TCT-470
Early Hemodynamic Support with Impella 2.5 Improves Survival in Refractory Cardiogenic Shock After Acute Myocardial Infarction
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Background: For AMI complicated by cardiogenic shock (CS), mortality remains high despite PCI. Percutaneous ventricular assist devices may improve outcomes in AMI CS by allowing early hemodynamic support.

Methods: Patients supported with the Impella 2.5 between June 2009 and August 2010 for AMI/CS at the USpella sites are reported without pre selection.

Results: 71 consecutive AMI CS patients from 16 institutions were reported. Patients remained in cardiogenic shock post AMI despite aggressive medical management prior to Impella support: 85% of patients received PCI, 78% were on one or multiple inotropes and 42% had already received an IABP. Post Impella support, the hemodynamics improved significantly including CI (1.9±0.6 vs 2.7±0.9, p=0.002), MAP (62±17 vs 92±21 on Impella, p=0.0001), and PCWP (28±8 vs 41±12 on Impella, p=0.04). Impella 2.5 significantly improved the cardiac power output (0.56±2 W pre-Impella to 1.6±6 on Impella, p=0.0004). The in-hospital survival was 58%. In the subgroup of patient that received PCI, there was a significantly higher 30-day survival rate for patients who received the Impella 2.5 early (pre-PCI) compared to patients who received the Impella 2.5 post-PCI (77% vs 44% respectively, p=0.01)

Conclusion: Impella 2.5 provided excellent hemodynamic support in AMI CS. The early stabilization with the Impella 2.5 for patient receiving PCI in the context of AMI CS appears to improve the 30-day survival. For AMI CS patients with contraindications to Impella 2.5 placement, support should be initiated as early as possible to improve outcomes.

TCT-471
Radial versus Femoral Approach in Primary PCI for STEMI with Cardiogenic Shock – Prospective Comparison
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Background: Radial approach is increasingly used in patients with acute myocardial infarction (AMI) without cardiogenic shock (CS). It is unknown whether this approach is feasible and effective also in patients with AMI and CS. The aim of our study was to compare radial and femoral approach in primary PCI for STEMI with CS.

Methods: From January 2008 to December 2010 all patients with STEMI <12 hours and signs of CS (systolic blood pressure ≤90mmHg, heart rate >100/min, systemic hypoperfusion or required inotropes) before primary PCI were enrolled to this prospective non randomized comparison in our institution. Radial approach (RA) was used when both wrist arteries were at least weakly palpable.

Results: Fifty six (8.7%) of 643 STEMI pts were enrolled, 27 in RA group and 29 in femoral (FA) group. Before primary PCI 44% pts in RA group and 72% pts in FA group were intubated and mechanically ventilated (p=0.05). Cardiac arrest (30% vs 65%, p=0.01) and history of diabetes (11% vs 38%, p=0.02) were more frequent in FA group. Baseline creatinine (108±25 vs 141±62 mmol/L, p=0.03) and glyceria (11,1±4.8 vs 16,5±7.1mmol/L, p=0.001) were higher in FA group. Other baseline parameters were not significantly different. Procedural success (final TIMI 3 flow and residual stenosis <20% - RA 90% vs FA 85%), use of GPI (33% vs 35%) and use of IABP (39% vs 37%) were similar in both groups (p=NS). There was one conversion from RA to FA.

Severe access site bleeding complication (TIMI major bleeding) occured only in FA group (2/29 vs 0/27, p=NS). Thirty days mortality was 30% in RA group and 48% in FA group (p=0.19), one year mortality was significantly lower in RA group (37% vs 72%, p<0.001). Overall one year mortality was 55%.

Conclusion: Radial approach was safe, effective and feasible in almost half of our pts with STEMI and CS treated by primary PCI. This approach had no serious access site bleeding complications in contrast to FA. One year mortality was lower in RA group.

TCT-472
Gradual decline in the Age Adjusted Mortality Rate from Cardiogenic Shock of any Cause or in the Setting of ST Elevation Myocardial Infarction in the United State
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Background: Recent improvement in the care of critically ill patients should lead to better outcome. The goal of this study was to evaluate the age adjusted mortality rate from cardiogenic shock in the United State over last 10 years using a large data base

Methods: The Nationwide Inpatient Sample (NIS) database was utilized to calculate the age-adjusted mortality rate of cardiogenic shock from 1996 to 2006 based on ICD-9 coding. Furthermore, we evaluated the same trend in the setting of STEMI

Results: We found gradual declines in mortality over last 10 years in patient suffering from cardiogenic shock with or without a diagnosis of STEMI. The age-adjusted mortality rate from cardiogenic shock was 1,874 per 100,000 in 1996 which declined to lowest level in of 1,548 per 100,000 in 2006 (p<0.01). This decline was similar in patients with or without a diagnosis of STEMI.

TCT-473
Suppression of Oxidative Stress in Endovascular Hypothermia Treated Patients with Acute Myocardial Infarction and Cardiac Arrest
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Background: Protective effect of therapeutic hypothermia in cardiac arrest survivors has been repeatedly shown. Clinical data on therapeutic hypothermia in acute myocardial infarction (AMI) are, however, still insufficient; the effect of hypothermia on oxidative stress (OS) and nitric oxide (NO) production in patients with AMI is not known.

Methods: Ten patients after out-of-hospital cardiac arrest due to AMI were included into the hypothermia group; all were treated with mild hypothermia using endovascular system Thermogard XP. Target core temperature 33°C was maintained for 24 hours, re-warming rate was set at 0.15°C per hour, followed by normothermia of 36.8°C. Ten patients with AMI, non-complicated by cardiac arrest were assigned to the control group. Blood samples for measurements of nitrotyrosine (marker of OS) and nitrates/nitrites (marker of NO production) were taken at admission and then every 6 hours for a total of 54 hours.

Results: The levels of nitrotyrosine were significantly lower in the hypothermia group in all measurements (P<0.001). Nitrates/nitrites levels were comparable in both groups in the first 24 hours, during re-warming the levels gradually increased in the hypothermia group, reaching significant difference between groups in the normothermia period (P<0.05).

Conclusion: Our results provide indirect evidence that hypothermia may attenuate OS and possibly also NO production in AMI patients.

TCT-474
Improvements in LV Function and Afterload with TandemHeart for the Treatment of Refractory Cardiogenic Shock
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Background: The TandemHeart percutaneous ventricular assist device (pVAD),