Variable	Pre-PCI IABP (n=76)	Post-PCI IABP (n=58)	p-value
Major Baseline Characteristics			
Age (in years)	59±13	61±14	0.2
Sex (Male, %)	63%	74%	1.0
Weight (kg)	127 ±48	157±39	<0.001
History of CAD (%)	16%	32%	0.008
Previous PCI	5%	19%	0.04
Ischemic time (minutes)	218 ±87	213 ±179	1.0
Door to Balloon time(minutes)	65 ±24	58±41	0.7
OHCA	22%	20%	0.5
LV EF (<35%)	49%	41%	0.2
Intra-procedure Characteristics			
IABP duration (hours)	66 ±13	51±41	0.7
LM/LAD infarction	88%	89%	0.7
TIMI flow pre-PCI of 0	50%	57%	0.06
Outcome			
Ventricular Arrhythmias	10%	20%	0.05
Defibrillator use	22%	34%	0.40
Renal Failure	33%	22%	0.06
Vascular Complications	9%	8%	0.50
Strokes/TIA	1%	3%	0.41
Re-infarction	16%	11%	0.25
Cardiac Arrest post PCI	6%	15%	0.05
Refractory Shock	30%	49%	0.05
Major Adverse Cardiac Events	17%	34%	0.40
Death during index hospitalization	14%	21%	0.17
Mortality at 1-year	5%	12%	0.05

PCI, percutaneous coronary intervention; IABP, intra-aortic balloon pump; BSA, body surface area[kg/m2]; HTN, hypertension; DM, diabetes; CAD, coronary artery disease; OHCA, out of hospital cardiac arrest; LVEF, left ventricular ejection fraction; LM, left main coronary artery; LAD, left anterior descending artery; TIMI, thrombolysis in myocardial infarction; TIA, transient ischemic attack.

TCT-73

A Systematic review and meta-analysis of emergency coronary angiography and percutaneous coronary intervention in patients who present with cardiac arrest. Should we implement a standard invasive approach?

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Background: Because of limited data, the indications and timing of coronary angiography (CAG) and percutaneous coronary intervention (PCI) in patients with cardiac arrest are controversial. In clinical practice it is often difficult to determine which patients benefit from early catheterization, with subsequent PCI. The guidelines promote early catheterization in cardiac arrest patients with ST-elevation myocardial infarction. However, the predictive value of the ECG for coronary artery occlusion is poor, especially after cardiopulmonary resuscitation.
Methods: Medical literature databases were scrutinized to identify randomized trials comparing CAG vs. no CAG, and PCI vs. no PCI. In absence of randomized trials cohort studies evaluating emergency CAG and PCI in cardiac arrest were identified. Two separate meta-analyses were performed respectively.
Results: The first meta-analysis included 16 cohort studies of patients with cardiac arrest (n=7709). Early CAG compared to no CAG was associated with an absolute decrease of in-hospital mortality of 14% [95% confidence interval (CI), 12–16%; $P< 0.0001$]. This survival benefit was also observed in subsequent subgroup analysis, respectively of patients with STEMI or new LBBB, and patients with other ECG patterns. The second meta-analysis included 11 cohort studies evaluating the effect of emergency PCI in cardiac arrest patients (n=3033). Emergency PCI compared to no PCI was associated with an absolute decrease of in-hospital mortality of 18% [95% CI 14-22%; $P< 0.0001$].
Conclusions: Both early CAG and PCI, compared to respectively no CAG and PCI were associated with a survival benefit in patients presenting with cardiac arrest. This did not differ between patients with STEMI or new LBBB, and patients with other ECG patterns. The prevalence of coronary heart disease, regardless of presenting ECG pattern, is high. All available observational data evaluating early CAG and PCI is importantly hampered by bias and confounding; i.e. survival and physician selection bias. Nonetheless, the results of this study support further evaluation of a more a more aggressive CAG and PCI strategy than currently advocated.

TCT-74

Use of Impella 2.5 for Electrical Stabilization in Acute Myocardial Infarction

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Background: The efficacy of Impella (Abiomed Inc., MA, USA) for electrical instability in the setting of an acute ST-elevation myocardial infarction (STEMI) is unknown. Herein, we present a case series of successful hemodynamic support and electrical stabilization by an Impella device in the setting of ischemic cardiogenic shock.
Methods: Both patients received guideline-directed medical therapy for STEMI and support with aggressive fluid resuscitation, intubation and inotropes. Intra-aortic balloon pump and Impella devices were inserted through the femoral approach.
Results: A 67-year-old female suffered an acute inferior STEMI with cardiogenic shock from severe right heart failure. During revascularization, she developed multiple episodes of ventricular tachycardia (VT)-fibrillation (VF) despite amiodarone infusion. In light of her hemodynamic and electrical cardiac instability, an intra-aortic balloon pump (IABP) was inserted. However, she remained in right ventricular (RV) shock (cardiac index of 1.8 L/min/m2) and required a total of 27 defibrillations. A decision was made to insert an Impella 2.5 as a bridge to RV recovery, with dramatic hemodynamic and electrical response. Device was successfully removed the following day and she recovered well. A 52 year old male was admitted in cardiogenic shock secondary to an anterior wall STEMI. Cardiac catheterization revealed a complete occlusion of the left anterior descending coronary artery. The patient received an IABP due to hemodynamic instability. He subsequently required more than 20 defibrillations for VT/VF. The IABP was replaced by an Impella 2.5 device. The patient was quickly restored to sinus rhythm after Impella in place. The device was removed 4 days after the procedure and the patient recovered well.
Conclusions: We report two cases of severe electrical instability with recurrent VT/VF in the setting of cardiogenic shock secondary to an acute myocardial infarction. In this limited experience, the Impella left ventricular assist device was able to achieve electrical stability more effectively when compared to an intra-aortic balloon pump.

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TCT-75

Complete revascularization in ischemic heart failure may improve patient survival

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Background: Heart failure (HF) is the major cause of death in cardiovascular disease, with coronary artery disease (CAD) remaining its most common cause. STICH trial has left us with many questions unanswered and most PCI-related trials exclude subjects with ejection fraction (EF) < 35%. Complete coronary revascularization is one of key concepts in management of ischemic HF.
Methods: We have retrospectively analyzed 1078 unselected patients with systolic HF (EF< 35%) hospitalized between 2009-2012. Among them we have selected a group of non-ACS pts scheduled for coronary angiography (n=495). 57 CABG-qualified subjects were excluded from analysis. Pts were divided into group A (complete revascularization, n=221) and group B (incomplete revascularization, n=217). Complete revascularization was assessed angiographically, defined according to current ESC guidelines (vessels >2mm). Patients were in 12-month follow-up for rehospitalisation, myocardial infarction and mortality.
Results: Patient characteristics are presented in table 1. Patients in group A had higher prevalence or prior PCI (54,3 vs 38,2%, p=0,001), with no differences in prior CAGB (20,8 vs 22,1%, p=ns). The incidence of multi-vessel disease was significantly higher in group B (32,4 vs 68,1%, p< 0,01). There have been no significant differences in PCI strategy in both groups. In follow up 12-month mortality was significantly lower in pts with complete revascularization (10,4 vs 18,43%, p=0,01). The composite endpoint of death or MI was also significantly in favor of complete revascularization (11,7 vs 23,5%, p=0,01).
Conclusions: Our study shows, that in an unselected ischemic HF population complete revascularization has led to improved survival. If possible, complete revascularization in HF should be considered, and should be one of the factors determining the selection of revascularization method, with PCI emerging as a safe and viable option.