systolic and diastolic function are different in ischemic and non-ischemic cardiomyopathy depending on the underlying cause. In the present study, we aimed to investigate right ventricular volume, diameter and systolic function in ischemic and non-ischemic cardiomyopathy by 2D, M mode, transvalvular Doppler and tissue Doppler echocardiography.

Method: The study population consisted of 20 ischemic (ICMP) and 21 non-ischemic dilated cardiomyopathy (NICMP) patients with reduced left ventricular function (EF <35%), increased left ventricular end-diastolic diameter (LVEDD >5.5 cm), sinus rritm, than less moderate valve disease. The volume, diameter and functions of the right and left ventricle are assessed by echocardiography. According to ischemic and non-ischemic cardiomyopathy groups, right ventricular structure and function were compared by using correlation analysis.

Results: Patients left ventricular systolic and diastolic functions evaluated by 2D, mitral flow Doppler and tissue Doppler echocardiography were similar in both groups. Right ventricular longitudinal diameter in ischemic CMP was significantly lower when compared with non-ischemic CMP (7.56 cm, 6.66 cm p=0.001). Mean RVEF was comparable between the groups and 59% in ICMP while 61% in ICMP (p=0.346). There were no significant differences between the groups regarding right ventricular tricuspid flow Doppler parameters. In tissue Doppler parameters, RV lateral annulus S velocity was significantly lower in ICMP than NICMP (0.11 cm/s vs 0.09 cm/s; p=0.007). TAPSE values was significantly lower in the ICMP group (2.29 and 2.02 p=0.024). The other parameters assessed by tissue Doppler echocardiography were comparable between the groups.

Conclusion: Reduction in right ventricular function might be different due to hemodynamic deterioration, right ventricular infarction and also involvement of right ventricular myopathic changes. The present study results revealed that right ventricular function was significantly decreased in ischemic heart failure when compared to the non-ischemic group.

PP-062
Relation of Right Ventricular Stroke Work Index with Clinical Endpoints in Patients with Advanced Heart Failure
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Objective: The prognostic value of right ventricular function in heart failure is well known. In our study, we aimed to investigate the relation of right ventricular stroke work index (RV SWI), an invasive hemodynamic parameter of right ventricle with prognosis of heart failure and cardiac events.

Materials-Methods: The study followed up 132 patients admitted to our hospital outpatient clinic between April 2011 - November 2012 with diagnosis of advanced stage heart failure, (104 male, 28 female and age 24-81 years). The patients were searched retrospectively and patients called by phone for ascertain of prognosis. All patients’ medical history, demographic characteristics, cardiovascular risk factors, comorbid illnesses, New York Heart Association functional class, echocardiographic evaluations and basal right heart catheterizations were performed were detected. The relation of RV SWI values with ventricular assist device insertion, heart transplantation, cardiac resynchronization therapy, rehospitalisation due to decompensation composite end-points and with mortality were evaluated. Advanced stage heart failure was defined as ejection fraction < 35% with symptoms and/or signs of heart failure.

Results: In our study, 34 of 132 patients needed to rehospitalization due to cardiac decompensation, 14 increased significantly (p<0.001) the patients with cardiac decompensation right ventricular"stroke work index" 6.1 ±2.5 gr/m2/beat and 8.5±3.4 gr/m2/beat in the group without decompensation. Ischemic heart failure etiology in patients with cardiac decompensation were less frequently (p=0.035), smoking rates were higher (p=0.006) and concomitant diseases were more frequently (p=0.035) than of patients without cardiacldecompensation. Medication using frequency were significantly lower in the group with cardiac decompensation than without decompensation. During 20 months follow-up, total mortality was observed in 18 (13.6%) patients. The relation between RV SWI and mortality did not reach statistical significance (p=0.773). In patients who died, mean RV SWI value was 7.5±3.4 gr/m2/beat, those who survived had RV SWI mean value 8.0±3.4 gr/m2/beat. The left ventricular ejection fraction (p<0.001) and right ventricular systolic diameter (p<0.001) had statistically significant relation with mortality. In patients who survived without cardiac events RV SWI value was significantly different from those who survived with cardiac events (p=0.003), indicating that decreased RV SWI is associated with increased cardiac event rates among patients with advanced stage heart failure.

Conclusion: Right ventricular stroke work index is a predictor of event free survival among patients with advanced stage heart failure. Our study did not support RV SWI as single parameter of predictor of mortality. Risk models consisting of invasive, non-invasive and clinical parameters should be developed for prediction of all-cause mortality in advanced stage heart failure.

