P656 | BEDSIDE
Ability of non-dependent elderly patients hospitalized for heart failure to perform the tasks required for self-care

M.T. Vidan[1], D. Cimera[1], E. Sanchez-Garcia[1], G. Ferreira[1], F.J. Ortiz-Alonso[1], J.A. Serra[1], F. Fernandez-Aviles[2], H. Bueno[2]. *[1]University General Hospital Gregorio Marañon. Department of Geriatrics, Madrid, Spain; [2]University General Hospital Gregorio Maranon, Department of Cardiology, Madrid, Spain*

Purpose: Patients with heart failure (HF) are told to take care of their disease through a number of specific tasks. We aimed to assess the ability to perform the essential tasks needed for a correct self-care in patients with HF.
Methods: Prospective study of patients ≥ 70 years old consecutively hospitalized for HF in the Services of Cardiology, Geriatrics and Internal Medicine. Exclusion criteria were dementia, dependence in >2 over 6 activities of daily living or living in a nursing home. The ability to perform 6 specific tasks used in HF self-care (use of a scale, register own weight, identification of diuretic pills, knowledge about usual salted foods, leg edema identification, and treatment adjustment according to weight change) was tested. Demographic and HF characteristics, social support, health literacy (Realm-r) and European self-care in HF scale were also recorded.
Results: The study population comprised 450 patients aged 80±6 years, 50.4% women, 74% in baseline NYHA I-II class. HF was ischemic in origin in 34.4%, and in 48% with preserved LVEF.
On average, patients could perform 2.9±1.6 of the essential self-care tasks alone, and only 5% could perform the 6 tasks correctly. The rates of correct achievement of the evaluated tasks were: correct use of the scale (63%), identification of diuretic pills (56.9%), registration of own weight (42.4%), identification of usual salted foods (41.6%), identification of leg edema (29.6%), and adjustment of treatment according to weight change (20.7%). Poor self-control was associated with the presence of physical and cognitive impairments and lower health literacy levels.
A previous specific HF-management education was reported by 22.2% of patients, and family or social help for disease control in 38%. However, 51.6% of patients deemed external help unnecessary for HF control.
Conclusions: Most non-dependent elderly patients hospitalized for HF are unable to perform the needed tasks for a correct self-care. The current way of teaching self-care to HF patients may not be useful for the elderly.

P657 | BEDSIDE
Prevalence of frailty in elderly non-dependent patients hospitalized for heart failure, and characteristics of frail patients

M.T. Vidan[1], D. Cimera[1], E. Sanchez-Garcia[1], G. Mendieta[1], F.J. Ortiz-Alonso[1], J.A. Serra[1], F. Fernandez-Aviles[2], H. Bueno[2]. *[1]University General Hospital Gregorio Marañon. Department of Geriatrics, Madrid, Spain; [2]University General Hospital Gregorio Maranon, Department of Cardiology, Madrid, Spain*

Purpose: Frailty is a situation of increased vulnerability to stressors associated with higher mortality risk and quick progression to dependency, which may be reversible. Until recently, frailty diagnosis was not based on objective measures and still is not assessed routinely in cardiac patients. We aimed to describe the prevalence of frailty among elderly patients hospitalized for heart failure (HF), and the specific characteristics of frail patients.
Methods: Prospective study of a cohort of 450 patients aged ≥ 70 consecutively hospitalized for HF in the Services of Cardiology, Geriatrics and Internal Medicine. Exclusion criteria were dementia, living in a nursing home, or dependency in > 2 over 6 activities of daily living. Frailty was defined according to Fried criteria (at least three of these components: exhaustion, unintentional weight loss during the last year, low activity, slow walk and poor grip strength) and measured before discharge. HF characteristics, comorbidity (Charlson index), cognitive function and coexistent acute diseases were also measured.
Results: The prevalence of frailty was 70%, higher in women than in men. Compared with the non-frail, frail patients were older (81±6 vs 78±6 years, p<0.001), had a higher prevalence of hypertensive and lower of ischemic HF (32% and 31% vs 19.1% and 48.3%, respectively, p= 0.01), were more symptomatic (30% vs 13.2% NYHA class III-IV, p<0.001), and had coexistent acute diseases during admission more frequently (67.4% vs 56.1%, p=0.04). Frailty was also associated with poorer cognitive status (clock drawing test: 4.8±3 vs 6.4±3, p< 0.001) and depressive symptoms (GDS: 6.6±3 vs 4±2, p<0.001). On the contrary, there were no differences between groups in LVEF, Nt-proBNP levels, and comorbidity index.
Conclusion: The prevalence of frailty is very high among older patients hospitalized for HF. It is not associated with more severe cardiac disease or greater chronic comorbidity but reflects subtle disabilities and is associated with coexistent acute diseases. The role of frailty in prognosis, and the value of its assessment in HF patients warrant prospective evaluation.

