidity. There are some kinds of treatment modality for heart failure, such as non-pharmacological-pharmacological treatment, device treatment, revascularization and heart transplantation. In ischemic heart failure group, revascularization (PCI and CABG) is the most important one.

Case: A 42 year-old man was admitted with a complaint of a 3 week-history of angina pectoris and dyspnea. He was referred to cardiology department for his electrocardiographic changes and elevated troponin I level (5.86 ug/dl, normal range < 0.01 ug/dl). He was accepted as acute coronary syndrome. He had diabetes mellitus for 4 years. On physical examination, his heart rate was 116/min, his blood pressure was 150/100 mmHg, respiratory rate was 30 per min. There were 3/6 systolic murmur and S3 gallop in apex, an elevated JVP. Auscultation of the chest revealed basilar rales, diffuse rhonchi and expiratory wheezes.

The 12-lead electrocardiography showed ST segment depression in V2-V6. Echocardiography showed LV dysfunction (EF 30%), severe mitral regurgitation, left atrium and ventricular dilatation. We applied positive inotropic agents and diuretics infusion and after that we had to apply levosimendan. Hemodialysis was applied, because of acute renal failure. Although giving all of the drugs for heart failure and hemodialysis, dyspnea was not ameliorated. Coronary angiography was applied to exclude ischemic condition of myocardium. In coronary angiography, there were total occlusion in LAD artery, % 70-90 stenosis in Cx artery proximal and non-critic lesions in RCA. Left ventriculography was not applied because of high creatinine level. We asked cardiac surgeons for CABG, but they did not accept patients for surgery because of total occlusion in LAD artery and no collateral to LAD artery. We applied PCI to LAD artery. After coronary balloon dilatation in total occluded LAD artery, a zotarilimus eluting stent implanted to the critic lesion. We found that, there were two critic lesions (70-90%) in mid segment of LAD artery. After that, again we asked cardiac surgeons for CABG and mitral repairment. They accepted the patients for CABG and mitral repairment after visualization of LAD artery. They applied CABG (LAD-Saphenous and Cx OM2-Saphenous) and mitral repairment. After CABG, patient's functional capacity improved from IV to II (according to NYHA) and ejection fraction became 40%. Hemodialysis was stopped and patient was discharged.

Conclusion: In this case, both of the revascularizations treatments were applied consecutively (not hybrid application). Patient's functional capacity ejection fraction were improved, and he discharged. Before CABG, PCI application led to the appearance of the LAD so cardiac surgeon accept the patient for CABG and mitral repair. Sometimes cardiologist and cardiac surgeon together can produce an appropriate treatment program for patient notwithstanding guidelines.

PP36

[Cardiac Imaging in Heart Failure]**Epicardial Fat Thickness in Patients With Cor Pulmonale**Özgür Kaplan¹, Gökhan Gözübüyük¹, Zeydin Acar²¹Department of Cardiology, Malatya State Hospital, Malatya, Turkey, ²Department of Cardiology, Ahi Evren Thoracic and Cardiovascular Surgery Training and Research Hospital, Trabzon, Turkey

The relation of epicardial fat tissue (EFT) with left ventricular dysfunction, cardiovascular metabolism and coronary artery disease has been known. The objective of this study is the evaluation of EFT in patients with cor pulmonale (CP) who have a isolated right heart failure.

36 patients with CP and 30 healthy controls were included in the study. The patients' with CP right ventricular fractional area change is less than 17%, however that of control group is between 32% and 60%. Patients with a history of CAD and left ventricular dysfunction previously were not included.

EFT was decreased (4.1 ± 0.7 vs 6.1 ± 1.2 $P = 0.001$) in patients with CP compared to control group. In addition the difference between these two groups is independent from BMI.

EFT is decreasing independently from BMI in the patients with right heart failure who do not have left ventricular dysfunction. Epicardial fat thickness would be a predictor for degree of right heart failure.

Demographic variables and results of the patients with CP and the controls

	Cor Pulmonale (n = 36)	Control Group (n = 30)	P value
Age	67 ± 9	70 ± 5.7	0.16
BMI	23.9 ± 3.3	25.3 ± 3.3	0.08
DM n (%)	2 (%5.6)	0	0.22
Dyslipidemia n (%)	0	2 (%6.7)	0.22
Hypertension n (%)	11 (%30.6)	16 (%53.3)	0.06
Smoker n (%)	20 (%55.6)	8 (%26.7)	0.01
Tapse	17 ± 2.4	25 ± 2.2	0.001
MPI	0.71 ± 12	0.48 ± 10	0.001
IVA	1.9 ± 0.3	2.6 ± 0.4	0.001
EFT mm	4.1 ± 0.7	6.1 ± 1.2	0.001

BMI: Body Mass indeks, MPI: myokard performans indeks, IVA: Right ventricle isovolumetrik acceleration time, EFT: Epicardial Fat Tissue, Tapse: Tri-cuspid annular plane systolic excursion.

PP37

[Management of Heart Failure, Patient education, Tele-monitoring Systems]**Discharging a Patient with End-Stage Heart Failure by Using Venous Port to Give Intravenous Diuretic**Onder Akci¹, Ersel Onrat², Ali Taner³, Alaettin Avsar²¹Afyonkarahisar State Hospital, Cardiology Department, Afyonkarahisar, Turkey, ²Afyon Kocatepe University, School of Medicine, Cardiology Department, Afyonkarahisar, Turkey, ³Aksaray Medisaray Private Hospital, Cardiology Department, Aksaray, Turkey

Introduction: Heart failure has high mortality and morbidity. It's clinical state is very wide, from asymptomatic left ventricular dysfunction to end-stage heart failure. We present end-stage heart failure patient, discharged with venous port to give diuretics parenterally.

Case: A 66 years-old-man was admitted with acute pulmonary edema. On physical examination, heart rate was 135/min, his blood pressure was

95/50 mmHg, respiratory rate was 30/min. There was 3/6 systolic murmur in apex, S3 gallop, an elevated JVP in cardiac exam. Auscultation of the pulmonary system there were rales in all of the lungs. Pretibial edema was found. In his medical history, CABG was applied 2 years ago, biventricular pacemaker was implanted 1 year ago.

The 12-lead ECG showed pacemaker rhythm. Echocardiography showed LV dysfunction (EF: 15%), severe mitral regurgitation, left and right chambers dilatation. Positive inotropic agents, levosimendan and diuretics infusion were applied. Fifteen days later positive inotropic agents were stopped. But 10 days later body weight was increased and dyspnea again occurred. Positive inotropic agents started again and thoracentesis was applied a few times.

ACE inhibitor, beta-blocker, aldosterone antagonist and ivabradine were given to the patient. But he became dependent to intravenous diuretics. One hundred sixty miligram furosemide was given to the patient every day for diuresis. When the furosemide doses decreased below 160 mg, diuresis lessened, dyspnea occurred. While patient was in hospital, hospital infections were occurred three times. When the hospital infections occurred in patient, only intravenous diuretic was not necessary for diuresis but also we had to give positive inotropic agents.

We wanted to discharge patient from hospital, but patient was dependent to intravenous diuretic. The other problem, in hospital we could not control hospital infections. We thought that if we give the diuretic via intravenously in patient's home, we can discharge patient, and control hospital infection.

We decided to put venous port to patient's chest, so if we teach the patient's wife giving diuretic via venous port, the patient can be discharged.

Venous port was placed patient's right subclavian vein. Patient's wife was educated to use venous port. Then, patient was discharged from hospital, 4 later after hospitalization.

Conclusion: We discharged patient with venous port. Patient's wife applied diuretics via venous port. Outpatient diuretic treatment via venous port in end stage heart failure patient was an old method. It was used firstly 1993 years. After 1993, although new pharmacological and new device treatments were started to use for heart failure, still only these treatments cannot be enough to discharge patient.

PP38

[Cardiac Resynchronization Therapy, ICDs]**Interventricular Delay Optimization in Cardiac Resynchronization Therapy Devices**

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Background: Atrioventricular and interventricular delay (VVD) optimization is an important part of the cardiac resynchronization therapy (CRT) correction. The lack of this procedure or incorrect performance may reduce the positive effect of cardiac resynchronization and enhance heart failure (HF). Widely used selection of VVD methods with different ways of echocardiography, requires special skills and time-consuming, therefore cannot be easily reproduced in clinical practice.

Aim: To assess the impact of VVD optimization in CRT devices based on changes in the width of the QRS complex using surface ECG on intracardiac hemodynamic parameters in the long-term period.

Materials-Methods: 88 patients after CRT implantation were divided into 2 groups (I with selection of VVD, n = 49, II - without selection of VVD, n = 39) with sinus rhythm, complete left bundle branch block, ejection fraction (EF) <= 35%. QRS complex was measured before CRT implantation (QRSown), then every 6 months for 2 years: QRS measurement in the temporary device suppression mode (QRSno-st), measuring the width of the stimulated QRS complex (QRSst) during the VVD optimization process. VVD selection was implemented by gradual change the delay time of stimulation of the right/left ventricle

(0.5-10-20-30-40 ms) and simultaneous measurement of the stimulated QRS width on ECG. The final VVD result was assumed to be the narrowest QRS. Echocardiography was performed in all patients before CRT implantation and then every 6 months with the assessment of hemodynamic parameters.

