1.86 m/s. Adverse events were more frequently observed in patients with high liver stiffness (≥1.86 m/s) when compared to those with low liver stiffness (<1.86 m/s) (Figure B). Multivariable Cox regression analyses revealed that higher liver stiffness was independently associated with increased subsequent risk of adverse events (hazard ratio 1.71, 95% confidence interval 1.08–2.70) even after adjustment by predetermined covariates including age, sex, body mass index, New York Heart Association functional class, systolic blood pressure, estimated glomerular filtration rate, serum sodium, and plasma B-type natriuretic peptide.

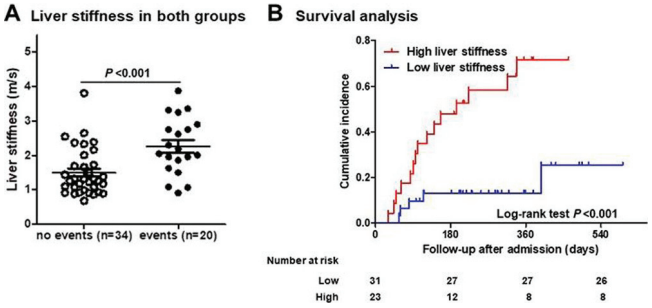

Figure 1

Conclusions: In ADHF patients, high liver stiffness assessed by the virtual touch quantification was an independent determinant of worse clinical outcomes. These findings suggest that this non-invasive technique for evaluating liver stiffness on admission is useful for the risk stratification of patients with ADHF.

P2813
Cumulative different type of frailty is associated with poor prognosis in patients with heart failure

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Background: A frailty is a common and serious complication in heart failure (HF) patients. However, cumulativeness of physical, social or cognitive frailty in HF patients have not been described.
Purpose: The purpose of this study is to identify the association of cumulative different type of frailty in acute heart failure (AHF) and following outcomes.
Methods: We have enrolled 1253 patients with AHF in the Kitakawachi Clinical Background and Outcome of Heart Failure Registry (KICKOFF Registry; 13 hospitals in Kitakawachi, Osaka, Japan) from April 2015 to January 2017. The KICKOFF Registry is a prospective multicenter community-based cohort of HF patients. Six months follow-up data were available for 929 inpatients. We defined physical frailty as impossible outdoor walking, social frailty as living alone, and cognitive frailty as dementia. We divided into three groups, no frail group (n=373), one frail group (n=375) and cumulative frail group (two or three frailties; n=181). We compared the clinical characteristics and outcomes between three groups. We defined outcomes as hospitalization of HF and major adverse cardiac and cerebrovascular event (MACCE).
Results: The cumulative frail group was older, more in female, had lower body mass index than the other groups. They had more history of major bleeding and stroke, but there was no significant difference in other co-morbidities. In the Kaplan-Meier analyses, hospitalization for HF and MACCE progressively increased from no frail to one and cumulative frail group (Figure). After adjustment by gender, age, and the other co-morbidities in multiple logistic regression models, cumulative frailty was independently associated with higher hospitalization for HF and MACCE (adjusted hazard ratio, 1.40; 95% confidence interval, 1.04–1.88; p=0.03 and 1.73; 1.34–2.22; p<0.01, respectively).

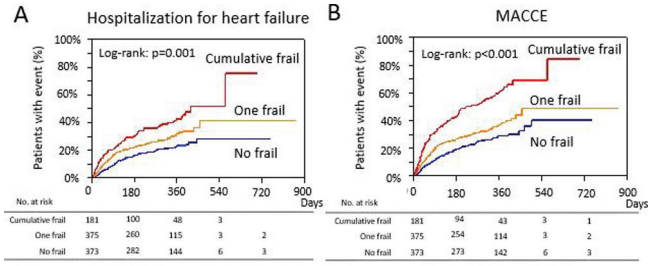

Figure. Kaplan-Meier curves for the incidences of hospitalization for heart failure (A) and MACCE (B).
Figure: K-M Cumulative different frailty

Conclusion: Cumulative different frailty has independently prognostic impact in HF patients. Thus, we should make good use of social resources or other person's help especially in HF patients with cumulative different type of frailties to improve outcomes.

