

	LVEDP <12 mmHg (n=18)	LVEDP=12-20 mmHg (n=83)	LVEDP >20 mmHg N=97	p
Age	65.3±12	61.1±14	61.3±13	0.92
Male (%)	15 (83.3%)	55 (66.3%)	69 (71.1%)	0.36
Hypertension (%)	11 (61.1%)	47 (56.6%)	47 (48.5%)	0.46
Diabetes mellitus (%)	2 (11.1%)	20 (24.1%)	32 (33.0%)	0.10
Ejection fraction (%)	51.9%±16.9	49.9%±14.9	42.9%±15.4	0.02
Baseline GFR (ml/min/m2)	70.02	78.10	89.59	0.35
GFR at 24 hours (ml/min/m2)	75.21	87.50	87.82	0.70
GFR at 48 hours (ml/min/m2)	70.21	81.66	88.66	0.60
Delta GFR	3.034	13.72	-3.058	0.18
CIN (%)	1 (5.6%)	15 (18.1%)	22 (22.7%)	0.09
In-hospital mortality (%)	0	0	0	NS
12 month mortality (%)	3 (16.7%)	2 (2.4%)	9 (9.3%)	0.02
MACCE (Death/MI/Stroke)	6 (33.3%)	27 (32.5%)	32 (33.0)	0.96

CONCLUSIONS In ACS patients undergoing PCI, normal LVEDP values were associated with a better outcome, with lower 12-month mortality rates. There seems to be a strong trend (p=0.09) toward a higher rate of CIN in patients with elevated LVEDP on presentation.

CRT-100.06

Retroviral-positive Patients (HIV) Presenting With Acute Coronary Syndrome — Dilemma For Coronary Interventions: To Do or Not to Do



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INTRODUCTION The current spectrum of human immunodeficiency virus (HIV) infections dramatically shifted after the advent of effective antiretroviral therapy. Cardiovascular disease, including atherosclerosis and atherosclerosis-associated complications, is an increasing cause of morbidity and mortality in HIV patients in the post-antiretroviral therapy era. The aim of our study was to study the clinical and angiographic profile of HIV-infected patients presenting with acute coronary syndrome (ACS), their in-hospital outcomes, and therapeutic challenges with respect to coronary revascularization.

MATERIALS AND METHODS A prospective observational study conducted from January 2013 to September 2017. We studied 109 consecutive patients infected with HIV and presenting with ACS to our acute coronary care unit. The baseline clinical characteristics, response to fibrinolytic therapy, angiographic findings, and results of percutaneous coronary intervention and in-hospital outcomes were studied.

RESULTS The mean age of patients was 46 years, which is lower than HIV-uninfected patients. Most patients presented with Acute Anterior Wall ST-Elevation Myocardial Infarction (n=98, 89%). Thrombolysis was successful in 96 (78.33%) and failed in 13 (21.67%) patients. Four patients underwent rescue angioplasty, and primary PCI was done in 3 patients. Coronary angiography was done in all the patients, revealing significant residual stenosis in 51 patients. Three-vessel coronary artery disease (CAD) were seen in only 4 patients (3.7%); two-vessel CAD was seen in 16 patients (14.7%). Sixty-nine patients (81.6%) had significant single-vessel lesions. All patients with significant residual lesions (n=51) underwent PCI with drug-eluting stents. Only 1 patient died due to cardiogenic shock. All 108 patients were followed up for 3 years, and they are receiving adjuvant highly active antiretroviral therapy (HAART).

CONCLUSIONS HIV-associated atherosclerosis and its complications are a significant human health burden for which the pathogenesis remains elusive. The distinct pathological features of HIV-induced atherosclerosis are non-calcified and inflammatory plaques that are

more vulnerable to rupture, resulting in ACS. HIV-infected patients hospitalized for an ACS are relatively younger. Anterior wall STEMI is the most common presentation; hence, the left anterior descending artery is the most common culprit vessel. HIV status and HAART didn't interfere with revascularization approach or clinical outcome.

CRT-100.07

Clinical Outcomes Among Patients Requiring Acute Mechanical Circulatory Support for Cardiogenic Shock Supported by Impella or VA-ECMO



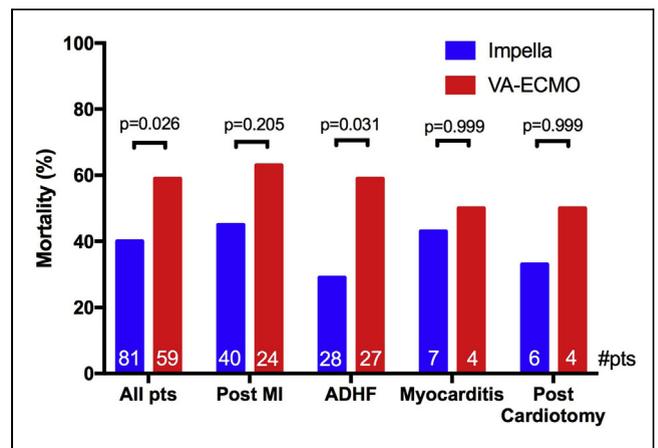
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BACKGROUND Clinical trials for acute mechanical circulatory support (AMCS) for cardiogenic shock (CS) have exclusively focused on patients with acute coronary syndrome (ACS). Outcomes for patients supported with AMCS for other indications have not been well-described.