Results for 24 months of observation: 1) significant reduction in the QRSst width in Group I, $P = 0.041$; 2) final values of the QRSst width lower in Group I compared to Group II: 148.1 ms and 166.2 ms, respectively, $p = 0.003$; there are no significant differences in baseline QRSst between the groups, $P = 0.360$; 3) the QRSno-st width tends to decrease more in Group I (178.4 ms), than in Group II (188.8 ms), $P = 0.061$; 4) end-systolic and end-diastolic left ventricle diameter significantly decreased in both groups; reduction in the end-systolic diameter was greater in Group I compared to Group II, $P = 0.048$; 5) EF increased in both groups; percentage increase in EF was significantly higher in Group I, $P = 0.041$; 6) Functional class (FC) of HF decreased in both groups; and the final FC value was significantly lower in Group I, 2.1 vs 2.8 in Group II, $P = 0.036$.

Conclusion: VVD optimization in CRT devices using surface ECG influences on hemodynamic parameters in the long-term period. This safe method improves the electrical systole of the myocardium and can adjust the conduction system of ventricles that leads subsequently to a decrease in FC of HF.

PP39

[Coronary Artery Disease, Acute Coronary Syndromes]

A Troubling Spasm in Association with Myocardial Bridging

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Vasospastic angina is caused by coronary spasm, a sudden occlusive vasoconstriction of an epicardial coronary artery segment. It may occur at the level of coronary stenoses as well as in angiographically normal coronary arteries. Multiple reports have suggested that myocardial bridging increases the risk of coronary spasm.

This is the case of a 63 year-old obese man with a history of dyslipidemia who presented to the emergency department for a sudden chest pain that developed while he was taking breakfast, accompanied by nausea and dyspnea. On the admission his vital signs, clinical examination, electrocardiogram and troponin were normal. The patient was admitted to the coronary care unit for unstable angina and medicated according to the "state of the art". During hospitalization the patient had multiple episodes of angina with inferior ST-segment elevation, interrupted by sublingual nitrates. It was started treatment with infusion of nitrates and glycoprotein inhibitors. On the second day of admission the patient had a 5 min anginal episode of greater intensity, with inferolateral ST-segment elevation and asystole which improved after atropine and increased perfusion of nitrates. He was started on calcium antagonists. The patient was referred for cardiac catheterization that revealed ostial stenosis (80%) of first diagonal and distal stenosis (30%) of the circumflex artery. Furthermore, myocardial bridging in the middle segment of the left anterior descending artery was present. During the procedure diffuse vasospasm of left coronary artery was identified, resolving with the administration of intravenous nitrates. His echocardiogram revealed left ventricle with mild hypertrophy and hypokinesia of the basal segment of the posterior and inferior walls; and preserved systolic function. Based on the aforementioned we concluded that this was a case of vasospastic angina. We considered that myocardial bridging could have caused dynamic obstruction of the left coronary artery in the form of vasospasm, in addition to mechanical

coronary obstruction. This association was considered in the treatment strategy for our patient. Though it is thought that nitrates should be avoided because of angiographically exacerbations of myocardial bridging, they appear to alleviate coronary vasospasm. The negative chronotropic effect of beta blockers and calcium antagonists decreases compression of arteries in myocardial bridging and increases diastolic perfusion of coronary arteries. During hospitalization, the patient was treated with a combination of nitrates, beta blockers and calcium antagonists. After 12 days of hospitalization the patient was discharged clinically stable and medicated with clopidogrel, diltiazem, transdermal nitroglycerin and rosuvastatin. This clinical case reveals a potential adverse clinical course of a patient with vasospastic angina and the conditioning effect of myocardial bridging in the therapeutic management of that condition.

PP40

[Left Ventricular Function, Hypertrophy]

Myocardial Dyssynchrony in Patients with Systolic Heart Failure with Different Etiology and QRS Complex

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Objective: Number of patients with systolic HF continue to increase in the world, that required improving methods of diagnostic and finding the optimal way of treatment in order to achieve better prognosis in this patients population. The aim of our study was to assess the prevalence and clinical significance of different types of myocardial dyssynchrony of left ventricle in patients with systolic CHF.

Methods: 71 patients with congestive heart failure (CHF) II-IV fc, LV EF < 35% were screened. 65% of them had coronary artery disease (CAD) as the main etiology of CHF, 35%—noncoronary myocardial pathology with outcome in heart chambers dilatation (NCMP). 49% of patients had QRS < = 120 ms, 18% - 121 ms < QRS < = 150 ms, 33% - 151 < QRS < = -200 ms. Typical LBBB was in 47% of patients. All patients had Echo and tissue Doppler study for evaluation of interventricular (IVD) and intraventricular (INVD) dyssynchrony. IVD cut-off > 40 ms; INVD (Ts-12) in 12 segments of LV (cut-off Ts-12 > 100 ms), SD-Ts (cut-off > 34).

Results: In patients with NCMP and QRS < =120 ms vs with 160 < =QRS < = 200 indices of LV- EDD (70.5 ± 6.3 mm vs 79.5 ± 7.2 mm, $P = 0.01$), ESD (62.0 ± 6.4 mm vs. 71.0 ± 8.3 mm, $P = 0.002$), EDV (237.5 ± 58.5 mL vs. 309.0 ± 98.0 mL, $P = 0.03$), ESV (192.0 ± 44.0 mL vs. 227.0 ± 76.7 mL, $P = 0.03$) were smaller. Levels of dyssynchrony were also higher in patients with wide QRS (IVD-57.0 ± 21.0 ms vs. 40.0 ± 26.2 ms, $P = 0.03$), Ts-12 (138.5 ± 79.5 ms vs. 110.0 ± 39.2 ms, $P = 0.04$).

The same pattern was found in diameters of LV and dyssynchrony in patients with CAD: EDD (76.0 ± 9.5 mm vs. 73.0 ± 8.4 mm, $P = 0.03$), ESD (68.0 ± 10.0 mm vs. 60.0 ± 7.1 mm, $P = 0.01$), IVD 56.5 ± 28.9 ms vs. 40.0 ± 26.2 ms, $P = 0.001$), Ts-12 (122.5 ± 48.9 ms vs. 110.0 ± 39.2 ms, $P = 0.03$). All other parameters of LV, including LV EF, had no statistically significant difference in patients with wide and narrow QES, irrespective of CHF etiology.

Conclusions: In patients with systolic CHF various types of myocardial dyssynchrony were found in 86% of patients, including 78% of patients with narrow QRS. The maximum level of dyssynchrony was in patients with QRS > 160 ms irrespective of CHF etiology and these patients had higher indexes of left ventricle and dyssynchrony in comparison with patients with narrow QRS. Distribution of segments of dyssynchrony had no correlation with CHF severity, etiology, LV EF and didn't coincide with scar zones in patients with CAD.

PP41

[From Hypertension to Heart Failure]**Role of Tissue Doppler Imaging in Correlation with NT-pro BNP Plasma Level in Assessment of Left Ventricular Diastolic Function in Hypertensive Patients**

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Tissue Doppler imaging of the mitral annulus may predict the diastolic filling of left ventricle.

Objectives: We investigated the pattern of diastolic function in a subset of hypertensive patients and evaluated the correlation between mitral annular TDI velocities & plasma level of NT pro BNP and its predictive cutoff value to diagnose LV diastolic dysfunction.

Methods: After full clinical examination, we prospectively measured plasma level of NT pro BNP, assessed LVH by both ECG, Echo. we measured LV EF, Left atrial diameter, left ventricular geometry and assessed LV diastolic function by both mitral flow pattern & mitral annular TDI parameters, in 40 Asymptomatic patients with normal EF (more than 50%) and 20 healthy control subjects.

Results: We found that Ea velocities were decreased in hypertensive group with diastolic dysfunction. Moreover, E/Ea ratio was higher in hypertensive group ($p = 0.04$). The E/Ea was significantly & directly correlated with the level of NT pro BNP ($r = 0.41$, $P = 0.008$). The powerful predictors of NT pro BNP level in hypertensive patients with diastolic dysfunction were E/Ea ($r = 0.41$, $P = 0.008$), LVMI ($r = 0.41$, $P = 0.015$) and duration of hypertension ($r = 0.6$, $P = 0.0001$). Moreover, the powerful predictor of concentric LVH geometry is the duration of the hypertension ($r = 0.42$, $P = 0.01$). The cutoff point of NT pro BNP plasma level to detect diastolic dysfunction in asymptomatic hypertensive patient were 40.7 pg/ dl (sensitivity 95% and specificity 84%).

Conclusion: Combination of tissue Doppler parameter and NT pro BNP plasma level offers a new strategy of risk stratification in hypertension. NT pro BNP is a promising marker to detect the subclinical state of heart failure with normal ejection fraction especially in hypertensive patient with diastolic dysfunction.

PP42

[Coronary Artery Disease, Acute Coronary Syndromes]**Double Rupture of the Interventricular Septum after Myocardial Infarction: An Unusual Case Report**

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Ventricular septal rupture (VSR) is a rare sequel of myocardial infarction, with an estimated incidence of 0.2%. Outcomes are poor with a mortality rate of 50% and 95% in surgically and medically treated patients.

