

according to the Bruce protocol and echocardiographic examination were performed and from standard ECG corrected QT dispersion (QTdc) and QTd was calculated.

**Results:** Patients with angina pectoris and hypertension had significantly higher values of QTd ( $55.1 \pm 17.1$  vs  $42.8 \pm 19.5$  ms;  $p < 0.01$ ) and QTdc ( $59.2 \pm 20.0$  vs  $45.5 \pm 18.1$  ms;  $p < 0.001$ ) compared to those without hypertension. Also, patients with angina pectoris and hypertension had significantly higher values of the thickness of the interventricular septum ( $12.1 \pm 2.1$  vs  $10.8 \pm 1.7$  mm;  $p < 0.005$ ), left ventricle posterior wall thickness ( $10.9 \pm 1.5$  vs  $9.2 \pm 1.4$  mm;  $p < 0.001$ ) and left atrium diameter ( $40.9 \pm 4.8$  vs  $37.3 \pm 5.4$  mm;  $p < 0.005$ ) compared to those without hypertension. Patients with angina pectoris and arterial hypertension have higher values of the left ventricular end-diastolic diameter ( $54.1 \pm 5.8$  vs  $53.7 \pm 7.1$  mm;  $p$ -NS), and left ventricular end-systolic diameter ( $36.6 \pm 6.1$  vs  $35.8 \pm 6.9$  mm;  $p$ -NS) and lower values of left ventricular ejection fraction ( $60.9 \pm 11.2$  vs  $63.6 \pm 11.9$ %;  $p$ -NS), but the differences were not statistically significant.

**Conclusions:** The study demonstrated that patients with angina pectoris and hypertension have significantly higher values of QT dispersion parameters, thickness of the left ventricle walls and left atrium diameter in comparison to those without hypertension.

#### PP.04.25 INCIDENCE AND PREDICTORS OF COMBINED CARDIOHEPATIC AND CARDIORENAL SYNDROMES IN DECOMPENSATED HEART FAILURE

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**Objective:** Similar factors such as venous congestion and hypoperfusion are thought to underlie both renal and liver dysfunction in decompensated heart failure (DHF). The aim of this study was to assess the prevalence of cardiohepatic syndrome (CHS) and cardiorenal syndrome (CRS) and predictors of simultaneous CHS and CRS in DHF.

**Design and method:** In 322 patients with DHF (190 male,  $69.5 \pm 10.6$  years ( $M \pm SD$ ), arterial hypertension 87%, myocardial infarction 57%, atrial fibrillation 65%, diabetes mellitus 42%, known chronic kidney disease 39%, chronic anemia 29%, left ventricular (LV) ejection fraction (EF)  $37.6 \pm 12.6$ %,  $EF < 35\%$  39.1%) liver function tests (LFTs) were measured on admission. CHS was considered when at least one of LFTs level exceeded upper normal limit. CRS was diagnosed as community-acquired acute kidney injury based on KDIGO 2012 Guidelines. Simultaneous CHS and CRS were considered as cardiorenhepatic syndrome (CRHS). Mann-Whitney test and multivariate logistic regression analysis were performed.  $P < 0.05$  was considered statistically significant.

**Results:** CHS occurred in 274 (85.1%) of patients. CRS was diagnosed in 60 (18.6%) patients. Isolated CHS, isolated CRS and CRHS occurred in 78.4, 1.5 and 20.1% patients respectively. Patients with versus without CRHS had lower systolic blood pressure (SBP) ( $129 \pm 18$  vs  $138 \pm 19$  mm Hg,  $p < 0.01$ ), EF ( $32 \pm 10$  vs  $38 \pm 13$  U/L,  $p < 0.01$ ), pulse pressure ( $63 \pm 91$  vs  $30 \pm 28$  mm Hg,  $p < 0.01$ ), higher LV mass index ( $200 \pm 50$  vs  $178 \pm 52$  g/m<sup>2</sup>,  $p < 0.01$ ), LV end diastolic volume ( $62 \pm 6$  vs  $56 \pm 9$  mm,  $p < 0.001$ ), higher prevalence of severe mitral regurgitation ( $64.3$  vs  $39.6$ %,  $p < 0.001$ ), signs of congestion – jugular venous distension ( $57.1$  vs  $39.6$ %,  $p < 0.05$ ), hepatomegaly ( $85.7$  vs  $70.3$ %,  $p < 0.05$ ), echo-hydropericardium ( $46.4$  vs  $22.5$ %,  $p < 0.001$ ). The independent predictors of CRHS were baseline GFR  $< 45$  ml/min/1.73 m<sup>2</sup> (odds ratio (OR) 3.95, 95% confidential interval (CI) 2.15–7.21,  $p < 0.01$ ), anamnesis of chronic HF (OR 3.78, CI 1.30–10.96,  $p < 0.05$ ), SBP  $< 110$  mm Hg on admission (OR 3.51, CI 1.55–7.94,  $p < 0.05$ ), echo-hydropericardium (OR 2.98, CI 1.62–5.50,  $p < 0.01$ ) and EF  $< 35\%$  (OR 2.96, CI 1.61–5.44,  $p < 0.05$ ).

