P1819
Impact of comorbidities on the predictive value of cardiac MIBG imaging in patients admitted for acute decompensated heart failure: a prospective comparative study

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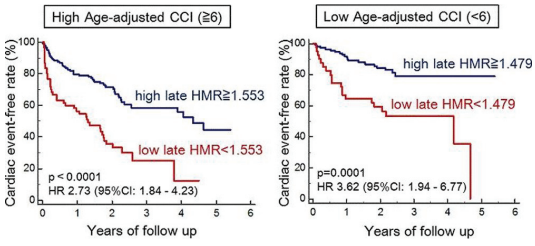
Background: Comorbidities are associated with poor clinical outcome in patients with chronic heart failure, and cardiac MIBG imaging also provides prognostic information in patients with heart failure. However, there is no information available on the impact of comorbidities on the prognostic value of cardiac MIBG imaging in patients admitted for acute decompensated heart failure (ADHF).
Methods: We studied 354 consecutive ADHF patients with survival discharge. Comorbidity was measured with the Age-adjusted Charlson comorbidity index (ACCI) which is commonly used for the evaluation of the comorbid condition which is weighted and scored, with additional points added for age. Cardiac MIBG imaging were performed just before discharge and the cardiac MIBG heart-to-mediastinum ratio (late HMR) were measured on the delayed image. The endpoint was cardiac event defined as a composite of cardiac death and unplanned hospitalization for worsening heart failure.
Results: During a follow-up period of 2.1±1.4 years, 133 patients had cardiac event. At multivariate Cox analysis, ACCI (p=0.0003) and late HMR (p=0.0001) were significantly and independently associated with cardiac event. Patients with high ACCI (≥6: median value) had a significantly greater risk of cardiac event (47% vs 26%, p=0.0001, adjusted HR 2.22 [1.54–3.23]). In the subgroup of high ACCI≥6, patients with low late HMR (<1.55 determined by ROC analysis) had a significantly greater risk of cardiac event (68% vs 37% p<0.0001, adjusted HR 2.73 [1.84–4.23]). Furthermore, in the subgroup of low ACCI<6, patients with low late HMR (<1.48 determined by ROC analysis) also had a significantly greater risk of the cardiac event (54% vs 26%, p=0.0001, adjusted HR 3.62 [1.94–6.77]).



Conclusions: The prognostic value of cardiac MIBG imaging is not affected by comorbidities and cardiac MIBG imaging provide prognostic information even in patients admitted for ADHF, irrespective of comorbidity burden.

P1820
Evidence-based medication among patients with heart failure and diabetes mellitus - a nationwide study

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Background: Presence of diabetes mellitus (DM) carries a poorer prognosis in patients with heart failure (HF). Little is known whether under treatment of HF medication may contribute to worse prognosis in DM patients.
Purpose: To evaluate use of beta-blockers (BB) and renin-angiotensin system inhibitors (RASi) in stable HF patients with and without DM.
Methods: Using nationwide administrative registries, all patients discharged between 2010–2015 following first-time hospitalization for HF were categorized according to DM status. At 6 months, in patients alive, dosages of BB and RASi treatment were estimated as "target dose" (100% of target dose), "suboptimal" (75–99% of target dose), "low dose" (1–49% of target dose) and "no use". HF severity was defined by furix dosage in two groups: as mild (≤80 mg daily) or severe (>80 mg daily). Logistic regression models were used to predict reaching target/suboptimal treatment dosage in patients with DM.
Patients were then followed for 5 years after HF diagnosis to evaluate risk of overall death. Cox regression models adjusted for baseline comorbidities were used to estimate mortality risk.
Results: A total of 38,745 patients were included. 28% (n=8,497) with DM and median follow-up time was 1467 days and 1415 days (p<0.001) for patients with non DM and DM respectively. Patients with DM were younger (median age 73 (IQR(15)) versus 74 years (IQR(18)) and more often males (64% versus 58%) compared to non-DM patients. In the total HF population BB and RASi comprised 67% and 51%, respectively but only 38% and 41% reached target/suboptimal dosages of BB and RASi, respectively.