P658 | BEDSIDE
The relationship of tissue Doppler Tei index with invasive hemodynamic parameters in patients with heart failure

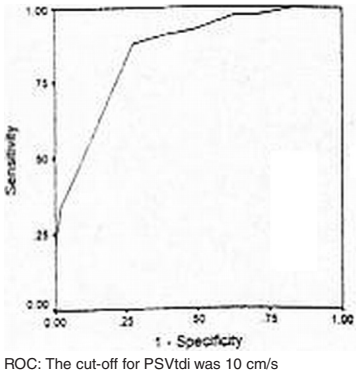
M. Meric, O. Yesildag, S. Yuksel, I. Dursun, M. Arslandag, D. Koprulu, K. Soylu, O. Yilmaz. *Ondokuz Mayis University, Faculty of Medicine, Department of Cardiology, Kurupelit-Samsun, Turkey*

Purpose: The myocardial performance index (Tei index) reflects both systolic and diastolic function of the heart and it's easily applied in the practice. In this study; we aimed to determine the relationship between Tei index and invasive hemodynamic parameters in heart failure patients.
Methods: 126 patients (pts) with heart failure were selected for the study. Diagnostic cardiac catheterizations were performed in all patients. The pts were divided into 2 groups. Group I consisted of 59 pts (32 men, mean age 61±10, Functional capacity NYHA Class I and LVEDP<16 mmHg). Group II were containing 67 pts (34 men, mean age 60±9,NYHA Class≥II, LVEDP≥16 mmHg).The following parameters were measured in all pts: Ejection fraction, the peak mitral early (E) and late (A) diastolic velocities, E/A ratio, Deceleration time (DT) and also tissue Doppler parameters were measured from 4 different areas of the mitral annulus (septum, lateral, inferior, anterior).
In order to measure Tei index with 2 methods (Standard Doppler and tissue Doppler method); isovolumic contraction time (IVCT), Isovolumic relaxation time (IVRT) and ejection time (ET) were measured from 4 areas and mean values of Tei index was calculated.
Results: E/A ratios, DT and IVRT were not found different between two groups (p>0.05).Group II pts had longer IVCT and ET (p<0.05).Tei index measured by both standard pulsed wave Doppler and tissue Doppler method were significantly higher in group II pts (Group I:0.50±0.2 and 0.50±0.14; Group II:0,98±0.3, 1.2±0.32, p<0.001).
According to ROC (Receiver Operating Characteristics) curve analysis the cut off value for Tei index measured by tissue doppler was found 0.74. The sensitivity and specificity of this value were measured 92.5% and 91.5% respectively. Tei index measured by Standard Doppler method was 0.67. Its sensitivity and specificity were 77% and 72%.We found a strong relationship between Tei index especially measured by tissue doppler and left ventricular end diastolic pressure (r=0.83,p<0.01; r=0.96, p<0.01). Additionally, it was found a significant relationship between Tei index values measured by tissue Doppler and those measured by standard traditional method (r= 0.85,p<0.01).
Conclusions: In this study we showed that Tei index measured with both pulsed wave Doppler and tissue Doppler was reliable for the evaluation of the global cardiac functions in pts with heart failure. It can be said that myocardial performance index measured with the tissue Doppler method is better than traditionally measured Tei index to differentiate the pts with the symptomatic heart failure from the asymptomatic cases.