**Conclusions:** Isolated CHS, isolated CRS and CRHS occurred in 78.4, 1.5 and 20.1% patients. The independent predictors of CRHS were baseline GFR  $< 45$  ml/min/1.73 m<sup>2</sup>, anamnesis of chronic HF, SBP  $< 110$  mm Hg on admission, echo-hydropericardium and EF  $< 35\%$ .

#### PP.04.26 IN-HOSPITAL OUTCOME PREDICTIONS FOR ACUTE CORONARY SYNDROME PATIENTS AFTER CORONARY ANGIOPLASTY BY MINING ECHOCARDIOGRAPHY PARAMETERS DATA

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**Objective:** The aim of this study is to develop an in-hospital mortality prediction model for acute coronary syndrome (ACS) patients after percutaneous coronary

intervention (PCI) by performing data mining techniques on echocardiography parameters (EPs).

**Design and method:** A total of 2030 patients (aged  $61.29 \pm 11.70$  years, 66.79% males), diagnosed with ACS, hospitalized, between December 2008 to December 2011, were assigned to a derivation sample and 954 patients admitted during 2012 (age  $61.54 \pm 11.91$ ) were assigned to a validation sample. Each derivation sample patient was initially described using 45 EPs. Various data mining algorithms were evaluated and the most successful was chosen.

**Results:** In-hospital mortality in the derivation sample was 7.73%, and 6.28% in the validation sample. The best prediction results were achieved using Alternating Decision Tree (ADTree) classifier, 77.78% accuracy (AUROC 0.85), and preserved good performance on validation sample, 77.99% accuracy (AUROC 0.785). ADTree identified a subset of 9 key EPs: left ventricular ejection fraction (LVEF), left ventricular stroke volume (LVSv), left ventricular stroke volume index (LVSvI), aortic leaflet separation diameter (AOvs), aortic velocity time integral (AOvTI), right ventricle diameter (RV), right atrial apico-basal dimension (RAab), right ventricle systolic pressure (RVSP) and mitral valve maximal gradient (MVmaxPG). The resulting tree obtained from the ADTree algorithm is shown in Figure 1.

**Conclusions:** The ADTree is a highly accurate graphical model, suitable for expert interpretation, yet relatively simple – it contains 31 nodes and 21 leaves. The model might prove very helpful in the decision-making process and optimizing treatment strategy in selected high risk ACS patients.

#### PP.04.27 SERUM URIC ACID LEVEL COULD BE A PREDICTOR OF ATRIAL FIBRILLATION IN WOMEN BUT NOT IN MEN WITH METABOLIC SYNDROME

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**Objective:** Uric acid (UA) is a cardiovascular risk marker associated with oxidative stress and inflammation. Several studies showed the association of high levels of serum UA with atrial fibrillation (AF) in metabolic syndrome (MetS). The objective of this observational study was to investigate the gender differences of serum UA levels in patients with MetS and AF.

**Design and method:** We evaluated 100 patients with MetS and AF (group A) and 50 patients with MetS without AF (group B), mean age  $69.28 \pm 8.8$ , respectively  $59.52 \pm 9.62$  years, 68%F. We excluded subjects with coronary artery disease, congestive heart failure, valvular heart disease, congenital heart disease, cardiomyopathy, renal failure, inflammatory conditions, thyroid dysfunction, respiratory disease, and those who were taking drugs that affect UA metabolism (apart from diuretics).

**Results:** AF significantly correlated with older age ( $p < 0.001$ ), decreased creatinine clearance ( $70.39 \pm 25.89$  vs.  $88.42 \pm 23.32$  ml/min/1.73 m<sup>2</sup>,  $p < 0.001$ ), serum UA levels ( $6.47 \pm 1.69$  vs.  $5.49 \pm 1.80$  mg/dl,  $p = 0.01$ ), LA diameter ( $44.3 \pm 6.33$  vs.  $39.03 \pm 5.14$  mm,  $p < 0.001$ ) and LA volume ( $79.31 \pm 23.68$  vs.  $57.78 \pm 15.95$  ml,  $p < 0.001$ ). After multivariate logistic regression analysis, the independent predictors of AF were age and LA dimensions for both men and women. The serum UA was an independent predictor of AF only in women with MetS. The area under the receiver operating characteristic curve of serum UA for accuracy to detect atrial fibrillation in women was 0.87 (95% confidence interval 0.82–0.95). The cut-off point of 6.7 mg/dl had a sensitivity of 87% and a specificity of 79% to predict AF in women.

**Conclusions:** Serum UA level was an independent predictor of AF in women but not in men with metabolic syndrome.

#### PP.04.28 PEAK DP/DT IN DESCENDING AORTA IS DECREASED IN PATIENTS AFTER AORTIC ARCH REPAIR

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**Objective:** One of the important problems in patients who had undergone arch repair for coarctation or interruption of the aortic arch is a future cardiovascular disease. We previously reported that a new pressure wave reflection (PWR) occurred from the surgically repaired site, and it could cause the future cardiovascular disease. The purpose of this study is to clarify the influence of the new PWR on the peak dp/dt in repaired aorta.