

## 5803 Contemporary Trends of Incidence, Management and Outcomes of Non-acute Coronary Syndrome Associated Cardiogenic Shock: data from 2003 to 2011

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was not significantly different irrespective of the occurrence of MACE (FFR: 0.92 vs 0.89;  $P=0.72$ ). Cox proportional hazard analysis demonstrated that post-PCI IMR was the only independent predictor of MACE (hazard ratio, 1.033; 95% CI, 1.013–1.052,  $P=0.001$ ). Kaplan-Meier analysis showed MACE free survival was significantly worse in patients with high post-PCI IMR ( $\chi^2$  7.12,  $P=0.008$ ).

**Conclusion:** In patients with NSTEMI-ACS, IMR values in the culprit vessel were distributed in a wide range after uncomplicated PCI and the median value was numerically lower than that reported in STEMI and higher than that in stable angina pectoris. IMR post-PCI was the only independent predictor for MACE. IMR measurement after PCI in NSTEMI-ACS patients treated according to early invasive strategy may help identify patients at high risk for adverse coronary events during long-term follow-up who may benefit adjunctive therapeutic management.

## 5800 | BEDSIDE

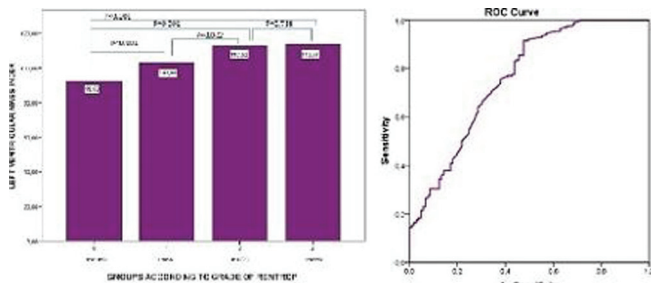
### The association of left ventricular mass index with coronary collateral circulation

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**Introduction:** Coronary collaterals (CC), natural anastomosis between coronary arteries, are distinguishable angiographically when the stenotic degree of the receiving artery exceeds 90%. In clinical practice, Rentrop grades are used for angiographic filling degree of CC. CC formation are triggered by numerous factors including ischemia, pressure gradients, shear stress and growth factors. Increased left ventricular mass index (LVMI) predisposes myocardium to ischemia by means of increasing subendocardial ischemia and decreasing capillary density. We aimed to investigate the association between LVMI and CC formation in chronic total occlusion (CTO).

**Methods:** We retrospectively screened the angiographic data of 2870 patients who underwent coronary angiography between 2012–2014 years. A total of 305 patients with CTO were included in the analysis. Patients with CTO were graded with respect to Rentrop classification and categorized into four groups.

**Results:** LVMI was higher in patients with any grade CC (grade 1, 2 and 3) compared to patients without collateral circulation (grade 0). LVMI was significantly correlated with grade of CC ( $\beta=0.453$ ,  $p<0.001$ ). In multivariate analysis, LVMI was found as an independent predictor of CC development (OR: 1.075, 95% CI: 1.053–1.098,  $p<0.001$ ). In ROC curve analysis, a cut-off value of 100.1 for LVMI has a 68.5% sensitivity and 68.6% specificity for development of CCs (AUC: 0.758,  $p<0.001$ ).



**Conclusion:** Our study demonstrated that increased LVMI was associated with increased grades of CC circulation. Further studies are needed to elucidate the pathogenetic mechanisms of this consideration.

## INNOVATIVE TREATMENT STRATEGIES IN ADVANCED HEART FAILURE

## 5803 | BEDSIDE

### Contemporary trends of incidence, management and outcomes of non-acute coronary syndrome associated cardiogenic shock: data from 2003 to 2011

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**Introduction:** Cardiogenic shock (CS) is a critical condition with high mortality and morbidity. Acute coronary syndrome (ACS) is the most common condition associated with cardiogenic shock and extensive literature exists with respect to ACS related cardiogenic shock (ACS-CS). However, very limited contemporary data exists related to non-ACS related cardiogenic shock (non-ACS-CS). Hence we analyzed nationwide inpatient sample databases to study the temporal changes in incidence, management and clinical outcomes of non-ACS-CS.

**Methods:** We identified all CS patients with age  $\geq 18$  years from 2003 to 2011. Among these, patients with ACS diagnosis were classified as ACS-CS patients while those without a diagnosis of ACS were considered as non-ACS-CS patients. Primary outcome was trend in non-ACS-CS, and secondary outcomes included in-hospital mortality and use of intra-aortic balloon pump (IABP).