This is a case of a 55 year-old man admitted through the emergency department for epigastric pain that had started 36 h before. He was a smoker, with diabetes and dyslipidemia. On admission he was asymptomatic, with a regular pulse of 137 beats/min and a blood pressure of 98/69 mmHg. Cardiac murmurs, pulmonary rales and peripheral edema were absent. The electrocardiogram showed sinus rhythm, inferior q waves and ST-segment elevation. Hospitalization was proposed for probable acute inferior myocardial infarction and refused by the patient

who left the hospital before blood samples were made. 2 months later the patient was readmitted in the emergency department for heart failure (class IV of NYHA). His blood pressure was 90/60 mmHg and heart rate was 93 beats/min. He was polipneic, cyanotic, with signs of peripheral hypoperfusion. Cardiac examination revealed a harsh, grade III/VI systolic murmur heard throughout the precordium. Breath sounds were globally decreased. He had hepatomegaly and increased jugular venous pressure. Brain natriuretic peptide was elevated and troponin I was normal. A transthoracic echocardiogram revealed a complex VSR with one defect on the basal portion of the interventricular septum continued by a dissection tract through the septum into its apical segment where it was identified a second VSR; there was an aneurysmal dilation of the left ventricle located on the basal and medium segments of inferior and posterior walls; biventricular systolic function was severely compromised. The patient was admitted in the coronary care unit and started on inotropes. Coronary angiography showed total occlusion of the posterolateral branch of right coronary artery and a medium 60% stenosis of left anterior descending artery. An intra-aortic balloon pump was inserted. A carotid doppler ultrasound revealed no significant stenoses. The patient was scheduled for surgical intervention 7 days after admission, with reconstruction of the septum and revascularization performed. Post-operative evolution was favorable.

VSR is an infrequent but usually devastating complication of myocardial infarction. No previous infarction or angina and absence of collateralization are poor risk factors for VSR; and cardiogenic shock, right ventricle dysfunction and inferior location are poor prognostic factors for VSR. Surgical repair is the best approach to treat VSR. The best time to perform it is after the fibrotic healing of the necrotic muscle. Fortunately, in this rare case the operation was performed later which contributed to the unexpected survival of our patient.

PP43

[Heart Failure with Preserved Ejection Fraction]**Ultrasonographic assessment of the heart and peripheral vessels in the hospitalized elderly women: the prevalence of heart failure with preserved ejection fraction**

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Objectives: The correlations between physiological aging and pathological cardiac and vascular changes in elderly women and to assess the prevalence of heart failure at the elderly women

Methods: prospective study on a 23 hospitalized women aged between 75 and 84 years, without cardiovascular symptoms. Exclusion criteria: known hypertension or heart failure, valvular mitral or aortic disease, arrhythmias or conduction disturbances, renal failure, thyroid dysfunction, smoking, COPD. There have been clinical examination, blood tests, ECG, pulmonary x-ray, spirometry, transthoracic echocardiography, abdominal ultrasound, carotid, thyroid ultrasound and ankle-brachial index.

Results and discussions: Dyspnea in the elderly women was not a highly sensitive parameter in assessing left ventricular diastolic dysfunction. All patients presented left ventricular diastolic dysfunction. Other echocardiographic changes: aortic or mitral ring calcification, mild or moderate mitral insufficiency, aortic valve sclerosis or mild aortic stenosis, aortic insufficiency, mild to moderate dilatation of the aortic root or the ascending aorta. All patient had EF > 50%. All patients presented aortic atheromatosis and nonstenotic carotid plaques, and the ankle-brachial index was consistent with the degree of aortic and carotid damage.

Conclusions: Diastolic heart failure with preserved EF is prevalent in hospitalized elderly women and dyspnea is not a sensitive parameter, requiring echocardiographic evaluation.

PP44

[Diabetes mellitus and Metabolic Disorders]**Hormonal Link Role In Males' Sexual Function Disturbances Pathogenesis, Being ILL With Heart Ischemic Disease**

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The subject of the present work was to study the hormonal function of the pituitary- gonadal system in men suffering the ischemic heart diseases and to develop methods of correcting the system.

Assessment of the functional state of the pituitary- gonadal system was carried out by determining the content of the lutropine, follitropine, prolactin, testosterone and estradiol-lactin in the blood serum of the patients by radioimmunological method.

Some patients underwent functional testicle tests with a single intramuscular injection of chorionic gonadotropine in dose of 2000 U x 1 Mt, 2 of body surface.

In the first age group (20-35) of the ischemic heart diseases patients, the average content of testosterone was lowered, and estradiol and the lutropine/testosterone ratio was high. The follitropin level was lowered, in case of myocardial infarction, and high in patients with post-infarction cardiosclerosis. A pronounced prolactin increase was observed in cases of acute myocardial infarction, and a moderate one, in patients with post-infarction cardiosclerosis.

In the second age group (36-50 years), all patients showed a low testosterone content in the blood serum on empty stomach, an increase of estradiol and that of the lutropine/testosterone ratio. The lutropine level was not altered. The follitropine content is high in patients with post-infarction cardiosclerosis, and that of prolactin, in cases of acute myocardial infarction. While carrying out functional testicle tests with chorionic gonadotropine, a steady increase of testosterone content was observed in both age groups which, however, did not reach the level of this indicator in healthy men.

The data obtained shows a lowering of the testosterone- producing function of the testicles in the ischemic heart diseases patients. An increase of the lutropine/testosterone ratio, a low testosterone, a high estradiol, as well as an insufficient testosterone increase in response to a stimulation with chorionic gonadotropine testify in favor of primary gonadal lesion in the ischemic heart diseases patients.

PP45

[Surgery: CABG, valvular, artificial heart, assist devices, other]**Temporary Assist Device Treatments in Postcardiotomy Syndrome; Two Cases with Poor Results**Murat Kadan, Suat Dođancı, Erkan Kaya, Gökhan Erol, Adem Güler, Faruk Cingöz, Ufuk Demirkılıç, Mehmet Arslan
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Introduction: Postcardiotomy syndrome is an important entity that affects the surgical outcomes. Its prevalence is 2-5% in cardiac surgery patients. Survival rates increase almost 20-30% with temporary assist device (TAD) in such patients.

Case 1: Sixty one-year old patient undergone CABG surgery with LIMA-LAD anastomosis. He was dependent of IABP and inotropic agents after operation for 6 days. On postoperative 6th day, low cardiac output developed despite the optimal therapy. IABP treatment then changed with Impella Recover LP 2.5 (Abiomed Europe, Aachen, Germany) system. At early time, hemodynamic parameters become better but on second day,

excessive hemolysis was started. On 4th day of treatment, renal insufficiency becomes clear due to massive transfusion. The patient has died on 5th day, due to multiorgan disfunction.

Case 2: Seventy two-year old patient, who had undergone CABG surgery with LIMA-LAD and Ra-RCA anastomosis was admitted to our hospital with significant tricuspid valve insufficiency. He underwent tricuspid valve replacement surgery with cardiopulmonary bypass. He was dependent of IABP and inotropic agents like former patient on postoperative first day. On second day, hemodynamic instability began and low cardiac output syndrome developed. Extracorporeal circulation (EC) then restarted. Patient's hemodynamic parameters always failed with the attempts of leaving from EC. After 6 h, Levitronix CentriMag (Levitronix LCC, Waltham, Mass) assist started and extracorporeal circulation stopped. Hemodynamic stability achieved after this support with 5 lt/m flow rate. On second day, multiple hemorrhages was developed styled leakage to all of surgical fields. Surgical maneuvers such as cauterization, sutures or clips were unsuccessful due to nature of bleeding. Exaggerated transfusions performed to patient for obtain the adequate hematocrit levels, but it resulted with renal insufficiency. The patient died due to multi-organ dysfunction on 4th day.

Discussion: TAD are suggested to use for to gain some time for myocardial recovery or bridging to permanent ventricular assist devices or transplantation. Circulatory systems such as ECMO or EC can also be useful, but there are lots of data about the disadvantages of these systems, especially associated with anticoagulations and hemolysis as a consequence. New systems promise solving these problems with the term of "lesser anticoagulation necessity". In former cases we just used heparin in small doses, and activated clotting times were never more than 160 second. Even so, our patients died because of excessive transfusion secondary to hemolysis or bleeding. We consider that the bleeding diathesis was developed in our latter case secondary to hemolysis anyway.

Conclusion: The hemolytic complications are still the cornerstones of the circulatory support practice that must be solved. Beside these complications, TAD's costs are another important point. So that choosing a patient for these treatment modalities is still confusing and controversial.

PP46

[Diabetes mellitus and Metabolic Disorders]**Obesity in Pediatric Population from Canton Sarajevo**

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Problem: Obesity is important risk factor for cardiovascular disease. This problem is well elaborated for adults. Does the problem of obesity really exist in our population because of many obese children seen around us.

Methods: Data of weight, height, dietary habits and physical activity level were collected from population of primary and secondary school population in Canton Sarajevo. Body mass index was calculated and estimated according criteria of Centre for control and disease prevention (CDC).

Results: During last 2 years 5% (3608) of all pupils in Canton Sarajevo were examined. There were 6.86% obese and 11.86% overweight pupils (total 18.72%). Percent of overweight boys and girls was similar (M 6.71%, F 5.15%), while girls were more obese (5.54%) than boys (1.32%). Analysis according age pointed out that almost ¼ of children (23.86%) in lower classes of primary school) were overweight and obese. In the same time 20.86% of these children were underweight. Secondary school pupils were less obese than the other (overweight 9.55%; obese 3.24%). There were no significant difference in obesity incidence in the patients of different sex.

Conclusion: Analysis of representative specimen (5%) of school attending paediatric population pointed out that obesity is present in almost 20% of all, and in 25% of younger school children. Childhood obesity will increase incidence of adult obesity and also risk for cardiovascular pathology.

PP47

[Cardiomyopathy]

Transient Dilated Cardiomyopathy due to Ventricular Bigeminy in a Newborn

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Relationship between premature ventricular contractions and dilated cardiomyopathy which is usually called “reversible” or “transient” is a rare and an interesting clinical situation (1, 2). Neonatal arrhythmias are usually benign unless there is no inherited metabolic or congenital heart disease. Congestive heart failure in the fetus or hydrops may rarely presented because of underlying arrhythmia especially supraventricular tachycardia. Tachycardia induced dilated cardiomyopathy in a newborn right after labor usually suggests ongoing pathology from fetal life. We report a case of newborn transient dilated cardiomyopathy seen on the first day of life with an ECG revealing ventricular bigeminy and systolic dysfunction on echocardiography.

