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Legend

Every abstract is identified as either “BENCH” or “BEDSIDE”

BENCH: Animal studies or in vitro experiments at the molecular, cellular or tissue level (including human tissue). The core data are generated in the lab.

BEDSIDE: Patients studies. The core data are generated during clinical studies or interventions.

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tive apnoea complicated with heart failure is known, the clinical significance is not well recognised.

Purpose: The aim of this study was to investigate the transitional change of SDB in patients with decompensated heart failure in order to recognise an appropriate timing and device selection for intervening SDB.

Methods: First, we examined a fully attended polysomnography (PSG) at the discharge in 112 patients who were hospitalised for acute decompensated heart failure. Second, we observed temporal change of SDB evaluated by a PSG in 21 of them over several months (120±45 days) under optimal therapy.

Results: At the discharge, they had left ventricular ejection fraction of 35.3±15.0% and brain natriuretic peptide (BNP) of 349.6±374.3pg/ml. Ninety three (83%) patients suffered moderate to severe SDB with apnoea-hypnoea index (AHI) of 35.5±21.1/hr, and 42% of them showed central-dominant pattern. The difference of SDB pattern did not show any statistical differences in clinical backgrounds, laboratory, and echocardiographic data. Over the observational periods, 21 patients showed a significant improvement of BNP and left ventricular ejection fraction (400.7±78.4 vs. 79.4±60.7pg/ml, 31.6±12.0 vs. 45.3±12.9%, respectively), meanwhile AHI and central apnoea index decreased (46.8±16.9 vs. 32.1±20.6/hr, 12.8±14.2 vs. 0.8±2.2/hr, respectively). The decrease rate of central apnoea index was related to that of BNP, noradrenalin concentration, and systolic blood pressure by a regression analysis ($\beta=1.10, 0.64, 0.30, P<0.01$). Since the ratio of central-dominant patients was reduced from 38% to 0%, we considered 15 were appropriate for continuous positive airway pressure therapy in order to treat residual obstructive sleep apnoea (AHI 40.1±20.5/hr) and 6 for observation.

Conclusions: Conversion from central to obstructive pattern in sleep apnoea evaluated by PSG may be common in the course of shift from a recovering to a chronic phase in congestive heart failure. Re-evaluation of SDB may help reduce the need of adaptive-servo ventilation use as a therapeutic target for central sleep apnoea among patients with reduced left ventricular systolic function.

P5453 | BEDSIDE

Prevalence and predictors of residual congestion assessed by bioimpedance vector analysis in patients with decompensated heart failure

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Objective: Systemic congestion is the known main cause of hospital readmissions of patients with acute decompensated heart failure (ADHF). The aim of the study was to evaluate changes of hydration status assessed by clinical criteria and bioimpedance vector analysis (BIVA).

Methods: In 97 patients admitted with ADHF (40.2% male, 68.4±10.4 years (M±SD), arterial hypertension 89%, ischemic heart disease 78%, myocardial infarction 45%, atrial fibrillation 59%, diabetes mellitus 42%, known chronic kidney disease 26%, left ventricular ejection fraction (EF) 44±12%, EF <35% 25.8%, NT-proBNP 3619±2102 pg/ml) hydration status was assessed and graded according ESC 2010 Scientific statement and by BIVA using resistance (R) and reactance (Xc), standardized by height (h). Mann-Whitney and Wilcoxon tests were performed. $P<0.05$ was considered statistically significant.

Results: 85 (88%) patients discharged with clinical improvement (patients lost weight, reduced edema, had improvement in dyspnea and NYHA functional class ($p<0.05$)). Only 33 (34%) patients attained compensation assessed by BIVA. In spite of failure of attainment BIVA compensation in 66% of patients R/h and Xc/h significantly increased in both groups (meaning decrease of overhydration severity): from 228±36 to 275±43 Om/m and from 17±4 to 21±5 Om/m in patients with BIVA compensation ($p<0.001$), from 233±34 to 299±39 Om/m and from 19±5 to 25±5 Om/m in patients without BIVA compensation ($p<0.001$). Patients with vs without compensation by BIVA had lower baseline 6-minute walk distance (6MWD) (130±60 vs 168±46 m, $p<0.05$), EF (40±12 vs 49±9%, $p<0.05$), more pronounced edema (2.0±0.6 vs 2.5±0.5 points, $p<0.05$). Patients did not differ by baseline BIVA parameters, NT-proBNP levels or outpatient therapy. Patients without vs with compensation by BIVA had higher NT-proBNP level at discharge (3927±1314 vs 1253±756 pg/ml, $p<0.001$), less in-hospital decrease of NT-proBNP level (34 vs 57%, $p<0.001$), lower rate of in-hospital therapy with beta-blockers (75 vs 100%, $p=0.002$), lower dose of i/v loop diuretics ($p=0.02$), higher rate of thiazide diuretics (50 vs 18%, $p=0.03$) and shorter duration of hospitalization (11.3±1.9 vs 17.4±3.3 days, $p<0.001$).

Conclusion: 66% of patients admitted with ADHF discharged with subclinical congestion according BIVA assessment. Subclinical congestion is associated with higher NT-pro BNP discharge level. Higher severity of clinical hyperhydration, worse baseline functional status as well as non-optimal regime of medical therapy may be associated with failure to attain BIVA compensation.