METHODS We retrospectively analyzed all patients (n=140) between 2012-2016 receiving veno-arterial extra corporeal membrane oxygenation (VA-ECMO) (n=59) or Impella (n=81) for CS at two institutions.

RESULTS The indications for AMCS were acute ACS (46%: STEMI 30% and NSTEMI 70%), acute decompensated heart failure (ADHF) (39%), myocarditis (8%) and post-cardiotomy CS (7%). Compared to VA-ECMO, Impella patients were older (59±14 vs. 54±12 years, all comparisons p<0.01) and more likely to have hypertension (57% vs. 24%). Impella patients had a lower lactate (3.3±2.7 vs. 7.1±5.8 mEq/L), higher pH (7.33±0.17 vs. 7.24±0.16) and higher MAP (72±15 vs. 61±15 mmHg) compared to VA-ECMO. The median duration of support was longer for VA-ECMO than Impella (7.4 days vs. 5 days, p=0.026). In-hospital mortality across indications was lower for Impella than VA-ECMO (40% vs. 59%, p=0.03; Figure). Compared to VA-ECMO, mortality was lower with Impella for ADHF (31% vs. 57%, p=0.037).

CONCLUSION For patients with CS supported by AMCS, mortality is lower for patients supported with Impella, particularly for ADHF, although indices of CS severity are worse among VA-ECMO recipients. Investigation of outcome predictors for AMCS recipients is warranted.



CRT-100.08

Coronary Perfusion Pressure and Left Ventricular Hemodynamics as Predictors of Cardiovascular Collapse following Percutaneous Coronary Intervention



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BACKGROUND Percutaneous mechanical circulatory support (MCS) continues to evolve. Appropriate patient selection for MCS following percutaneous coronary intervention (PCI) remains a challenge. There may be a role for MCS prior to the development of shock to help

unload the ischemic ventricle. The aim of this study is to evaluate the role of coronary perfusion pressure and other left ventricular hemodynamics to predict cardiovascular collapse following PCI.

METHODS We retrospectively analyzed all patients who underwent PCI for acute coronary syndrome (ACS) from 2003 to 2016 and excluded those without a documented left ventricular end diastolic pressure (LVEDP) or those with a diagnosis of shock. Coronary perfusion pressure was calculated for each patient and defined as the difference in mean arterial pressure and LVEDP. Logistic regression analysis was performed to determine predictor of composite outcome of in-hospital mortality, myocardial infarction (MI), congestive heart failure (CHF), and cardiogenic shock.

RESULTS A total of 921 had PCI with an LVEDP measurement and no diagnosis of shock. The average age was 58 years, 590 (64%) were male, 431 Caucasian (47%), 735 (80%) had hypertension, 333 (36%) had diabetes mellitus, 289 (31%) had prior history of coronary artery disease, 86 (10%) had chronic renal insufficiency (CRI), and 239 (26%) had a history of CHF, 227 (25%) presented with ST-elevation MI (STEMI), while 694 (75%) underwent PCI for unstable angina or non-Q-wave MI. The mean LVEDP was 20 ± 8.6 mmHg, mean systolic aortic blood pressure was 117 ± 41 mmHg, and perfusion pressure was 72 ± 19 mmHg. The mean LVEDP was significantly higher in the STEMI patients (24 ± 9 vs 19 ± 8 mmHg, $p < 0.01$) and perfusion pressure significantly lower (68 ± 24 vs 74 ± 18 mmHg, $p < 0.01$) compared to all other patients. Eighty-seven (9.4%) reached the composite outcome, and there was no difference between the two groups. Neither LVEDP nor perfusion pressure was a predictor of the composite outcome following multivariate logistic regression analysis (OR 1.01, 95% CI 0.98-1.04 and 0.99, 95% CI 0.98-1.01, respectively). Increasing age, CRI, CHF, and low left ventricular ejection fraction were predictors of the composite outcome following multivariate analysis.

CONCLUSION In hemodynamically stable patients presenting with ACS, LVEDP and coronary perfusion pressure are not predictive of in-hospital cardiovascular collapse. Routine measurement of LVEDP following PCI in stable patients may not be helpful to determine who will benefit from MCS.