PP48

[Surgery: CABG, valvular, artificial heart, assist devices, other]**Management of Left Ventricular Lateral Wall Pseudoaneurysm: A Case Report**

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Objectives: Left ventricular pseudoaneurysm is a rare and extremely fatal complication of acute myocardial infarction. It is defined as a rupture of the myocardium surrounded by epicardial adhesions or the epicardial wall.

Methods: A 76-year old man was admitted to hospital with acute pulmonary edema and arrhythmia. He had undergone cardiac operation 2 years ago. Transthoracic echocardiogram showed a left ventricular aneurysm sac with severely compromised left ventricular systolic function with mitral valve regurgitation. The ejection fraction was low due to the dyskinetic area of the wall rupture. The angiographic evaluation showed a huge lateral wall aneurysm sac. After stabilising the hemodynamic parameters of the patient with inotropic, antiarrhythmic and diuretic agents in intensive care unit, he was operated electively.

Results: Pericardial adhesions of the lateral wall were dissected cautiously and the pseudoaneurysm appeared with its neck. The aneurysmatic lateral wall of left ventricle was resected and the defect closed with two sided teflon felt. The mitral regurgitation was due to the displacement of the papillary muscles, and after aneurysm repair, mitral valve approach was done with left atriotomy incision. The mitral valve structure was in good condition was repaired with 29# flexible ring. The patient weaned from cardiopulmonary bypass with inotropic and antiarrhythmic agents. The postoperative follow up was uneventful.

Conclusions: Formation of a pseudoaneurysm of the left ventricle is a rare complication of acute myocardial infarction and occurs most frequently in the inferior wall. We present a case of postinfarction pseudoaneurysm of left ventricular lateral wall treated surgically.

PP49

[Cardiomyopathy]

Pregnancy with Left Ventricular Noncompaction

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Introduction: Left-ventricular non-compaction is a rare CMP which appears more often in children than in adults with only very few cases reported in pregnancy. In this report, we aimed to present a patient who referred to our clinic with heart failure symptoms in pregnancy whose echocardiographic examination revealed prominent trabeculation in the LV.

Case: A 19-year old postpartum woman with dyspnea was referred to our clinic. She began to feel progressive dyspnea and cough 3 weeks before her delivery and presented to an institution where she was hospitalized for a few days before she referred to our clinic. On physical examination she had jugular venous distention, diffuse rales in both lungs and an apical 2-3/6 pansystolic murmur. Echocardiography revealed a dilated LV with an EF of 20%, severe mitral and tricuspid regurgitation, mild aortic regurgitation and prominent trabeculation of the LV with showing blood flow penetration (Figure 1).

Discussion: LVNC is a CMP caused by an arrest in the normal process of endomyocardial morphogenesis. Patients with LVNC may be asymptomatic or may present with cardiac dysfunction, ventricular arrhythmias or systemic emboli. Despite being congenital, the reason for this patient to become symptomatic may be explained by hemodynamic changes in pregnancy. Although maximal hemodynamic alterations occur earlier in pregnancy, patient attributed her symptoms solely to pregnancy until she became frankly dyspneic. Indeed, symptoms of heart failure such as dyspnea, dizziness, pedal edema, and orthopnea can occur even in normal pregnancies. Nevertheless, if the symptoms develop suddenly or heavily as in this case, further evaluation is needed. Traditionally, LVNC is diagnosed by echocardiography. Commonly used criteria include the identification of excessive, prominent (more than 2 mm diameter) trabeculae with inter-trabecular recesses that penetrate deeply into the myocardium, from which blood flows directly into and out of the ventricular cavity, in the absence of other structural heart disease. Increasingly MRI is being used and CT may be of value. In our case trabeculation was predominant in the apex and the lateral wall and this was consistent with the previous work. Computed tomography and MRI revealed similar trabeculation for this patient (Figure 2). The differential diagnosis for this patient includes peripartum CMP. Unfortunately, it is not possible to understand

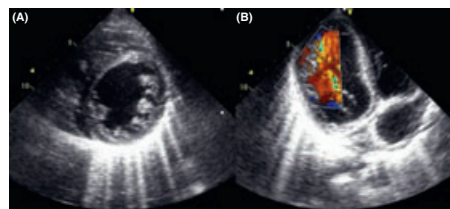


Figure 1 (A) Increased left ventricular trabeculation (B) Color Doppler showing blood flow between trabeculations.

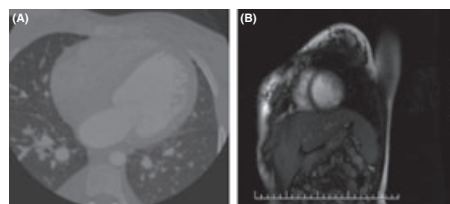


Figure 2 (A) Computed tomography (B) Magnetic resonance imaging showing increased trabeculation.

whether this clinical presentation was due to LVNC which became symptomatic with the hemodynamic alterations in the pregnancy or peripartum CMP complicated this patient's pregnancy who also has LVNC. Differential diagnosis include false tendons, aberrant bands, thrombi, apical type of hypertrophic CMP, fibromas, obliterative processes of LV cavity, intramyocardial haematomas, cardiac metastases and intramyocardial abscesses. However, both the imaging modalities showing prominent trabeculation and the clinical course make these diagnoses unlikely.

PP51 [Nursing]

Defining the Needs of the Families of Patients in Intensive Care Unit for Heart Failure

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Objective: For the care management programs of the patients with a long term chronic disease like heart failure to be effective, the needs (information, treatment, support, empathy, motivation) of the family members providing care should also be deliberately taken into consideration. The objective of this research is to define the needs of the families of the patients in the intensive care unit for heart failure.

Methods: The research which is a descriptive one was done in the intensive care unit for heart failure in a major university hospital in Izmir, which is the third biggest metropolis of Turkey, between January and May 2012. The research group was made up of 112 family members who meet the criteria in order to be included in the research (accepting to attend the research; being literate; being the most care-giving member of the family such as husband/wife, sister/brother, mother, father, child, or any other relative).

The data from the research were gathered through the use of "Individual Information Form Considering Family Members" and "Scale for Defining the Needs of Family Members". After getting the permissions to use the scale and application at the institution, face-to-face interviews with the family members meeting the criteria stated and included in the research and informed consent forms were taken. The data gathered in the direction of the research were evaluated through appropriate statistical methods.

Results: 56.2% of the family members included in the research were female subjects over the age 41. The average age for all family members was 42.97 ± 13.24 . Of the family members most of which (42.9%) had a high-school degree, 34.8% of them were not working. The average requirement score for the family members who were the first degree relatives of the patients with heart failure at the rate of 64.3% was 151.10 ± 18.21 . The first three needs thought to be the most important by the family members were as such: to be informed about the condition of the patient at least once a day; to be given deductive explanations; and to be sure about the fact that the patient was given the best treatment. The three needs thought to be the least important were as such: to bring a religious man into the room of the patient; to be informed about the religious services at the hospital; and to be with someone encouraging them to cry. While the relationship between the requirement points and genders of the patients were of statistically importance ($P < 0.05$), there was no statistically meaningful relationship between the need scores and age, educational status, and closeness degree ($P > 0.05$).

Conclusions: Our research findings were of similarity with the findings stated in the literature considering the subject. The needs thought to be the most important for family members of the patients in the intensive care unit for heart failure were information and trust needs and the ones considered to be the least important were the spiritual ones.

PP52 [Nursing]

The cardiovascular disease risk factors knowledge level and complementary therapy use of cardiovascular patients

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Objective: The descriptive and cross-sectional study was carried to measure the knowledge about the risk factors on cardiovascular diseases and their approaches to utilize complementary therapy.

Methods: The semi-structured form and The Cardiovascular Disease Risk Factors Knowledge Level scale were used. The Cardiovascular Disease Risk Factors Knowledge Level scale was checked for validity and reliability by Arıkan et al (2009). Cronbach alpha value was 0.768. The study was carried during June 1–August 30 on the patients in a university hospital. 240 patients accepted to participate while 63 refused. Permission from the University and informed consent from the patients participated. Data were collected via face-to-face interviews with patients. Data was evaluated with independent sample t test, one way ANOVA and chi-square test.

Results: The age of the patients in the study 53.41 ± 14.78 ($n = 240$), 61.2% ($n = 147$) were woman, their body mass index was 47.10 ± 11.62 ($n = 240$), 87.9% ($n = 211$) were married, 55.4% ($n = 133$) elementary school graduate, 15.8% ($n = 38$) were smokers. CARRF-KL score average was 21.08 ± 3.29 (min: 9, max: 27). The Cardiovascular Disease Risk Factors Knowledge Level score mean was not affected from demographic variables ($P > 0.05$). Some patients ($n = 73$, 30.4%) got used complementary therapy to control cholesterol and blood pressure. Popular complementary therapy types were lemon ($n = 23$), garlic ($n = 16$), green tea ($n = 10$) and various mixtures with peppermint, honey, parsley, curcuma, cinnamon, cabbage, carop, nigella, reisi mushrooms, apple cider vinegar.

Illegible patients got lower grade than other education levels from CARRF-KL ($n = 40$, $\chi^2 = 14.661$, $P = 0.0001$) and those with headaches ($n = 18$, $\chi^2 = 11.316$, $P = 0.0001$) applied statistically higher complementary therapy.