Table: Use and dosages of beta-blockers (BB) and renin-angiotensin system inhibitors (RASi) among heart failure (HF) patients with and without diabetes mellitus (DM)

	Total HF population		Mild HF		Severe HF	
No. (%)	Non-DM	DM	Non-DM	DM	Non-DM	DM
	30,248 (100)	8,497 (100)	25,350 (100)	6,529 (100)	4,898 (100)	1,968 (100)
Using BB*	20,052 (66)	5,839 (69)	16,868 (67)	4,479 (69)	3,184 (65)	1,360 (69)
Target dose*	6,116 (20)	1,103 (13)	2,932 (12)	890 (14)	513 (11)	213 (12)
Suboptimal dose*	5,806 (19)	1,875 (22)	4,916 (19)	1,469 (23)	890 (18)	406 (21)
Low dose*	10,801 (36)	2,852 (34)	9,020 (36)	2,111 (32)	1,781 (36)	741 (38)
Not using BB*	10,196 (34)	2,658 (31)	8,482 (33)	2,059 (32)	1,714 (35)	608 (31)
Using RASi	15,204 (50)	4,367 (51)	12,805 (51)	3,337 (51)	2,399 (49)	1,030 (52)
Target dose	5,517 (18)	1,588 (19)	4,721 (19)	1,229 (19)	796 (16)	359 (18)
Suboptimal dose	6,731 (22)	1,920 (23)	5,762 (23)	1,483 (23)	969 (20)	437 (22)
Low dose	2,956 (10)	859 (10)	2,322 (9)	625 (10)	634 (13)	234 (12)
Not using RASi	15,044 (50)	4,130 (49)	12,545 (50)	3,192 (49)	2,499 (51)	938 (48)

* p value <0.05

BB use was more pronounced in patients with DM, irrespective of HF severity, while use of RASi was more pronounced in DM and severe HF (Table). Reaching target/suboptimal treatment dosage was more likely in DM for BB (Odds ratio 1.16 [95% confidence interval (CI) 1.08–1.25]) but not for RASi (Odds ratio 0.99 [95% CI 0.93–1.06]) compared to non-DM. The mortality risk was higher in patients with DM compared to non DM (hazard ratio 1.30 [95% CI 1.25–1.35])
Conclusion: Less than half of contemporary real-life HF patients reached target/suboptimal dosages at 6 months. Presence of DM did not seem to be associated with less use of evidence-based HF medication. Contrary, use of BBs is noticeable in diabetic HF patients. Altogether, this suggests that the increased mortality seen in patients with DM and HF compared to HF alone is not explained by systematic underuse of recommended HF medication.

P1821
The effect of beta-adrenergic blockade on weight change and mortality in patients with chronic heart failure

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Background: Weight loss is common in patients with chronic heart failure (CHF) and is associated with adverse outcome. Activation of the sympathetic nervous system has been implicated in weight loss, wasting and cachexia. However, the effect of sympathetic antagonism on weight change in patients with CHF is not well defined.
Methods: We evaluated changes in body weight, the incidence of cachexia (weight loss >6%) and significant weight gain (>5%) in unselected patients with CHF due to left ventricular systolic dysfunction (LVSD) (LV ejection fraction (LVEF)<40%) and studied the effect of beta-blockade on weight change.
Results: Of the 1480 patients enrolled (median NTproBNP:1651ng/L, median LVEF:31%), 86% received beta-blocker, 11% never had beta-blocker and 3% discontinued beta-blocker between baseline and 1 year.
Patients who did not have or tolerate beta-blocker were more likely to develop cachexia (23% vs 10%, p<0.001) and less likely to have significant weight gain (22% vs 24%, p<0.001) than patient who had beta-blocker.
During a median follow up of 1876 days (IQR: 993–3052 days), 894 (60%) patients died. Higher body mass index (BMI) at baseline, weight gain and beta-blocker therapy were associated with better outcome. Patients who had all 3 features: beta-blocker therapy, baseline BMI ≥25 and significant weight gain had the best outcome (2% mortality at 1 year (Table 1) and 22% mortality at 5 years (table not shown)).
Conclusion: Patients with CHF due to LVSD who receive beta-blocker were less likely to develop cachexia and more likely to have significant weight gain and better outcome compared to patients who did not receive or tolerate beta-blocker.