P2814
New-onset (De-Novo) acute heart failure versus acute decompensated chronic heart failure: differences in early intermediate and long-term mortality

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Background: It is unclear how hospitalized patients with acute heart failure (AHF) who are previous long-term chronic Heart failure survivors (ADCHF) differ from those with new-onset (de-novo) AHF.
Purpose: To assess the differences in early, intermediate, and long-term outcomes between hospitalized patients with AHF who are ADCHF and those with de-novo AHF.
Methods: We analyzed data of 2328 patients with AHF, who were enrolled in the heart failure survey in Israel. The study patients were classified into de- novo AHF and ADCHF. Multivariable analysis was used to determine the association between HF type and 1-year and 10-year all-cause mortality.
Results: 721 (31%) patients were classified as de novo AHF, 1607 (69%) patients were classified as ADCHF. At 30 days mortality rates were similar among both groups (9% among de-novo AHF, 8% among ADCHF). Survival analysis showed that at 1 year the rate of all-cause mortality was significantly higher among patients with ADCHF (33%) compared to those with de-novo AHF (22%); (log rank P<0.001). similarly at 10 year all-cause mortality rates among patients classified as ADCHF were (90%), whereas among those with de-novo AHF (72%); (log rank P<0.001).
Consistently multivariable analysis showed that compared to patients with de-novo AHF, patients with ADCHF had an independently 58% and 48%, higher mortality risk at 1and 10 year of follow-up respectively, (1 year HR= 1.58; 95% CI 1.05–2.38,P=0.03; 10 year HR= 1.48; 95% CI= 1.23–2.77; P<0.001).
Conclusions: The long term prognosis after hospitalization for AHF is poor, with a significantly different survival observed in patients with de-novo AHF compared to ADCHF. A previous history of heart failure is an independent predictor of 1year and 10 year mortality. Distinction between ADCHF and de-novo AHF may improve our understanding of patients with AHF.

P2815
The prognostic impact of delirium in patients with acute decompensated heart failure

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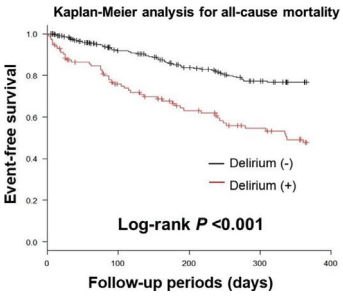
Background: Delirium is commonly observed in critically ill patients. Previous study has shown that the development of delirium during intensive care unit (ICU) stay is associated with adverse events in critically ill patients. However, the prognostic impact of delirium and its determinants have not been fully investigated in patients with acute decompensated heart failure (ADHF).
Purpose: The purpose of this study was to investigate the relationship between delirium and outcomes.
Methods: We enrolled 412 consecutive patients admitted to ICU of our hospital due to ADHF (79±12 years, 219 males). Delirium was diagnosed based on Confusion Assessment Method for ICU (CAM-ICU) and evaluated at least three times per day during ICU stay. Echocardiography and laboratory measurement were performed on admission. Logistic regression analysis was used to assess the predictors of in-hospital mortality and the determinants of development of delirium. The log-rank test and cox proportional hazards regression model were used to assess the survival rate and the predictors of one-year all-cause mortality.
Results: The mean duration of follow-up was 359 days. Delirium developed in 113 patients (27%) during ICU stay. Patients with delirium were older (85 years vs. 79 years for patients with delirium vs. patients without delirium, respectively, p<0.001). However, there were no significant differences between two groups in terms of left ventricular ejection fraction (40.2% vs. 39.5%) and B-type natriuretic peptide (943 pg/mL vs. 702 pg/mL). Twenty-four patients died during hospitalization and the incidence of in-hospital mortality was significantly higher in patients with delirium (13.6% vs. 3.0%; p<0.001). Multivariate logistic regression analysis showed that delirium was an independent predictor of in-hospital mortality (Odds ratio [OR]: 4.7; 95% Confidence interval [CI]: 1.4–16.1; p=0.01). In Kaplan-Meier



