CONCLUSION: The failure of medial SMC repopulation in grafts at 2wk occurs in the absence of adaptive immune elements. While the mechanisms of medial repopulation remain to be elucidated, early NO and MØ graft influx suggests they may play a role in this failure.

128 PREDICTION OF ACUTE HEART FAILURE MORTALITY IN EMERGENT CARE: THE EMERGENCY HEART FAILURE MORTALITY RISK GRADE

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BACKGROUND: Despite the substantial resource and economic implications of hospitalization of the patient with heart failure, the decision to admit or discharge patients is often not guided by evidence. The objective of this study was to derive and validate a risk model for acute mortality prediction in heart failure patients who present to the emergency department.

METHODS: We examined 12,591 patients with acute heart failure who presented to the emergency department from 2004 to 2007 in Ontario, Canada. The cohort was comprised of patients who were either admitted to hospital or discharged home in a 2:1 ratio. We derived a clinical risk score for prediction of 7-day death using only readily-available factors and validated the model in an independent dataset.

RESULTS: In the derivation (n = 7433, 75.4 ± 11.4 years, 51.5% men) and validation (n = 5158, 75.7 ± 11.4 years, 51.6% men) cohorts, overall 7-day mortality rate was 2.0%. Mortality risk increased with higher heart rate (adjusted odds ratio 1.15 per 10 beats/min; P = 0.017) and creatinine (odds ratio 1.35 per 1 mg/dL; P < 0.001), with lower systolic blood pressure (odds ratio 1.52 per 20 mmHg; P < 0.001) and lower oxygen saturation (odds ratio 1.16 per 5%, P = 0.033). Detectable serum troponin (odds ratio 2.75; P < 0.001) and metolazone use (odds ratio 2.65; P = 0.036) were also associated with mortality. Areas under the receiver operating characteristic curves of the multivariable model were 0.805 in the derivation set and 0.811 after bootstrap-correction. The c-statistic was 0.826 in the external validation datasets. A multivariable index score stratified 7-day mortality with rates of 0.3%, 0.3%, 0.7%, and 1.9% in quintiles 1 to 4. Mortality rates in the two highest risk deciles comprising quintile 5 were 3.5% and 8.2%. Among those who were discharged from the emergency department, 7-day mortality in the 2 lowest risk quintiles was 0.2%, and the odds ratios in the 2 highest risk deciles was 8.32 (decile 9: 95% CI; 2.19-33.78, P < 0.001) and 21.29 (decile 10: 95% CI; 6.36-81.99, P < 0.001). Among admitted patients, 7-day mortality in the 2 lowest risk quintiles was 0.4%, and the odds ratios in the 2 highest risk deciles was 9.72 (decile 9: 95% CI; 5.25-19.40, P < 0.001) and 23.52 (95% CI; 13.47-45.16, P < 0.001).

CONCLUSION: A simple clinical risk model can predict acute mortality among heart failure patients who present to the emergency department with high accuracy and may guide admission vs. discharge decision-making.

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129 USEFULNESS OF EXTRACELLULAR MATRIX BIOMARKERS FOR RISK STRATIFICATION IN LOW FLOW, LOW GRADIENT AORTIC STENOSIS - RESULTS FROM THE MULTICENTER TOPAS (TRULY OR PSEUDO SEVERE AORTIC STENOSIS) STUDY

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BACKGROUND: Patients with low LV ejection fraction (LVEF), low flow, low gradient, aortic stenosis (LFLG AS) have a poor prognosis with conservative therapy but a high operative mortality if treated surgically. We previously demonstrated that type B Natriuretic Peptide (BNP) provides important information for risk stratification and therapeutic decision-making in this population. The objective of this study was to evaluate the prognostic value of biomarkers of extracellular matrix metabolism in LFLG AS.

METHODS: In the TOPAS study, 198 patients with LFLG AS (AVA ≤ 1.2 cm², LVEF ≤ 40%, and mean gradient ≤ 40 mmHg) underwent dobutamine stress echocardiography, blood sample, and evaluation of functional capacity with the use of Duke Activity Status Index (DASI) and 6-minute walk test at entry in the study. Plasma level of type I Collagen Degradation Marker (ICTP) were measured in a subset of 30 patients. The severity of the stenosis was assessed using the projected aortic valve area at a normal transvalvar flow rate (AVAproj), which has been shown to be superior to traditional echocardiographic indices for evaluating the actual stenosis severity.

RESULTS: There was a good correlation between the plasma levels of ICTP and BNP (r = 0.64; P = 0.0001). However, plasma levels of ICTP correlated better than BNP with (1) baseline AS severity assessed by AVAproj (r = -0.44; P = 0.01 vs. r = -0.38; P = 0.04), (2) DASI (r = -0.52; P = 0.003 vs. r = 0.18; P = 0.35) and (3) 6-minute walk test distance (r = -0.80; P < 0.0001 vs. r = -0.53; P = 0.02).

CONCLUSION: Biomarkers of extracellular matrix metabolism may be useful in the risk stratification of patients with LFLG AS and may provide additional information for clinical decision making beyond that achieved using BNP.

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130 MEETING ESTABLISHED CANADIAN BENCHMARKS FOR ACCESS TO HEART FAILURE (HF) CARE FOLLOWING EMERGENCY DEPARTMENT VISIT AND ASSOCIATION WITH OUTCOME