P5454 | BEDSIDE

Detect latent carbohydrate metabolism disorders among hospitalized patients with chronic heart failure via oral glucose tolerance test

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Introduction: The main causes of chronic heart failure (CHF) are coronary heart

disease and arterial hypertension (AH). Insulin resistance develops and progresses faster in chronic heart failure. The use of some medicines for basis treatment of heart failure also contributes to the development of type 2 diabetes mellitus (T2DM). The presence of T2DM in patients with heart failure is a marker of significantly increased mortality and poor prognosis, so early detection of pre-diabetes and diabetes in CHF is particularly relevant.

Purpose: To identify latent disorders of carbohydrate metabolism (CMD) in CHF.

Materials and methods: A standard oral glucose tolerance test (OGTT) with a load of 75 g glucose was held for 256 patients hospitalized with heart failure functional class (FC) II-IV (NYHA) of various etiologies. All patients received basic therapy for chronic heart failure: angiotensin-converting enzyme inhibitors/angiotensin II receptor blockers (ACEI/ARB), mineralocorticoid receptors inhibitors, beta-blockers). An anthropometric data collection was conducted (height, weight, BMI), the measurement of systolic and diastolic blood pressure (SBP, DBP), a survey by scale FINDRISC, a series of tests (fasting glucose, lipid profile, of HbA1c, eGFR) were carried out. Exclusion criteria were: type 2 diabetes, type 1 diabetes, taking hypoglycemic drugs in history, age over 70 years, acute coronary syndrome, acute decompensation of heart failure at baseline, hypo/hyperthyroidism, independent chronic liver and kidney disease, cancer pathology. The OGTT results were considered according to the criteria of the WHO and the ADA.

Results: It was identified that 94 (36.7%) of the total number of patients had latent HMD: 62 patients (24.2%) have impaired glucose tolerance (IGT), 32 patients (12.5%) had newly diagnosed T2DM and 162 patients (63.3%) did not have any carbohydrate metabolism disorders. Among individuals with IGM more common risk factors were obesity ($p<0.005$), heredity ($p<0.01$), hypertension ($p<0.005$), increased levels of triglycerides ($p<0.025$). In a preliminary survey on FINDRISC scale in the group with disorders of carbohydrate metabolism the total score was significantly higher than in patients without CMD ($p<0.001$).

Conclusions: The prevalence of latent CMD in hospitalized patients was CHF was significant. In 36.7% of the total number of patients with CHF FC II-IV (NYHA), without diabetes and without taking hypoglycemic agents in history, during OGTT CMD was detected in varying degrees of severity of pre-diabetes (IGT – 24.2%) to type 2 diabetes (12.5%). Timely detection of hidden CMD in CHF using OGTT allows to determine the nature and severity of CMD, to start early medication and non-drug correction, to improve the prognosis of both CHF and type 2 diabetes.

P5455 | BEDSIDE

Prognostic impact of blood urea nitrogen-to-creatinine ratio at hospitalization in patients with acute decompensated heart failure

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Background: Neurohumoral activation due to acute decompensated heart failure (ADHF), may increase reabsorption of urea leading to an increased blood urea nitrogen (BUN)-to-creatinine ratio. Reportedly, elevated BUN-to-creatinine ratio at hospital admission has been reported to be associated with poor short-term prognosis. However, a long-term post-discharge mortality in patients with ADHF remains to be elucidated.

Purpose: The aim of this study was to determine the relationship between BUN-to-creatinine ratio and long-term post-discharge mortality in patients with ADHF.

Methods: A cohort of 1684 consecutive patients admitted to the cardiac intensive-care unit from 2007 to 2011 was studied. Among them, only patients admitted due to ADHF were categorized according to the median level of admission BUN-to-creatinine ratio (i.e. 20.2). Patients with coexisting neoplasms and acute coronary syndrome, and those who died during initial hospitalization were excluded. Association between admission BUN-to-creatinine level and long-term mortality was assessed by multivariable Cox proportional analysis including other independent variables which showed $P<0.1$ in univariable analyses.

Results: Overall, 535 patients were assessed. At a median follow-up of 2.0 years, there were 145 deaths (27%). In the multivariable analysis, patients with greater BUN-to-creatinine ratio at hospital admission have a greater risk of post-discharge mortality (hazard ratio [HR], 1.74; $P=0.017$). Multivariable analysis therefore showed a significant relationship between admission BUN-to-creatinine ratio, when treated as a natural logarithm-transformed continuous variable, and increased mortality (HR, 1.81; $P=0.018$).

Conclusions: In patients with ADHF, there is a relationship between admission BUN-to-creatinine ratio and long-term post-discharge mortality.

P5456 | BEDSIDE

Effects of ivabradine on 6-minute walk test and quality of life in patients with previously implanted CRT-D

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Background: We aimed to evaluate clinical effects of additional heart rate control by ivabradine on life quality score and 6-minute walking test in patients with previously implanted biventricular cardiac resynchronization therapy defibrillator (CRT-D) with ischemic heart failure under regular treatment.

Methods: Fifteen men and 14 women with a median age of 63 years (range, 48–

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