**Results:** Of 642,290 cardiogenic shock patients, 39.7% ( $n=255,355$ ) were non-ACS patients. Mean age was  $66.2 \pm 15.8$  years, 40.6% female and 76.8% whites. The three most common primary causes of hospitalization in non-ACS-CS patients were congestive heart failure, septicemia and acute respiratory failure. The most common preexisting clinical comorbidities were hypertension, diabetes, hyperlipidemia, chronic pulmonary disease and congestive heart failure, and their prevalence increased significantly from 2003 to 2011 (all  $p$  trend  $<0.001$ ). The proportion of non-ACS-CS patients increased significantly from 31.1% to 47.4% ( $p$  trend  $<0.001$ ). Overall inpatient mortality was 41.6%, which declined significantly over a span of 9 years from 52.5% to 37.7% (adjusted odds ratio/year, 0.92, 95% CI 0.92 to 0.93,  $p<0.001$ ). The overall use of intra-aortic balloon pump was 11.9% that decreased significantly from 12.7% in 2003 to 10.9% in 2011 (adjusted odds ratio 0.96, 95% CI, 0.95 to 0.96,  $p<0.001$ ). Also both mean length of stay and average cost of hospitalization increased significantly ( $p$  trend  $<0.001$ ). **Conclusion:** Hospitalizations of patients with non-ACS-CS have increased exponentially among US adults from 2003 to 2011. While the proportion of comorbid chronic diseases has increased, there has been an overall decline in hospital mortality. There is a wide scope for improvement of clinical outcomes in these critically ill patients, demanding better and clear management guidelines.

## 5804 | BEDSIDE

### Predictive value of right heart hemodynamics on the development of acute kidney injury early after heart transplantation

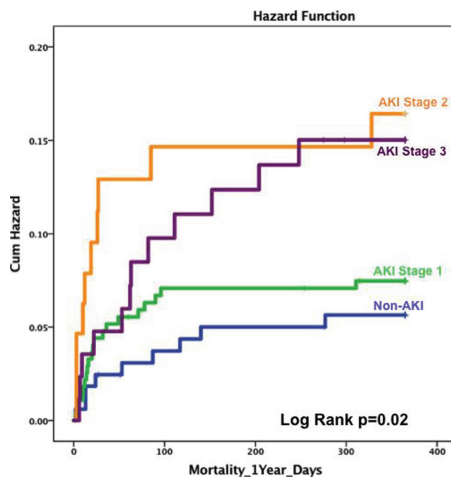
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**Background:** Acute kidney injury (AKI) is a frequent and serious complication early post heart transplantation (HTx).

**Purpose:** To examine the predictive value of right heart hemodynamics (RHH) at screening before HTx for the development of AKI post-HTx.

**Methods:** Five hundred ninety-five cardiac transplant recipients (age  $\geq 18$  years) were retrospectively evaluated for their pre-operative RHH and the post-operative incidence of AKI as defined by the Kidney Disease Improving Global Outcome criteria. Secondary outcomes were the effects of RHH on one-year kidney function and mortality. Pulmonary artery pulsatility index (PAPi), transpulmonary gradient (TPG), diastolic pulmonary gradient (DPG) were calculated as (Pulmonary artery systolic pressure - Pulmonary artery diastolic pressure)/Right atrial pressure (RAP); mean pulmonary arterial pressure - pulmonary capillary wedge pressure (PCWP); pulmonary artery diastolic pressure - PCWP, respectively.

**Results:** Of the five hundred ninety-five patients (mean age  $49 \pm 10.4$  years, female 24%), 430 (72.3%) recipients met the AKI criteria; 278 (46.7%) AKI stage I, 66 (11.1%) stage II, and 86 (14.5%) stage III, including 41 patients (6.8%) who required renal replacement therapy (RRT). Ordinal logistic regression was used to predict the association between the development and severity of AKI and RHH parameters. Ln transformed data was used due to skewed distribution. Higher pre-operative levels of PAPi before HTx were associated with decrease in AKI stages during the first month after HTx (95% CI: 0.01–0.35,  $p=0.043$ ). Higher RAP/PCWP was positively associated with AKI stage (95% CI: 0.02–0.48,  $p=0.03$ ). RAP, DPG, TPG, PCWP and cardiac output (CO) were not found to be significantly associated with the risk of AKI development. Pre-HTx values of RAP, DPG, TPG, PCWP, PAPi, RAP/PCWP, and CO were not significantly associated with 1-year patient survival. Development of AKI during the first month was associated with 1-year renal outcome: HR 2.97 (95% CI: 1.21–7.31,  $p=0.02$ ) for AKI stage 2 compared to non-AKI while HR was 2.63 (95% CI: 1.11–6.25,  $p=0.03$ ) for AKI stage 3 to non-AKI (Figure).



Kaplan-Meier curves for survival