Conclusions: Complementary therapy use for cardiovascular disease is prevalent and herbal therapies are most commonly used. Health professionals caring for patients with cardiovascular disease need to be aware of and understand the potential risks and benefits of these therapies and maintain open communication with patients regarding their health care choices.

PP53 [Nursing]

Symptom Incidence and Defining the Symptom Clusters in the Patients with Heart Failure

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Objective: It is quite important to recognize the symptoms and to know their relationship with each other in the evaluation of patients with heart failure. In this study, it is aimed to define the symptoms and symptom clusters experienced by the patients with heart failure.

Methods: The sample of the study, which is a methodological and descriptive type, was composed of 125 patients with heart failure who were in-patients over the age of 18 in the cardiology clinic of a hospital in Izmir, Turkey between the dates June and November 2010. Their diagnosis as heart failure was made at least 6 months before the treatment, and they accepted to attend the research and were selected by "random sample technic". The data in the study were gathered through the use of

a "Patient Information Form" (16 questions) and "Memorial Symptom Assessment Scale-Heart Failure Form" (32 items). After patient approvals, face-to-face interviews were made with the patients under study and the data collection was completed in 15–20 min. In the analysis of the data gathered at the end of the study, Statistical Package for Social Science (SPSS) 15.0 program and Software Multivariate Statistical Package (MVSP) were used.

Results: Of the patients, 44(35.2%) female and 81(64.8%) male ones with an average age of 66.60 ± 11.15 were included in the study. The heart failure functional classes of the patients were 10.4% I, 15.2% II, 43.2% III, and 31.2% IV. The most widely-experienced symptoms of the patients were determined as such: respiration problem occurring when lying flat (96.0%), sexual activity problems (95.2%), respiratory disorder and energy insufficiency (94.4%), waking up at night with bated breath (79.2%), palpitation (76.8%), and feeling aggressive (70.4%). Symptom clusters were formed by categorizing under a few clusters.

Conclusions: As a result, in the light of our study findings, we want to emphasize that it is quite important to evaluate the symptoms and to apply the effective symptom attempts for the patients with heart failure.

PP54

[Diabetes mellitus and Metabolic Disorders]

Effects of Freeze Dried Strawberry on Cardiovascular Complications in Subjects with Type 2 Diabetes; A Double Blind Randomized Control Trial

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Objective: To test the effect of freeze-dried strawberry (FDS) supplementation on blood glucose levels, biomarkers of oxidative stress and inflammation in subjects with type 2 diabetes in comparison with matched control subjects.

Research design and methods: Thirty six subjects with type 2 diabetes (13 males and 23 females; mean body mass index: 27.90 ± 3.7 kg/m²; mean age: 51.57 ± 10 years [means \pm SE]) were randomly divided into two groups. Treatment group consumed 2 cups of freeze-dried strawberry beverage (50 g FDS equivalent to 500 g fresh strawberries) or iso-caloric placebo powder with strawberry flavor daily for 6 weeks in a randomized-double blind controlled trial. Anthropometric, dietary intakes, antioxidant status, C- reactive protein and malondialdehyde levels and fasting serum glucose were assessed at baseline and 6 weeks post-intervention.

Results: Strawberry powder supplementation significantly decreased hemoglobin A1c (-5.7% , $P < 0.05$) and CRP levels as a biomarker of inflammation (-17% , $P < 0.01$). Lipid peroxidation in the form of malondialdehyde was reduced at 6 weeks compared with baseline (-12% , $P < 0.01$). There also was a significant increase in total antioxidant status ($+6.25\%$, $P < 0.01$). No significant change was observed in serum glucose concentrations and anthropometric indices.

Conclusions: It is concluded that supplementation with freeze dried strawberry powder improved hemoglobin A1c, reduced lipid peroxidation and inflammatory response and enhanced total antioxidant status in patients with type 2 diabetes. Supplementation with freeze dried berry products, as natural sources of antioxidants with low glycemic index could be considered as an adjunctive therapy in ameliorating cardiovascular complications of type 2 diabetes.

Metabolic variables at baseline and 6 weeks post-intervention

Metabolic variables	Treatment		Controls		P value A1 vs A2	P value B1 vs B2	P value A1 vs B1
	A1: Baseline	A2: After 6 weeks	B1: Baseline	B2: After 6 weeks			
Fasting Blood	160.53 (109.22–211.84)	153.95 (111.81–196.09)	201.71 (112.49–290.93)	190.29 (105.88–274.7)	0.54	0.46	NS
Hb-A1C%	7.26 (6.02–8.5)	6.8 (5.67–7.93)	7.46 (5.5–9.5)	7.61 (5.6–9.6)*	0.018	0.02	NS
Hs-CRP mg/dl	1.97 (0.4–3.98)	1.62 (0.07–3.2)	2.04 (0.6–3.5)	2.64 (0.35–5.2)*	0.003	0.26	NS
MDA mmol/mL	3.36 (1.9–4.51)	2.94 (1.8–4.1)	2.98 (2.12–3.8)	3 (1.97–4.1)*	0.000	0.93	NS
TAS mg/l	1.26 (1.05–1.5)	1.44 (1.2–1.7)	1.29 (1.1–1.5)	1.26 (1.02–1.5)*	0.000	0.24	NS

Subjects with type 2 diabetes were supplemented with freeze-dried strawberries (2 cups beverage) or 2 cups of placebo beverage (controls). Fasting blood glucose, hemoglobin A1C, Hs-CRP, malondialdehyde and serum total antioxidant status were measured at baseline and 6 weeks of the study. Wilcoxon's signed-rank tests or paired-sample T test were done for within-group comparisons and Mann Whitney U tests or independent sample- T test for between-group comparisons. Significantly different between control and strawberry groups at 6 weeks ($P < 0.05$).

Baseline characteristic of study group

	Treatment	Controls	P value
N	19	17	NS
Age	51.9 (43.6–60.1)	51.8 (37.2–65.1)	NS
Height	165.9 (158.4–173.4)	159.7 (150.6–168.8)	NS
Weight	75.2 (65.6–84.8)	72.97 (61.2–84.7)	NS
BMI (Kg/m ²)	27.3 (24.1–30.5)	28.9 (24.7–33.1)	NS
Mean Systolic Blood Pressure	126.5 (110.2–142.7)	127.6 (112.0–143.2)	NS
Mean Diastolic Blood Pressure	80 (65.9–94.9)	83 (62–104)	NS
Waist	99.13 (90.0–108.8)	100.56 (92.5–108.6)	NS
Body Fat Percentage	28.05 (19.3–36.7)	28.6 (19.5–37.7)	NS



Figure 1 Coronary Heart Disease Development. Process of coronary heart disease and different contributors are defined within the diagram. In order to control or omit each risk factor, identifying features of each risk factor and the pathway by which it accelerates the process is crucial.

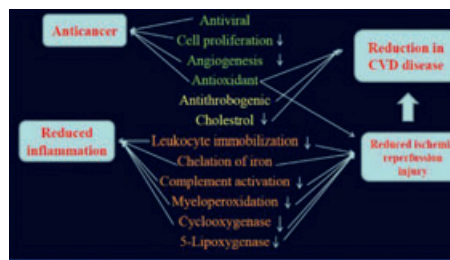


Figure 1 Working Mechanism of Flavonoids. There are several metabolic pathways activated by flavonoids, main antioxidants in berries, leading to their protecting role against oxidative stress and inflammation, which are considered as main contributors to coronary heart disease and cancer.

PP55

[Cardiomyopathy]**Physical capacity of hypertrophic cardiomyopathy patients**

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*Republican Specialized Center of Cardiology, Tashkent, Uzbekistan***Aim:** The features of physical testing of hypertrophic cardiomyopathy (HCM) patients.**Methods:** Thirty eight HCM patients from 16 till 52 (38.4 ± 2.9) years were observed (male/female 74%/26%). The IVS thickness has made 18.7 ± 0.8 mm, and IVST/LVPWT -1.5 ± 0.07 . Approximately half of patients have episodes of dizziness, thus at 14% from them cases of syncope were registered. An bicycle ergometry was applied. The protocol with 5-step degree and step-by-step loading was used. All medicines, including beta-blockers have been cancelled prior to the beginning of testing.**Results:** It is noticed, that basically reached stage did not exceed 75 W. The heart beats at peak of loading made 114 ± 6.2 per min, revealing a gain in more than on 50% from reference values. The most frequent reason of the testing stops was absence of a gain the SBP in reply to loading or its falling on 20% and more (at mean before and after testing 113.8 ± 3.2 and 109.5 ± 2.7 mmHg, $P = 0.3$). The given phenomenon was criterion of the termination of testing at 34.2% of patients. 10 (26.3%) patients could not continue testing because angina, including ST displacement or \bar{O} wave inversion. At 15.7% of patients worsening of condition (dizziness, weakness) during testing was marked. And, at last, 24% of HCM patients stopped to continue pedal rotation for other reason.**Conclusions:** HCM patients are characterized by rather low physical capacity, caused angina, dyspnoea and inadequate reaction of blood pressure on veloergometry. The last probably it is caused by ischemia and diastolic dysfunction.

PP56

[Diagnosis and Biomarkers]**Atrial and Brain Natriuretic Peptides Concentrations in Heart Failure Patients with Different Sleep Disordered Breathing**

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Federal Centre of Heart, Blood and Endocrinology named after VA Almazov, Saint Petersburg, Russia

The research leading to these results has received funding from the European Union Seventh Framework Programme [FP7/2007–2013] under grant agreement no.241558 (SICA-HF). The research leading to these results has received funding from the Russian Ministry of Science and Education within the FTP "R&D in priority fields of the S&T complex of Russia 2007–2012" under state contract 02.527.11.0007.