P1822
ACE genetic polymorphisms and echocardiography findings on ischemic heart failure

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Background: Angiotensin converter enzyme (ACE) genetic polymorphisms and

Abstract P1821 – Table 1. Percentage 1 year mortality in patient with HeFREF according to categories of weight change, BMI and beta-blocker therapy

		Weight change & BMI categories					
		BMI≥25			BMI<25		
		Weight gain >5%	Weight change –6% to +5%	Weight loss >6%	Weight gain >5%	Weight change –6% to +5%	Weight loss >6%
Beta-blocker treatment	BL & 1y: BB	2% (N=132)	3% (N=455)	8% (N=67)	5% (N=80)	6% (N=146)	15% (N=26)
	BL: no BB; 1y: BB	4% (N=55)	6% (N=151)	8% (N=36)	6% (N=52)	8% (N=60)	15% (N=13)
	BL & 1y: no BB	5% (N=19)	13% (N=70)	11% (N=27)	17% (N=18)	14% (N=21)	18% (N=11)

BL = baseline, 1y = 1 year, BB = betablocker, BMI = body mass index.

different clinical and echocardiographic outcomes in patients with heart failure (HF) and coronary disease have been described. A study of the genetic profile of a population with these two diseases is needed in order to ascertain the occurrence of this association.
Objectives: To evaluate the frequency of ACE genetic polymorphisms among HF patients with ischemic etiology in a population in our city and its association with echocardiography findings.
Methods: Genetic evaluation of I/D ACE polymorphism together with an analysis of clinical, laboratory and echocardiography data for 99 patients.
Results: The findings were: 53 I alleles and 145 D alleles, with 49.5% DD, 47.48% DI and 3.02% II for the ACE genotypes. Medical treatment was optimized, with 98% of the patients on betablockers and 84.3% taking ACEi or ARB. Echocardiography findings: difference between the left ventricle diastolic diameters (ΔLVD): 2.98±8,94 (DD) vs. 0.68±8,12 (DI) vs. -11±7.00 (II), p=0.018; progressive deterioration of the: LV systolic diameter: 65.3% DD vs. 19% DI vs. 0% II, p=0.01; LV diastolic diameter: 65.3% DD vs. 46.8% DI vs. 0% II, p=0.03; and ejection fraction: 67.3% DD vs. 40.4% DI vs. 33.3% II, p=0.024.Correlation with D allele: ΔEF, ΔLVS, ΔLVD.
Conclusions: There was a statistically significant association between ACE genetic polymorphism and echocardiographic findings. More patients were identified with progressive deterioration of the ejection fraction and LV cavity diameters for the DD genotype, followed by ID, with II as the best. The same pattern was noted in the difference between the LV diastolic diameters.

P1823
Malnutrition and its association with congestion in chronic heart failure

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Background: Mechanisms leading to malnutrition in chronic heart failure (CHF) are not fully understood. CHF is a condition characterised by systemic venous congestion. We hypothesized that malnutrition in CHF is related to right heart dysfunction and congestion which predispose to bowel oedema and malabsorption, thereby leading to malnutrition.
Methods: We assessed malnutrition using the geriatric nutritional risk index (GNRI) and studied its association with congestion, assessed either clinically or by echocardiography, in a large cohort of patients referred to a community CHF clinic.
Results: Of the 1058 patients enrolled, CHF was confirmed in 952 (69% males, median age 75 (interquartile range (IQR):67–81) years, median NTproBNP 1141 (IQR: 465–2562) ng/L). 39% had HF with reduced (HeFREF, LVEF<40%) and 61% had HF with normal (HeFNEF, LVEF≥40% and NTproBNP>125 ng/l) left ventricular ejection fraction.
Overall, 14% of patients were malnourished (GNRI ≤98). Clinical evidence of congestion, increasing right atrial pressure (RAP) and pulmonary artery pressure and right ventricular systolic dysfunction (RVSD) on echocardiography were associated with malnutrition. Addition of congestion variables to a model comprising of age and NTproBNP did not improve discrimination between malnourished and non-malnourished patients.
During a median follow-up of 1683 days (IQR: 1096–2230 days), 461 (44%) patients died. Malnutrition was an independent predictor of mortality. Patients who were malnourished with both RVSD and increased RAP had 6-fold increased risk of mortality compared to non-malnourished patients without RVSD and had normal RAP (Figure 1).

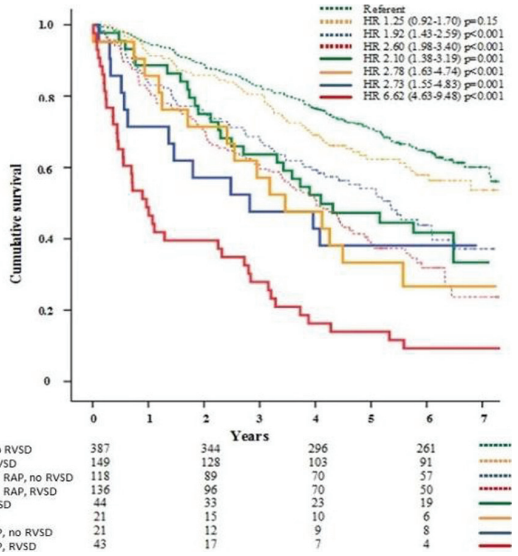

Figure 1

Conclusion: Malnutrition and congestion are modestly correlated and each is independently associated with increased mortality in patients with CHF.