PP-063
Ivabradine has no Effect on Cardiac Arrhythmias Observed During Dobutamine Infusion: A Comparative Study with β Blocker Therapy
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Eskisehir Osmanagazi University, Eskisehir

Purpose: Ivabradine is a novel heart rate (HR) lowering agent acting by inhibiting the If current in the sino-atrial node and has been shown to improve clinical outcomes in chronic heart failure (HF). Inotropic stimulation with dobutamine (DOB) has been known to increase HR and the incidence of cardiac arrhythmias in patients with HF. However, the effects of ivabradine specifically on cardiac arrhythmias are unknown. In this prospective study, we compared the effects of ivabradine treatment with β blocker therapy on the increase in HR and incidence of ventricular arrhythmias during DOB infusion using Holter monitoring.

Methods: Sixty nine patients with acute decompensated HF requiring intravenous support, LVEF <35% and in sinus rhythm were included in the present study. All patients underwent Holter recording for 6 h before the initiation of DOB infusion. Following baseline recording, DOB was administered at incremental doses of 5, 10 and 15 gr/kg/min, with 6-h steps. Holter monitoring was continued during 18 h of DOB infusion. Ivabradine 7.5 mg was given at the initiation of DOB and readministered at 12 h of DOB infusion in 26 patients not receiving β blocker therapy (ivabradine group). 15 patients under β blocker therapy (β blocker group) and 28 patients not taking β blocker therapy (control group) did not receive ivabradine during DOB infusion. Holter recordings were analyzed for change in HR, the median number of ventricular premature contractions (VPC), ventricular couplets, episodes of non-sustained ventricular tachycardia (NSVT) and total ventricular arrhythmia for each step of study protocol.

Results: Mean HR gradually and significantly increased at each step of DOB infusion in both control (81±11, 90±16, 97±14 and 101±16 respectively, p<0.001) and β blocker groups (75±13, 82±15, 86±14 and 88±15 respectively, p<0.001), while no significant increase in HR was observed in ivabradine group (82±17, 82±15, 85±14 and 83±12 respectively, p=0.439). The median number of VPCs, ventricular couplets and total ventricular arrhythmia significantly increased in ivabradine group (p<0.001, p<0.003 and p<0.015, respectively). In control group, VPCs and total ventricular arrhythmia increased significantly (p=0.01 and p=0.018, respectively). However, in β blocker group, no statistically significant increase was found in VPCs, couplets and total ventricular arrhythmias (Table). The incidence of NSVT did not significantly change in three groups.

Conclusion: Ivabradine effectively prevents HR increase during DOB infusion, however, it has almost no effect on DOB-induced ventricular arrhythmias. In contrast, β blocker therapy fails to blunt DOB-induced increase in HR, but it prevents DOB-induced increase in ventricular arrhythmias.
Cardiac arrhythmias during dobutamine infusion

<table>
<thead>
<tr>
<th>VPCs Control</th>
<th>VPCs lidocaine</th>
<th>VPCs B blocker</th>
<th>Total Antihypertensive Control</th>
<th>Total Antihypertensive lidocaine</th>
<th>Total Antihypertensive B blocker</th>
</tr>
</thead>
<tbody>
<tr>
<td>Baseline</td>
<td>149 (42.340)</td>
<td>132 (23.271)</td>
<td>45 (7.246)</td>
<td>128 (43.322)</td>
<td>158 (48.312)</td>
</tr>
<tr>
<td>D08 5 µg/kg/min</td>
<td>256 (55.508)</td>
<td>147 (30.638)</td>
<td>22 (11.44)</td>
<td>258 (58.469)</td>
<td>205 (55.722)</td>
</tr>
<tr>
<td>D08 10 µg/kg/min</td>
<td>251 (57.649)</td>
<td>158 (47.688)</td>
<td>96 (7.420)</td>
<td>241 (59.446)</td>
<td>226 (11.739)</td>
</tr>
<tr>
<td>D08 15 µg/kg/min</td>
<td>208 (44.446)</td>
<td>196 (47.030)</td>
<td>123 (21.634)</td>
<td>212 (45.438)</td>
<td>261 (74.495)</td>
</tr>
</tbody>
</table>

p (2-tailed) 0.00 0.00 0.01 0.01 0.015 0.015 0.012

Results: %63.8 of the patients were male and mean age was 61.70±11.75. 39 patient had left ventricular systolic dysfunction and the average LVEF was %26.6±7.19. All patients, in-hospital mortality was %6.3, 1-month mortality rate was %4.5 and in this duration hospital readmission rate was %63.18. There was a significant fold change (>2 fold) between the patients miR-22, miR-24 and miR-92b levels and the control group. However, the significant changes in miRNA, both in low and preserved left ventricular systolic function or in terms of etiology of HF showed no difference. Similarly, there was no correlation between the ΔCt values in terms of in-hospital and short-term cardiovascular endpoints.