Background: To assess concentrations of atrial and brain natriuretic peptides (ANP and BNP, respectively) in patients with congestive heart failure and predominantly obstructive sleep apnea syndrome (OSA), predominantly central (CSA) and mixed (MSA) sleep apnea and without sleep disordered breathing (SDB).**Design and Methods:** 68 subjects were enrolled: 59 males and 9 females, mean age 57 [95% confidential interval (CI) 54.4–59.4] years. Heart failure resulted from coronary artery disease in 66 cases, and from cardiomyopathy—in 2 subjects. All patients underwent full polysomnography (Embla N7000 (MedCare Flaga, Iceland, 2009), echocardiography (GEVivid 7, Norway) using standard protocol. ANP was measured by radioimmunoassay. Plasma NT-proBNP was measured by electrochemiluminescence immunoassay. The subgroups of SBD were formed according to AASM guideline (2008). Type of sleep apnea was defined according to the most prevalent events: $\geq 50\%$ obstructive-OSA; $\geq 50\%$ central-CSA; no prevalent type-mixed. Statistical analysis was performed using the Kruskal-Wallis and post-hoc tests.**Results:** According to the results of full polysomnography four groups were formed: 1) without SBD: 8 patients, 7 male and 1 female; mediana of age 59 (95% CI 47.6–70.5); 2) OSA: 7 patients, 5 male and 2 female, mediana of age 55 (95% CI 45.8–67.7); 3) CSA: 9 patients, 8 male and 1 female; mediana of age 57 (95% CI 50.9–62.1) and 4) MSA: 44 patients, 35 male and 9 female; mediana of age 57.5 (95% CI 53.4–59.2). There were no difference in age ($\chi^2 = 0.2$; $P = 0.9$), LVEF (Simpson) ($\chi^2 = 5.3$; $P = 0.1$) and diuretic therapy ($\chi^2 = 1.3$; $P = 0.7$) between groups. ANP concentrations were higher in patients with CSA: without SBD–29.8 pg/mL (95% CI = -1.5 –15.2); OSA–13.8 pg/mL (95% CI = 0.04–46.8); CSA–110.8 (95% CI = 14.6–214.9) and MSA–79.4 (95% CI = 32.2–85), ($\chi^2 = 6.5$; $P = 0.05$) as well as NT-proBNP levels: without SBD–6.3 (95% CI = 4.3–8.9); OSA–4.5 (95% CI = 1.6–11.1); CSA–10.5 (95% CI = 7.2–14.8) and MSA–5.7 (95% CI = 4.2–8.4), ($\chi^2 = 11.7$; $P = 0.008$).**Conclusions:** Congestive heart failure patients with predominantly CSA are characterized by increased levels of atrial and brain natriuretic peptides compared to patients with predominantly OSA, MSA and without SBD.

PP57

[Cardiomyopathy]**Early Detection of Anthracycline-Mediated Cardiotoxicity: the Value of Considering both Global Longitudinal Left Ventricular Systolic Strain and Twist**Cristian Mornos, Mihaela Valcovici, Dragos Cozma, Sorin Pescariu, Lucian Petrescu, Adina Ionac
*"Victor Babes" University of Medicine and Pharmacy, Timisoara, Romania***Introduction and Objectives:** Anthracyclines are important anticancer drugs, but their use is limited by acute and chronic cardiotoxicity. Current approaches to surveillance are often inadequate to detect myocardial disease. Tissue Doppler and 2D-strain imaging might detect earlier myocardial dysfunction. In drug-induced cardiotoxicity, both torsional and longitudinal left ventricular (LV) deformations are damaged [LV twist (LVtw), global longitudinal strain (GLS), radial strain (GRS)]. We assessed whether early myocardial deformation analysis could predict later anthracycline-induced LV dysfunction. We also investigated the ability of a new index, LVtw \times GLS, to predict cardiotoxicity.**Methods:** Echocardiography, troponin T and N-terminal pro-B-type natriuretic peptide were performed prospectively in 74 patients (51 ± 11 years) before and after 6, 12, 24 and 36 weeks of anthracycline treatment. LVtw, GLS, GRS and untwisting rate were determined using 2D-strain imaging.**Results:** During the follow-up period, ten patients (13%) developed cardiotoxicity. At 6 and 12 weeks after initiation of chemotherapy, isovolumic relaxation time, systolic mitral annular velocity, GLS, GRS, LV apical rotation, LVtw and LVtw \times GLS were deteriorated and troponin levels become elevated (all $P < 0.05$ by ANOVA), before any LV ejection fraction decrease. Early deterioration of LVtw \times GLS emerged as the best independent predictor of later cardiotoxicity (Odds Ratio = 1.43, $P = 0.002$ by multiple logistic regression). Early change of GLS ($P = 0.006$) and LVtw ($P = 0.005$) were also associated with later cardiotoxicity.**Conclusion:** Anthracycline therapy induced early deterioration of torsional and longitudinal LV deformation. Change in the new LVtw \times GLS index at 6 weeks of chemotherapy seems to be a good predictor of future development of anthracycline-induced cardiotoxicity.

PP58

[Cardiomyopathy]**Interrelation of RDW and Coronary Flow Reserve in Patient with Idiopathic Dilated Cardiomyopathy**

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Background: Idiopathic dilated cardiomyopathy (IDC) impaired and reduced coronary flow reserve (CFR). High level of red cell distribution width (RDW) is an independent risk factor for cardiovascular diseases. Therefore, we have aimed to determine whether RDW level is associated with CFR impairment in patients with IDC.

Methods: We examined 36 patients with IDC. There were divided into two groups based on their CFR level.

Results: There were no significant differences between the lower and higher CFR groups clinical data baseline hemodynamic, medication and biochemical data except RDW and hs-CRP levels. After adjusting potential confounder include age, BMI, blood pressure, lipid and glucose RDW independently associated with RDW level (Beta: -0.374 ; $P: 0.015$) and hs-CRP value (Beta: -0.520 ; $P: 0.001$) were the independent predictor of lower CFR.

Conclusion: Results showed that there is an independent association between RDW level and CFR in patients with IDC.

PP59

[Cardiomyopathy]**Epigenetic Regulation of Cardiac Specific Transcription Factors in the Failing Myocardium in Patients with Human Dilated Cardiomyopathy**

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Objective: Heart failure (HF) is characterized by adverse left ventricular (LV) remodelling and reduced contractile function associated with an altered gene expression profile. Dilated cardiomyopathy (DCM) is the third most common cause of HF. The implication of transcription factors (TFs) in molecular pathways that guide heart development and cardio-specific gene expression has recently been established. However, the role of cardiac specific TFs; Myocardin and TBX20 in the failing heart is unknown. The present study was designed with the aim to determine the expression profile and regulation of these TFs in failing hearts.

Methods: Myocardin and TBX20 mRNA levels were estimated by quantitative RT-PCR (qRT-PCR) in human ventricular biopsies and PBMCs of DCM patients ($n = 25$) and controls (subjects with ventricular septal defect) ($n = 12$). Copy number variations in Myocardin and TBX20 were determined by qRT-PCR in DCM patients ($n = 150$) and control ($n = 100$). Myocardin and TBX20 promoter methylation patterns were studied in PBMCs of DCM patients ($n = 80$) and controls ($n = 60$) by methylation specific PCR (MSP).

Results: Myocardin and TBX20 mRNA levels were found to be significantly 6 fold ($P0.004$) and 7 fold ($P0.00017$) increased in the failing human myocardium as compared to control samples respectively.

Promoter hypermethylation of Myocardin was observed only in patients and none of controls were found to carry methylated alleles for Myocardin. We did not observe any significant difference in promoter methylation status of TBX20. There was no significant difference observed in the copy number of both the transcription factors; Myocardin and TBX20 between patients and controls.

Conclusion: Our results suggest that epigenetically regulated expression of cardiac specific TFs; Myocardin and TBX20 may contribute to pathophysiology of DCM.

PP60

[Surgery: CABG, valvular, artificial heart, assist devices, other]**A Case of Severe Aortic Regurgitation due to Unrecognized Endocarditis**

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Acute aortic regurgitation is most often caused by bacterial endocarditis (E), aortic dissection, or thoracic trauma. The authors present a case of severe aortic regurgitation secondary to E.

The patient is a 66-year old man with a history of alcohol consumption who was admitted through the emergency department for a progressive worsening of dyspnea that had started 2 weeks previously and retrosternal pain aggravated by coughing. The patient also referred severe weight loss and denied fever. 1 month before admission he was medicated with levofloxacin for a respiratory infection, with transient symptomatic improvement. On admission he was dyspneic, not tolerating supine position. Physical exam revealed a regular pulse of 107 beats/min and a respiratory rate of 24 cycles/min; blood pressure was 117/54 mmHg. There was a long, diastolic murmur at the left sternal border. Pulmonary auscultation revealed globally decreased breath sounds. The 12-lead electrocardiogram showed sinus rhythm at 107 beats/min. Blood analysis revealed no anemia or inflammatory parameters elevation. Chest X-ray revealed bilateral pleural effusion. The patient was admitted to the coronary care unit for acute "de novo" heart failure (class IV of the NYHA). Transthoracic echocardiogram revealed an aortic valve with thickened cusps and vegetations, the largest one with 14x6 mm in the non-coronary cusp conditioning severe aortic regurgitation; moderate dilation of the left ventricle with severe depression of its systolic function. Echocardiographic evaluation was complemented with a transesophageal exam that revealed flail of the posterior aortic cusp. Coronary angiography showed normal coronaries. During hospitalization the patient showed progressive symptomatic improvement with medical therapy. He was always afebrile. Analytical inflammatory parameters and blood cultures were always negative. The patient was transferred to a cardiovascular surgery center where an aortic valve replacement and cleaning of vegetations of the anterior mitral leaflet were performed, confirming the suspicion of E. He was maintained on empirical antibiotic therapy for 6 weeks after surgery being discharged after completion of antibiotics. His pre-discharge transthoracic echocardiogram revealed an aortic prosthesis normally inserted with minimal prosthetic failure, and preserved biventricular systolic function.