P1824
Prognostic impact of AHEAD risk score in patients with acute decompensated heart failure: a prospective comparative study with the age-adjusted Charlson comorbidity index

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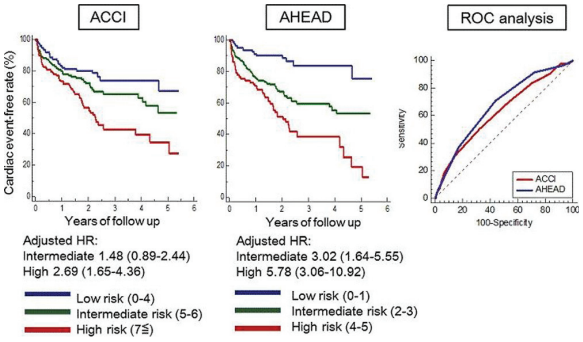
Background: Comorbidities are strongly associated with poor clinical outcome in heart failure patients. However, there are few risk models to evaluate comorbidities. The age-adjusted Charlson comorbidity index (ACCI), which is well-known widely used comorbidity index, recently has been used as a robust prognostic model in heart failure patients. On the other hand, AHEAD (A: atrial fibrillation; H: hemoglobin; E: elderly; A: abnormal renal parameters; D: diabetes mellitus) score has been recently reported as a useful long-term risk stratification score in acute decompensated heart failure (ADHF) patients. We aimed to compare the prognostic value of ACCI and AHEAD score in ADHF patients.
Methods: We prospectively studied 376 consecutive ADHF patients with survival discharge. ACCI contains 19 issues including diabetes with diabetic complications, mild and severe liver disease, hemiplegia, renal disease, metastatic tumor, also congestive heart failure which was weighted according to their potential influence on mortality. AHEAD risk score is a simple index, which is range 0–5; atrial fibrillation, hemoglobin <13 mg/dL for men and 12 mg/dL for women, age >70 years, creatinine >130 μmol/L, and diabetes mellitus. The endpoint of this study was a composite of cardiac death and unplanned hospitalization for worsening heart failure (cardiac event).
Results: During a follow-up period of 2.0±1.4 years, 137 patients had cardiac event. At univariate Cox analysis, ACCI and AHEAD were significantly associated with cardiac event. At multivariate Cox analysis, AHEAD, but not ACCI, was significantly and independently associated with cardiac event after adjustment of BMI, serum albumin, sodium, chloride, blood urea nitrogen, and plasma BNP level. Kaplan-Meier survival curve analysis revealed a significantly increased risk of cardiac event stratified by the tertile of AHEAD score (57% vs 37% vs 15%, p<0.0001). ROC analysis showed AUC of AHEAD was greater than that of ACCI (0.679 [0.586–0.686] vs 0.637 [0.629–0.725], p=0.095).



Conclusion: AHEAD risk score is a simple and more useful risk stratification index than ACCI in ADHF patients.

P1825
R2CHADS score - better than CHA2DS2-VASc as a predictor of mortality in the patients with heart failure

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Introduction: CHA2DS2-VASc and R2CHADS scores were developed for the cardioembolic risk evaluation of the patients with atrial fibrillation (AF). Recently, CHA2DS2-VASc score was proposed as a predictor of cardiovascular events and mortality in these patients. Our objective is to compare the utility of these two scores as predictors of mortality in the heart failure patients with or without AF.
Methods: We retrospectively included the patients with age >18 years with diagnosis of heart failure with reduced or preserved left ventricular ejection fraction (LVEF) consecutively hospitalized in our clinic between January 1st 2011 and December 31st 2014. We excluded the patients deceased during hospitalization, with pulmonary embolism or acute coronary syndrome and pregnant women. The mortality was evaluated in January 2017, the survival being analyzed over a period of 46±5 months.
Results: Our study included 805 patients of which 54.4% were female and 38.1% had AF. The median CHA2DS2-VASc was 4 (2; 6), and R2CHADS 3 (1; 8). The mortality rate was 35.1%.
Both scores were directly correlated with NYHA class (r=0.569, p<0.001; r=0.526,