P659 | BEDSIDE
Right ventricular systolic echocardiographic parameters in chronic systolic heart failure and prognosis

K. Darahim. *Ain Shams University, Cairo, Egypt*

Background: Right ventricular (RV) dysfunction is associated with poor prognosis in patients with heart failure (HF). Several RV echocardiographic parameters have been proposed as sensitive markers to detect patients at risk.
Objective: The aim is to compare the predictive value of several RV echocardiographic parameters for adverse outcome in patients with chronic systolic HF.
Methods: 117 patients with chronic systolic HF and left ventricular ejection fraction (LVEF) <40% were assessed for the following: (i) RV fractional area change (RVFAC), (ii) tricuspid annular plane systolic excursion (TAPSE), (iii) integral of the systolic wave (ISWtdi), and (iv) peak systolic velocity (PSVtdi). ISWtdi and PSVtdi were measured using tissue Doppler imaging at the tricuspid annulus. The primary endpoint was death, urgent transplantation, or acute HF episode requiring hospital admission. The follow-up extended for one year.
Results: 52 patients reached the primary endpoint. The cut-off thresholds for RVFAC, TAPSE, PSVtdi, and ISWtdi defined using receiver-operating characteristic curves were 30%, 15.5 mm, 10.0 cm s–1, and 2.4 cm, respectively. The area



ROC: The cut-off for PSVtdi was 10 cm/s

under the curve and the 95% confidence interval for RVFAC, TAPSE, PSVtdi, and ISWtdi were 0.71 (0.65-0.85), 0.66 (0.55-0.76), 0.85 (0.70-0.96), and 0.75 (0.64-0.86) respectively. NYH A>2, and PSVtdi were found to be independent predictors of adverse outcome.
Conclusion: PSVtdi is a strong independent predictor of adverse outcome in HF at a threshold value of 10.0 cm s–1 and appears to be superior to other RV systolic echocardiographic parameters.

P660 | BENCH
A novel minimally-invasive technique to predict pulmonary capillary wedge pressure utilizing jugular venous pressure and the tissue Doppler tricuspid/mitral annular velocities

K. Uemura, T. Kawada, M. Sugimachi. *National Cerebral and Cardiovascular Center Research Institute, Suita, Japan*

Purpose: Accurate prediction of left heart filling pressure is critical to the management of patients with Heart Failure (HF). However, reliability of conventional prediction such as the ratio of early transmitral velocity to tissue Doppler mitral annular early diastolic velocity (E/Ea) is not satisfactory. Purpose of this study was to validate our newly developed technique to predict Pulmonary Capillary Wedge Pressure (PCWP) utilizing Jugular Venous Pressure (JVP) and the ratio of tissue Doppler peak systolic velocity of the tricuspid annulus (St) to that of the mitral annulus (Sm).
Methods: In 10 anesthetized closed-chest dogs, PCWP and JVP were measured through catheters. St, Sm and E/Ea were measured by trans-thoracic tissue Doppler echocardiography. PCWP, JVP, St, Sm and E/Ea were recorded over a variable preload range in normal heart, in left HF induced by coronary artery embolization, and in right HF induced by pulmonary artery embolization.
Results: Regression analysis of pooled 146 data sets indicated that PCWP (2–40 mmHg) and E/Ea (3–14) correlated weakly (Figure A), while PCWP and JVP·St/Sm (-1–32mmHg) correlated tightly (Figure B). Receiver-operating characteristic (ROC) analysis identified cutoffs that maximized the sum of sensitivity and specificity for detecting PCWP > 18 mmHg (Figure C). E/Ea >6 had 89% sensitivity and 73% specificity. JVP·St/Sm >11 mmHg had 90% sensitivity and 90% specificity. Area under ROC curve for JVP·St/Sm (0.94) was significantly larger than that for E/Ea (0.79) ($p<0.001$).