Heart failure is the most frequent complication of infective E, particularly when there is valvular aortic involvement (29%), representing the most frequent indication for surgery. The case of E described is distinguished by its atypia and reinforces the crucial role of echocardiography in diagnosing E. Although the sensitivity and specificity of "Duke" criteria, clinical judgment remains essential.

PP61

[Diagnosis and Biomarkers]

Serum and Pleural NT-proBNP Levels In Patients with Congestive Heart Failure and Its Contribution to Diagnosis

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Objective: The aim of the present study was to determine the role of serum and pleural NT-proBNP levels in diagnosis of pleural effusions due to congestive heart failure (CHF).

Methods: Patients with pleural effusion who had admitted Sureyyapasa Chest Disease and Chest Surgery Training and Research Hospital and Internal Medicine Clinics of Istanbul Medeniyet University Goztepe Training and Research Hospital were included in the study. Patients were grouped to three according to evaluation of their pleural effusions with lights' criteria (group 1: patients who have exudative effusion with no CHF (n: 20, 5 F, 15 M, 40.9 ± 18.9 years); group 2: patients who have transudative effusion with CHF (n: 27, 12 F, 15 M, 68 ± 1.28 years); group 3: patients who have exudative effusion with CHF (n: 13, 8 F, 5 M, 72 ± 7.8 years). All groups were evaluated according to their serum and pleural NT-proBNP levels.

Results: The definite diagnosis of patients obtained from their hospital records. Causes of pleural effusions were CHF (66.7%), tuberculosis (16.7%), lung cancer (11.7%), parapneumonie (1.7%) and other malignancies (3.3%) Group 2 and 3 showed higher mean serum and pleural NT-proBNP measurements than group 1 (5197 vs. 62, $P = 0001$ for serum NT-proBNP and 5320 vs. 118 $P = 0.0001$, for pleural NT-proBNP in the compare of group 2 and 1; 2269 vs. 62, $P = 0.012$ for serum NT-proBNP and 2259 vs. 118, $P = 0.51$ for pleural NT-proBNP in the compare of group 3 and 1). In compare of group 2 and 3 serum NT-proBNP levels were 5197 versus 2269, $P = 0.51$ and in pleural NT-proBNP 5320 versus 2256, $P = 0.26$. In both group 2 and 3, serum and pleura NT-proBNP levels were investigated in patients according to the presence of unilateral or bilateral pleural effusion, diastolic heart failure and also valvulopathy. No statistically difference was found (5028 vs. 2424, $P = 0.82$, 2237 vs. 5028, $P = 0.15$ and 3639 vs. 2890, $P = 0.18$ for serum NTproBNP and 4545 vs. 2668, $P = 0.91$; 3334 vs. 3639 $P = 0.92$; 3639 vs. 2890 $P = 0.18$ for pleural NT-proBNP and respectively). In group 2; patients who had diagnosis of transuda according to light criteria showed 96.2% sensitivity according to protein gradient as they showed 85.1% sensitivity according to albumin gradient. In group 3; these sensitivity rates were 46.1% according to protein and 53.8% according to albumin gradients.

Conclusions: Although serum and pleura NT-proBNP levels are key markers of CHF, they have not any role in the differential diagnosis of the effusion whether it is transuda or exuda.

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[Cardiomyopathy]

Does Tirofiban Therapy Accelerate the Healing of Takotsubo Cardiomyopathy? Atypical Broken Heart Syndrome with Extremely Fast Recovery: a Case Report

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Takotsubo cardiomyopathy, also known as broken heart syndrome, is similar to acute coronary syndrome. The absence of significant stenosis on coronary angiography and spontaneous improvement of ventricular akinesia are very important features that distinguish this syndrome from acute coronary syndromes. We herein present a case of TC with quick improvement after tirofiban administration.

A 61-year old female patient with severe precordial chest pain lasting for 4 h was admitted to the emergency department. An ST-T wave change was not found on ECG, but an incisure of R waves was seen on the second precordial (V2) derivation (Fig 1). During the follow-up, due to a minimal increase in CK-MB/troponin levels and ongoing angina pectoris, the patient was thought to have acute coronary syndrome and was taken to the intensive care unit. Acetylsalicylic acid (300 mg), clopidogrel (300 mg as a loading dose), metoprolol (50 mg), ramipril (5 mg), atorvastatin (40 mg), and tirofiban infusion (0.1 µg/kg/min) were administered. Transthoracic echocardiography revealed moderate mitral regurgitation and left ventricular akinesia in the mid-apical segments and hyperkinesia in the basal segments (Fig 2A and B). Coronary angiography was performed, and normal coronary arteries were seen (Fig 3). Ventriculography indicated that the mid-apical segments were akinetic and the basal segments were hyperkinetic (Fig 4A and B). Thus, TC was believed to be present in the patient, and any sources of emotional stress were sought. The patient's chest pain had begun when she witnessed her grandson's traffic accident. While he was playing football in front of the house, he was hit by a car. She saw this event from the balcony and became very emotionally distressed. Her chest pain began abruptly thereafter.

Her chest pain gradually decreased and disappeared after 8 h in the intensive care unit. One day later, transthoracic echocardiogram revealed that the akinetic left ventricular walls had returned to normokinesia (Fig 2C and D) and the moderate mitral regurgitation had disappeared (Fig 5). There was no perfusion defect, and scintigraphic ventriculography was normal (Fig 4C and D) after 24 h. Tirofiban infusion was stopped at the end of the first day. 1 week later, the ECG returned to normal without fatal ventricular arrhythmia. The patient was uneventfully discharged with medical therapy. To the best of our knowledge, improvement of TC within 24 h has not been reported in the literature. In our case, the infusion of tirofiban in addition to other treatments may have been the cause of the patient's rapid improvement. The loss of ventricular akinesia-mitral regurgitation within 24 h may have been the result of dissolution of microthrombi



Figure 1 Initial ECG of the patient. Absence of ST-T wave abnormalities.

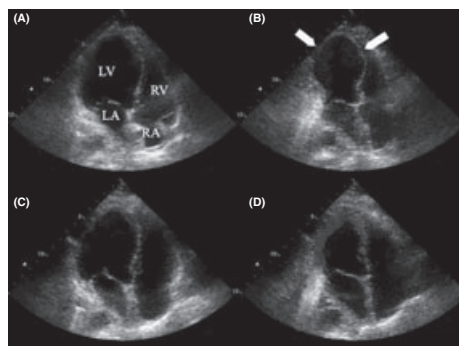


Figure 2 Transthoracic echocardiogram in the apical four-chamber view. Left images are in diastole. Right images are in systole. (A, B) Initial echocardiographic evaluation. In the systolic phase, mid-apical akinesia of the left ventricle in the systolic phase is shown by arrows. (C, D) Control echocardiogram after 1 day. (D) Akinetic segments returned to normokinesia.

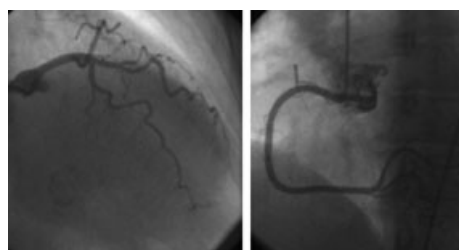


Figure 3 Coronary angiography. Normal coronary arteries.

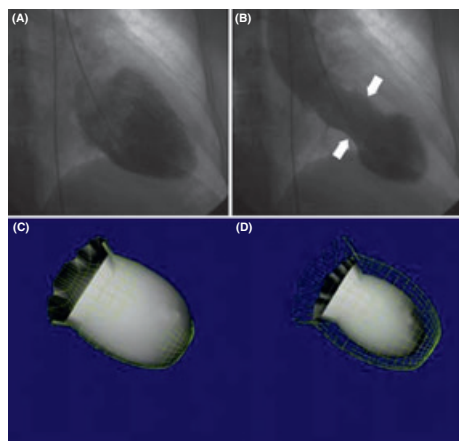


Figure 4 Left ventriculography images. (A, B) Initial images revealed mid-apical akinesia and basal hyperkinesia (arrow) in the conventional ventriculography obtained after the coronary angiogram. (C, D) Control scintigraphic ventriculography showed that the mid-apical akinesia returned to normal 1 day later.

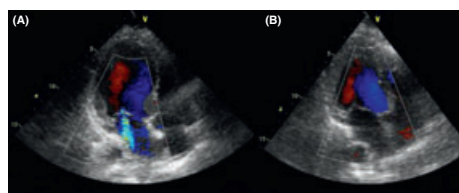


Figure 5. Apical four-chamber view by color Doppler echocardiogram. (A) Initial moderate mitral regurgitation. (B) The mitral regurgitation disappeared 1 day later.

due to discharge of catecholamines in the microvascular bed. Normal myocardial perfusion in the 24th h may explain this situation.

PP63 [Cardiomyopathy]

Circulating Endothelial Progenitor Cells and NT-proBNP Level as Characteristic of Patients with Different Etiology's Heart Failure

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Introduction: Endothelial repair and neoangiogenesis are depended on number of circulating endothelial progenitor cells (CEPCs). NT-proBNP is a biomarker which traditionally used to objectify the severity of heart failure. We tested the hypothesis that CEPCs can be used as an additional characteristic of severity CHF in pts with ischemic and non-ischemic LV systolic dysfunction.