analysis, the incidence of one-year mortality was significantly higher in patients with delirium (44.2% vs. 19.4%; p<0.001 for log-rank) (Figure). Cox proportional hazards regression model showed that delirium was an independent predictor of one-year mortality. (Hazard ratio: 2.7; 95% CI: 1.7–3.0; p<0.001). Furthermore, age (OR: 1.1; 95% CI: 1.04–1.12; p<0.001), dementia (OR: 9.7; 95% CI: 5.2–18.1; p<0.001) and history of cerebral infarction (OR: 2.7; 95% CI: 1.2–6.0; p=0.01) were extracted as independent determinants of development of delirium in multivariate logistic regression analysis.
Conclusions: In patients with ADHF, the development of delirium during ICU stay is associated with short- and long-term mortality, thus early screening and careful monitoring of delirium may be important.

P2816
Left atrial volume is an independent predictor of outcome in a large asian cohort with acute heart failure

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Background: Increased left atrial volume index (LAVI) is a recognized marker of diastolic dysfunction and chronic elevated left ventricle (LV) filling pressure. There is a paucity of data on the prognostic value of LAVI in the Asian population. Therefore, we assessed the capacity of LAVI to predict outcome in Asian patients admitted with acute heart failure (HF).
Methods: We conducted a retrospective study using the Singapore Cardiac Databank HF Registry. 6304 index admissions of acute HF between 1st January 2008 and 31st December 2013. Patients with atrial fibrillation (AF) were excluded from the study as AF was known to be a confounding effect on left atrial size. Raised LAVI and reduced LV systolic function were defined as >34ml/m^2 and LV ejection fraction (LVEF) <50% respectively. Cox regression was used in the follow up analysis of outcome which included death or hospital admission with HF.
Results: Of the remaining 2005 sinus rhythm patients with median follow-up of 498 days (IQR 148 to 905), 1066 (53.2%) were died or re-admitted to hospital with heart failure (HF). The univariate predictors of outcome were age (p=0.013), diabetes (p<0.001), previous myocardial infarction (p<0.001), previous stroke (p=0.008), systolic blood pressure (p<0.001), renal failure (p=0.012), LVEF<50% (p<0.001), LAVI>34ml/m^2 (p<0.001), mitral E/e' (p<0.001), lateral and septal systolic S' wave (p<0.001). On multivariate analysis, LAVI, LVEF, increasing age and diabetes were found to be the most consistent and significant predictors of outcomes (Table 1). A raised LAVI predicted higher rates of death or HF readmissions (60.7% vs 43.3%, Figure 1) compared to those with normal LAVI (log rank p<0.001).

Multivariable Cox Regression Analysis

Variables	All-Cause Mortality or Heart Failure Rehospitalisation	
	Adjusted Hazard Ratio [95% CI]	p-value
Age	1.01 [1.00, 1.02]	0.017
Diabetes	1.38 [1.13, 1.68]	0.002
LVEF		
≥50% (ref)	1	0.04
<50%	1.28 [1.01, 1.63]	
LA Volume Index		
≤34 ml/m^2 (ref)	1	0.01
>34 ml/m^2	1.30 [1.06, 1.60]	

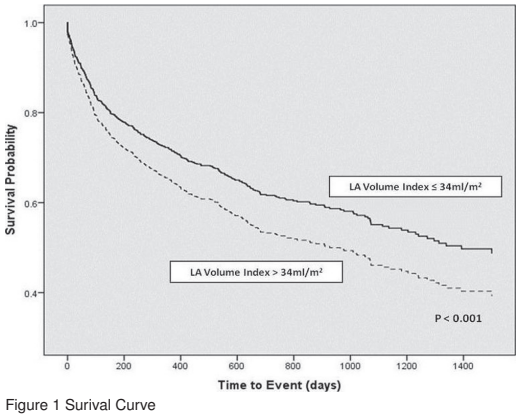

Figure 1 Surival Curve

Conclusion: This data confirms that LAVI on resting echocardiography, specifically in sinus rhythm HF patients is a powerful independent predictor of outcomes in a large, contemporary acute Asian HF cohort.