CRT-100.09

Vasoactive Agent Use Prior to Acute Mechanical Circulatory Support for Cardiogenic Shock Is Associated with End Organ Dysfunction and Mortality



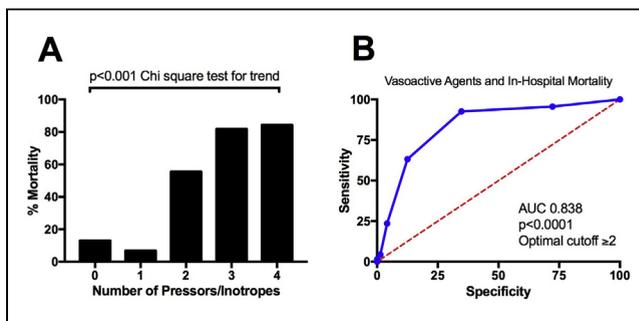
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BACKGROUND Prior to initiating acute mechanical circulatory support (AMCS) for cardiogenic shock (CS), vasoactive agents are used for hemodynamic support to avert multi-system dysfunction or hemodynamic shock. The relationship between vasoactive agent use for CS and clinical outcomes is not well-understood.

METHODS We retrospectively analyzed all patients (n=140) between 2012-2016 who received veno-arterial extra corporeal membrane oxygenation (VA-ECMO) (n=59) or Impella (n=81) for CS at two institutions.

RESULTS In-hospital mortality was 49%. Survivors were treated with fewer vasoactive agents (1.3 ± 1.1 vs 2.2 ± 1.3 , all comparisons $p < 0.05$; Fig. A). The most common first-line agents were norepinephrine, dobutamine and milrinone. There was no significant mortality difference at low, moderate, and high doses of pressors or inotropes. Compared to 0-1 agents, use of ≥ 2 agents correlated with a higher Cr (2.1 ± 1.3 vs 1.4 ± 0.6 mg/dl), higher alanine aminotransferase (ALT) (663 ± 1380 vs 222 ± 653 IU/L), aspartate aminotransferase (AST) (1265 ± 3185 vs 331 ± 1034 IU/L), and international normalized ratio (INR) (1.9 ± 1 vs 1.4 ± 0.4). Use of ≥ 2 agents correlated with a higher right atrial to pulmonary capillary wedge pressure (RA/PCWP) ratio (0.78 ± 0.25 vs 0.63 ± 0.23) and lower pulmonary artery pulsatility index (1.23 ± 0.78 vs 1.89 ± 1.8). Receiver operating characteristic (ROC) analysis revealed a C-statistic of 0.838 for in-hospital mortality with an optimal cutoff of ≥ 2 agents (Fig B).

CONCLUSION Vasoactive agents for CS are associated with impaired end-organ function, right heart dysfunction and increased mortality. The number of vasoactive agents may serve as a simple metric of CS severity and identify patients at risk of hemo-metabolic shock who may benefit from early initiation of AMCS.



CRT-100.10

Congestive Profiles Correlate with Clinical Outcomes Among Patients Requiring Acute Mechanical Circulatory Support for Cardiogenic Shock



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BACKGROUND The impact of congestive profile on clinical outcome in patients with cardiogenic shock (CS) supported by acute mechanical circulatory support (AMCS) is not well understood.

METHODS We retrospectively analyzed all patients (n=140) between 2012-2016 receiving veno-arterial extra corporeal membrane oxygenation (VA-ECMO) (n=59) or Impella (n=81) for CS at two institutions. Hemodynamic data were available for 106 patients and were used to categorize CS as euvolemic right atrial pressure (RAP) <14 and pulmonary capillary wedge pressure (PCWP) <16 , LV-dominant (PCWP >16 only), RV-dominant (RAP >14 only) or biventricular (BiV) congestion.

RESULTS BiV congestion (56%) was more common than LV-dominant (15%), RV-dominant (14%) or euvolemic shock (14%) (Fig. A). Compared to LV- or RV-dominant congestion, BiV congestion correlated with higher serum creatinine (1.94 ± 1.12 , 1.45 ± 0.59 , 1.64 ± 1.15 mg/dl, $p < 0.01$ for all comparisons), aspartate aminotransferase (AST) (1178 ± 3281 , 588 ± 1774 , 299 ± 257 IU/L), alanine aminotransferase (ALT) (541 ± 1264 , 358 ± 1041 , 161 ± 196 IU/L), and lactate (5 ± 4.1 , 3.8 ± 6.7 , 4.3 ± 2.6 mEq/L). Euvolemic shock was associated with similar serum creatinine, AST, ALT and lactate compared to LV- and RV-dominant congestion. Mortality was similar among patients with BiV congestion managed with left- or right-sided Impella (44%), BiPella (40%), VA-ECMO without (43%) and with an LV venting strategy (60%). Compared to VA-ECMO, in-hospital mortality was lower among patients with LV-dominant congestion receiving Impella (0 vs. 67%; $p < 0.01$; Fig. B).

CONCLUSION BiV congestion is common and associated with worse end organ function compared to univentricular dominant congestion among patients with CS supported by AMCS. Mortality was lower for patients with LV-dominant congestion supported by Impella. Improved understanding of hemodynamics in CS may allow for congestive profile-device matching and potentially improve outcomes.