Methods: 45 pts with ischemic heart disease (IHD) (mean age 55.4 ± 8.3 years, BMI 28.8 ± 5.2 kg/m², EF $30.9 \pm 7.87\%$) and 36 pts with dilated cardiomyopathy (DCM) (mean age 45.8 ± 12.9 years, BMI 27.4 ± 5.2 kg/m², EF $28.6 \pm 8.42\%$) with severe, yet controlled II-IV FC (NYHA) chronic heart failure (CHF) were examined. All pts in two groups were comparable in laboratory and echocardiographical data and had LV systolic dysfunction. Also 17 healthy controls were examined (40.8 ± 7.8 years, BMI 25.1 ± 2.8 kg/m²). Carotid intima-media thickness, flow-mediated dilatation (FMD) of brachial artery, high-sensitivity C-reactive protein (hsCRP), lipid tests, NT-pro-BNP level were done. The quantity of circulating CD34+CD133+ and CD34+CD133+VEGFR-2 +cells was assessed by flow cytometry (Becton Dickinson FACScan). Proliferation ability of endothelial progenitor cells was evaluated by calculation of colony-forming units (CFU) with J.M.Hill's method.

Results: There were no significant differences in NT-proBNP (1941 ± 2527 pg/mL in IHD vs. 2536 ± 4731 pg/mL in DCM) and hsCRP (6.61 ± 5.32 mg/L in IHD vs. 4.35 ± 3.53 mg/L in DCM) levels in pts with CHF in both groups in comparable classes (NYHA). Both groups were comparable with respect to following Sealle model's parameters: mean life expectancy ($6.6 \pm 6.6\%$ in IHD vs. $6.2 \pm 7.7\%$ in DCM) and 1-year mortality ($10.9 \pm 3.7\%$ in IHD vs. $12.3 \pm 4.4\%$ in DCM). FMD of brachial artery was reduced in CHF pts ($7.9 \pm 3.4\%$ in IHD, $P < 0.05$ and $10.0 \pm 2.4\%$ in DCM, $P < 0.01$) comparing with control group ($14.6 \pm 0.5\%$). We found only a tendency to decrease the number of circulating CD34-CD133+VEGFR-2+ in pts with CHF, especially in DCM ($81 \pm 67/106$ MNC vs. $100 \pm 76/106$ MNC in pts with IHD vs. $125 \pm 169/106$ MNC in control group). Nevertheless, CFU of CEPCs was decreased in CHF pts, especially in DCM group (0.9 ± 0.8 units/mm² in DCM vs. 1.5 ± 1.4 units/mm² in IHD vs. 2.5 ± 1.1 units/mm² in control group, $P < 0.01$). CHF pts with NT-proBNP level above 400 pg/mL had decrease of the number of circulating CD34-CD133+VEGFR-2+ ($82 \pm 65/106$ MNC in pts with NT-proBNP level > 400 pg/mL vs. $125 \pm 92/106$ MNC in pts with NT-proBNP level < 400 pg/mL, $P < 0.05$) and also they had reduced CFU capacity of CEPCs (1.9 ± 0.9 units/mm² in pts with NT-proBNP level < 400 pg/mL vs. 1.0 ± 1.2 units/mm² in pts with NT-proBNP level > 400 pg/mL, $P < 0.01$).

Conclusion: CEPCs reduction can be seen not only as an additional marker of CHF severity, but also as an important pathogenetic mechanism of endothelial dysfunction and neoangiogenesis disorders in CHF pts.

Table 1

CHF NYHA Functional Class	NT-pro-BNP, ng/mL	Colony-formation ability, units/mm ²
II	729 ± 751	1.6 ± 1.5
III	2366 ± 2470	1.1 ± 0.9
IV	9348 ± 10858	0.9 ± 1.8
ANOVA	$P < 0.01$	$P < 0.01$

PP64

[Surgery: CABG, valvular, artificial heart, assist devices, other]

The Effect of Aortic Valve Procedure on LVAD Implantation

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Objective: The aim of this report was to analysis our experience with combined approach of VAD implantation and aortic valve procedures among patients with valvular heart disease and end-stage heart failure.

Methods: We retrospectively evaluated 8 end-stage heart failure patients who underwent LVAD implantation with aortic valve procedures. All patients were male with the mean age of 47.4 years. One patient was INTERMACS level 1, two patients were level 2 and remaining patients were level 3. Aortic valve procedures was performed with replacement with bio-prosthesis (one with stentless) in three patients, single sutures on coaptation side in 3 patients, leaflet repair and resuspension in remaining 2 patients.

Results: Although cardioplegic arrest was performed in all patients in contrast to isolated LVAD patients, right ventricular failure was not seen in any patient. Residue aortic valve regurgitation or low flow was not seen in postoperatively.

Conclusion: These results show that associated aortic valve procedure was not adding an additional risk on LVAD implantation.

PP65

[Surgery: CABG, valvular, artificial heart, assist devices, other]

Left Ventricular Assist Device Implantation with Tricuspid Ring Annuloplasty

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Objective: Tricuspid valve procedures aiming to preserve right ventricular function after left ventricular assist device (LVAD) implantation is still controversial. We aimed to share our own clinical experience.

Methods: The patients whom underwent LVAD implantation with tricuspid ring annuloplasty (TRA) were retrospectively evaluated. There were 10 patients (9 male) with the mean age of 48.3. The criterion for TRA was having a tricuspid annulus diameter more than 40 mm. Two patients had fourth, 4 patients had third, two patients had second and 2 patients had first degree of tricuspid valve regurgitation. Heartware assist device systems (HVAD) in 6 patients and Berlin Heart EXCOR ventricular support systems in four patients were implanted for left ventricular support. Mean cardiopulmonary bypass duration was 131.8 min. Of these 10 patients, two underwent bioprosthetic aortic valve replacement and atrial septal defect closure.

Results: Overall mean support is 319 days with the range between 11–615 days. Our mortality rate was 40% (n = 4); of these 4 patients, 2 of them was INTERMACS level 1. At the early post operative period 2 patients with the diagnosis of multiple organ failure were supported with ECMO and 1 patient had prolonged intubation for respiratory failure. One patient succumbed because of multiple organ failure at the late post operative period. Five patients (50%) continue to be supported with VAD with one successfully bridge to transplantation.

Conclusion: We think that TRA is one of the important additional procedures for support of right ventricle. On the other hand TRA alone is not effective for preventing right heart failure in early period.

PP66

[Cardiomyopathy]

Heterogenous Myocardial Involment in Patients with Acromegaly; Case Studies

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Acromegaly can be associated with cardiovascular disorders, diseases of the myocardium or valvular heart diseases. Acromegalic cardiomyopathy is a secondary consequence of excessive production of growth hormone. Pathophysiologic mechanism of this cardiomyopathy passes through several stages: hyperkinetic syndrome, myocardial hypertrophy, diastolic dysfunction, systolic dysfunction and heart failure. Acromegalic cardiomyopathies have been described as distinct clinical entity.

We present three cases of pts with acromegaly due to adenoma of pituitary gland. They were without history of previous cardiovascular disease and no cardiovascular symptoms.

Echocardiography as a part of cardiac evaluation before adequate primary disease threathment, revealed different types of myocardial involvement in these patients: 1. Severe LV hypertrophy with preserved systolic function and moderate diastolic dysfunction 2. Dilated cardiomyopathy with reduced LV systolic function (EF-27%) and moderate diastolic dysfunction; 3. normal dimension and thickness of heart chambers with good systolic function and mid dyastolic dysfunction.

Myocardial involvement in acromegaly pts has diverse expression and echocardiographic evaluation. In these pts is obligatory to identify the type and extend of myocardial morphological and functional changes for risk stratification and threathment strategy even when the pts are asymptomatic. Leading cause of death in patients with acromegaly is the cardiac dysfunction therefore echocardiography is essential in the evaluation of patients with acromegaly.

PP67

[Cardiomyopathy]

Effects of Administration of Short-Term Rosuvastatin in Patients with Heart Failure due to Chagas Disease Etiology: A Randomized, Placebo-Controlled Trial

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Background: Studies suggest the benefit of statins on markers of inflammation in patients with heart failure (HF). However, these were not documented for chronic Chagas' cardiomyopathy (CMCC).

Objective: To evaluate the effect of the use of rosuvastatin on serum markers of inflammation (C Reactive Protein) and quality of life, in patients with HF, due to Chagas disease.

Methods: This was a, prospective double-blind, placebo-controlled, clinical trial in which we randomized 39 individuals to receive rosuvastatin 10 mg/day (n = 23) or placebo (n = 16) during a period of 4 weeks.

Results: There was a reduction in total cholesterol (TC) (166 ± 39 mg/dL vs. 129 ± 31 mg/dL, $P < 0.001$), LDL-c (97 ± 32 mg/dL vs. 58 mg/dL ± 26 mg/dL, $P < 0.001$) and triglyceride (91 ± 36 vs. 79 ± 32, $P = 0.024$) in the statin group. CRP values did not differ from the moments before and after intervention between groups: statin before 0.72 (0.20–1.69) and placebo before 0.44 (0.10–1.43) ($P = 0.28$); statin after 0.47 (0.11 to 1.27) and placebo after 0.59 (0.23 to 2.14) ($P = 0.46$). There was no significant difference in any of the other variables that were analyzed.

Conclusions: Treatment with rosuvastatin in patients with CMCC despite of a significant reduction in the TC and LDL-C levels, did not reduce CRP levels, nor improved functional capacity and quality of life.