P2817
Assessment of frailty diagnosed by simple index in hospitalized acute heart failure patients

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Background: Recently, the increased prevalence of heart failure in the elderly has become a major public health problem. Although frailty is abundant in elderly patients with heart failure, the most appropriate index to define frailty in consideration of the prognosis is not to be elucidated. Recent reports have identified that a parsimonious frailty index (Study of Osteoporotic Fractures [SOF] index) using 3 components (weight loss, inability to rise from a chair five times without using the arms, and poor energy) is comparable to other previously established indexes in the prediction of frailty.
Purpose: The aim of the study was to examine an association of the SOF index with 1-year all-cause mortality in hospitalized patients with acute heart failure.
Methods: We enrolled a total of 399 consecutive subjects who were admitted for acute heart failure between July 2015 and January 2017. Frailty was defined by the SOF index at hospital admission identified by the presence of 2or more of the 3 components. We calculated the net reclassification improvement (NRI) and the integrated discrimination improvement (IDI).
Results: The average age was 81 (interquartile range 75–86) years, and 53.6% of the subjects was male. The frequency of frailty by the SOF index was 55.6%. The rate of 1-year all-cause mortality was 23.6% (N=94), and was significantly higher in subjects with frailty compared to those with non-frailty (30.6% vs. 14.7%, respectively, P<0.001). In the multivariate Cox proportional hazard analysis, frailty was an independent predictor of 1-year all-cause mortality (hazard ratio 1.47, 95% confidence interval 1.13–1.94, P=0.003). A reference model was determined including left ventricle ejection fraction (odds ratio 15.2, 95% confidence interval 3.36–75.0, P<0.001) and previous heart failure hospitalization (odds ratio 1.89, 95% confidence interval 1.00–3.58, P=0.048) by multivariable logistic regression analysis with P<0.05. Adding frailty to the reference model significantly improved both NRI and IDI (NRI 0.7433, P<0.001; IDI 0.037, P<0.001) compared to the reference model.
Conclusion: Our present results suggest that assessments of frailty using the SOF index at hospital admission could improve the prediction of 1-year all-cause mortality in hospitalized acute heart failure patients. The SOF index is considered simple and convenient, and could be useful for approaching acute heart failure patients individually in the daily clinical practice.

P2818
Incremental prognostic value of plasma volume status and I-123 MIBG imaging in patients admitted for acute decompensated heart failure with reduced or preserved left ventricular ejection fraction

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Background: Increased plasma volume (PV) has been shown to be associated with poor clinical outcome in patients with chronic heart failure (CHF). In addition, cardiac iodine-123 metaiodobenzylguanidine (MIBG) imaging also provides prognostic information in CHF patients. However, there is no information available on the prognostic value of combining plasma volume status (PVS) and cardiac MIBG imaging in patients who are admitted for acute decompensated heart failure (ADHF) with either reduced or preserved left ventricular ejection fraction (LVEF).
Purpose: We sought to evaluate whether PVS and cardiac MIBG imaging predict a poor prognosis in ADHF patients with either reduced LVEF (HFrEF) or preserved LVEF (HFpEF).
Methods: We prospectively studied 353 consecutive patients who were admitted for ADHF and survived to discharge. Body weight measurement, venous blood sampling, echocardiography, and cardiac MIBG imaging were performed just be-

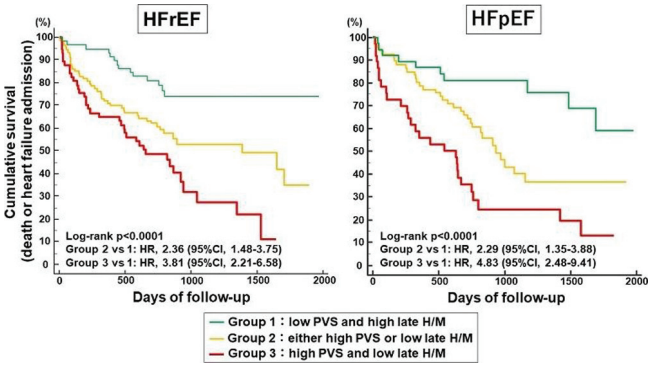

Figure 1