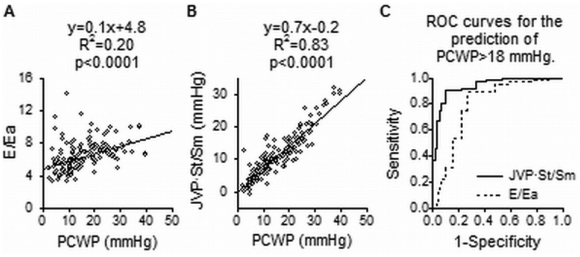


Figure 1

Conclusions: JVP corrected by the relation between right and left ventricular functions, JVP·St/Sm, accurately predicts PCWP. Our technique to predict PCWP may be useful in the management of HF patients.

P661 | BEDSIDE
Noninvasive estimation of pulmonary capillary wedge pressure using speckle tracking echocardiography in patients with preserved or reduced ejection fraction

M. Kawasaki[1], R. Tanaka[2], H. Yagasaki[2], K. Ono[2], T. Watanabe[1], M. Iwama[2], M. Arai[2], T. Noda[2], S. Watanabe[2], S. Minatoguchi[1]. *[1]Gifu University Graduate School of Medicine, Department of Cardiology, Gifu, Japan; [2]Gifu Prefectural General Medical Center, Department of Cardiology, Gifu, Japan*

Purpose: Echocardiographic parameters such as a ratio of early mitral inflow velocity (E) to atrial contraction flow velocity (A) and a ratio of E to mitral annular tissue velocity (e') were proposed to estimate left ventricular (LV) diastolic function and pulmonary capillary wedge pressure (PCWP). However, E/A and E/e' have limitations to use in various conditions. Noninvasive estimation of PCWP has not been elucidated. We have recently developed a novel index to estimate PCWP using left atrial (LA) emptying function (EF) and volume (LAV) assessed by speckle tracking echocardiography (STE) and named it kinetics-tracking (KT) index: log (active LAEF/ minimum LAV index). The estimated PCWP (ePCWP) was determined as 10.7 – 12.4 × KT index. The aim was to examine the usefulness of KT index in patients with preserved or reduced ejection fraction to estimate PCWP measured by cardiac catheterization.
Methods: We measured phasic LAV and EF obtained from time-LA volume curves by STE during sinus rhythm in consecutive 128 patients (age 67±12, 80 men, 77 patients with LV ejection faction ≥55%) just before cardiac catheterization. Patients with atrial fibrillation, severe mitral regurgitation and mitral stenosis were excluded. LA volume and EF and E/e' were compared with PCWP measured by cardiac catheterization. Moreover, ePCWP estimated by 4 combinations of LA maximum or minimum volume and LA total or active EF was compared with PCWP by cardiac catheterization.
Results: The maximum and minimum LAV index were correlated with PCWP (r=0.71 and r=0.78, respectively, $p<0.01$). LA total, passive and active EF were inversely correlated with PCWP (r=-0.75, r=-0.30 and r=-0.80, respectively, $p<0.01$), whereas there was a weak correlation between E/e' and PCWP (r=0.47, $p<0.01$). In contrast, ePCWP by KT index had the strongest correlation with PCWP measured by cardiac catheterization (r=0.89, $p<0.001$) among 4 combinations of LAV and LAEF. In both patients with reduced and preserved LVEF, ePCWP by KT index had a strong correlation with PCWP (r=0.88, r=0.89, $p<0.01$, respectively). The sensitivity and specificity to predict elevated PCWP >15 mmHg were 95 and 88%, respectively (AUC = 0.97) using KT index of 17.8 as an optimal cutoff value. In multivariate regression analysis, only KT index was an independent parameter to estimate PCWP by cardiac catheterization in 128 subjects.
Conclusions: For noninvasive estimation of LV diastolic function, the KT index is a novel and more accurate predictor of PCWP than LA function, volume solely or E/e'. KT index have an incremental value in routine clinical practice.