Conclusion: Although there was a significant fold change in miRNA levels in patients hospitalized for ADHF, it did not correlate with the clinical endpoints analysed with ΔCt values.

### Table 1. Some characteristics of HF patients

<table>
<thead>
<tr>
<th>Age (mean)</th>
<th>Gender (m/f)</th>
<th>BMI</th>
<th>HT</th>
<th>HLP</th>
<th>DM</th>
<th>LVEF (all HF group's average)</th>
<th>SVEF (LVD group)</th>
<th>PEF-RY (n)</th>
<th>DEF-RY (n)</th>
</tr>
</thead>
<tbody>
<tr>
<td>61.70±11.75</td>
<td>30 / 17</td>
<td>28.07</td>
<td>21 (%44.7)</td>
<td>35 (%74.5)</td>
<td>29 (%67.1)</td>
<td>%30.4±10.4</td>
<td>%26.6±7.19</td>
<td>8 (%97)</td>
<td>39 (%83)</td>
</tr>
</tbody>
</table>

HF: Heart failure, BMI: body mass index, HT: hypertension, HLP: hyperlipidemia, DM: diabetes mellitus, LVEF: left ventricle ejection fraction, SVEF: preserved ejection fraction, LVP: left ventricle pressure

### Table 2. miRNA expression fold changes

<table>
<thead>
<tr>
<th>miR-22</th>
<th>miR-24</th>
<th>miR-92b</th>
</tr>
</thead>
<tbody>
<tr>
<td>According to the normal at admission</td>
<td>-2.39 f</td>
<td>-1.23 f</td>
</tr>
<tr>
<td>According to the normal at discharge</td>
<td>-2.07 f</td>
<td>-1.59 f</td>
</tr>
<tr>
<td>miRNA (miR): microribonucleic acid</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Results: A total of consecutive 419 patients with a mean age of 57.9±14.4 years (age range, 18-96 years) admitted with the symptoms of heart failure and/or with risk factors for heart failure were included in the study. Beck's anxiety inventory including 21 evaluation sentences was applied to all study participants to measure the level and severity of anxiety symptoms of persons. Measured total scores were used to grade the severity as minimal, mild, moderate, and severe.

### Background

Anxiety disorders are most common encountered psychiatric disorders. There is no data regarding the relationship between this widely seen situation and heart failure stage/symptom class.

### Aim

The aim of this study is to evaluate the relationship between various stages of anxiety disorders and heart failure stages/symptom classes.

### Methods

A total of consecutive 419 patients with a mean age of 57.9±14.4 years (age range, 18-96 years) admitted with the symptoms of heart failure and/or with risk factors for heart failure were included in the study. Beck's anxiety inventory including 21 evaluation sentences was applied to all study participants to measure the level and severity of anxiety symptoms of persons. Measured total scores were used to grade the severity as minimal, mild, moderate, and severe.

### Results

Two hundred and nineteen patients (52.3%) were male, 247 (58.9%) had hypertension, 139 (33.2%) had diabetes, and 248 cases (59.2%) had coronary heart disease. Stage A heart failure was present in 113 patients (27.0%), stage B in 119 patients (28.4%), stage C in 116 patients (27.7%), and stage D in remaining 71 cases (16.9%). With regard to NYHA classification, 228 patients (54.4%) had class I symptoms, 101 (24.1%) had class II symptoms, 31 (7.4%) had class III symptoms, and class IV symptoms were found in remaining 59 patients (14.1%). The mean left ventricular ejection fraction of all population was 54.2% ± 12.4 and the mean Beck's anxiety score was 13.4±19.0. Neither heart failure stages nor symptom classes were found to be statistically different among 4 study groups regarding anxiety scores and severity (all p>0.05) (table).

### Conclusion

There was no association between heart failure stage/class and anxiety score/severity in a wide population of heart failure patients.

### PP-066

The Relationship between Heart Failure Stage/Symptom Class and Anxiety

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1Faculty of Medicine Department of Cardiology, Ankara, 2Ankara Training Hospital, Ankara

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