P662 | BEDSIDE
Regional cardiac dysfunction and outcome in patients with left ventricular dysfunction, heart failure, or both after myocardial infarction

N. Wang[1], A. Shah[1], G. Querejeta[1], D. Gupta[1], E. Velazquez[2], R. Califf[2], J. Mcmurray[1], M. Pfeffer[1], S. Solomon[1] on behalf of The Valsartan in Acute Myocardial Infarction Trial (VALIANT) Investigators. *[1]Brigham and Women's Hospital, Department of Medicine, Cardiovascular Division, Boston, United States of America; [2]Duke University School of Medicine, Durham, NC, United States of America*

Purpose: Global measures of left ventricular (LV) function, in particular LV ejection fraction, are powerful predictors of outcomes in patients with LV dysfunction, heart failure, or both. However, less is known about the relationship between regional myocardial function and prognosis. We sought to describe regional cardiac function using 2D speckle tracking echocardiography and to evaluate the prognostic value of regional cardiac function on clinical outcomes in post myocardial infarction (MI) patients enrolled in the Valsartan in Acute Myocardial Infarction Trial (VALIANT) eho substudy.
Methods: We studied 248 patients with LV dysfunction, heart failure, or both 5 days after first MI from the VALIANT study. We assessed peak longitudinal strain (LS) via B-mode speckle tracking in 12 segments from the apical 4- and 2-chamber views and visually assessed LV wall motion score (WMS) and related these to clinical outcomes over 20 months follow-up. Normal reference values for segmental LS were derived from 50 healthy controls.
Results: Regional LS (-7.68% (-11.23%, -4.87%)) was worse in segments with abnormal WMS, although was significantly impaired even in segments scored as normokinetic (-10.44%±5.22%). In multivariate Cox Proportional Hazards models, the number of segments with normal LS was significantly associated with all-cause mortality (HR: 0.71, 95% CI: 0.54-0.93, P=0.01) even after adjustment for clinical covariates, including LV ejection fraction, LV end systolic volume, and number of normal segments by WMS.

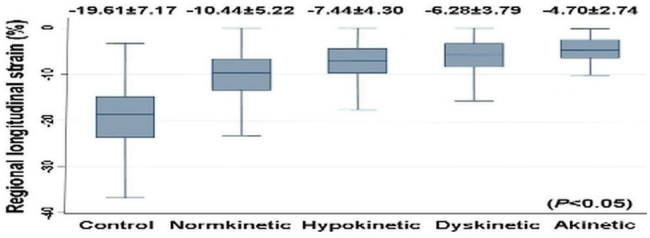


Figure 1. Regional wall motion score and regional longitudinal strain from healthy control and post myocardial infarction patients.

Conclusions: In patients with LV dysfunction, heart failure, or both after MI, regional LS is significantly depressed even in segments with normal WMS, and related to outcomes.

DIAGNOSTIC TOOLS IN HEART FAILURE

P664 | BEDSIDE
Barriers to accurate diagnosis and effective management of heart failure have not changed in 10 years

H.C. Hancock[1], H. Close[1], A. Fuat[2], J.J. Murphy[2], A.P.S. Hungin[1], J.M. Mason[1]. *[1]University of Durham, Durham, United Kingdom; [2]County Durham and Darlington NHS Foundation Trust, Darlington, United Kingdom*

Purpose: To explore changes in health care professionals' views about facilitators and barriers to the diagnosis and management of heart failure, since a previous study in 2003.