CONCLUSIONS This is the largest and the most contemporary study on the use of hemodynamic support which demonstrates significantly reduced mortality and complications with PVADs when compared to IABP in patients undergoing PCI and this effect is largely driven by the improved outcomes in non-AMI and non-cardiogenic shock patients.

CATEGORIES CORONARY: Hemodynamic Support and Cardiogenic Shock

KEYWORDS Mechanical circulatory support, Outcomes, Percutaneous coronary intervention

TCT-193
Emergent versus Elective Impella Placement and Impact on In-hospital Outcomes-A Single Center Registry

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BACKGROUND Impella (Abiomed Inc, Danvers, Mass) is a percutaneous left ventricular assist device used in the setting of high-risk coronary intervention, cardiogenic shock and ablation procedures.

METHODS This is a single center study evaluating the use of Impella in high-risk patients undergoing PCI. Impella use was classified as ‘elective’ in patients who were identified to be high-risk or in shock prior to the procedure (Group 1, N = 120). Patients who received an Impella as a result of an acute hemodynamic compromise or procedural complication were classified as ‘emergent’ (Group 2, N = 57). The primary endpoint was a composite MACE of in hospital mortality; vascular complications and BARC defined bleeding.

RESULTS Between 2010 and 2014, 187 high-risk patients underwent Impella placement. The baseline demographics of both groups were similar (Fig 1). The mean age was 67.5 years (p = ns). The mean ejection fraction was 28.3% (p = ns). Elective Impella use (group 1) was associated with more complete revascularization (2.3 vs 1.3 stents, p < 0.001), successful weaning and explant of Impella at end of procedure (79% vs 10%, p < 0.001) and successful hemostasis with periclo in preclose fashion (81% vs 8%, p < 0.001). The MACE rate in Group 1 was 24% v/s 67% in Group 2 (p < 0.001) (Table 1). The drivers of this difference in MACE were in-hospital mortality (9% v/s 49%; p < 0.001) and need for more blood transfusions in the emergent group (1.3% v/s 2.9%; p < 0.009). In multivariate analysis, independent predictors of in hospital MACE events were emergent Impella placement (OR 6.14, p < 0.001), baseline ejection fraction and removal of Impella at the end of procedure (Fig 1).

CONCLUSIONS The real world use of the Impella mimics use in the PROTECT 2 trial with similar baseline demographics and ejection fraction. The elective use is largely in the setting of HRPCI whereas the emergent use is largely in the setting of cardiogenic shock. In hospital mortality and MACE in the emergent setting remain very high whereas in the elective setting especially with early device explant, the in-hospital mortality and MACE rates are low.

CATEGORIES CORONARY: Hemodynamic Support and Cardiogenic Shock

KEYWORDS High-risk PCI, Impella

TCT-194
Current Indications And Outcomes Of Intra-Aortic Balloon Pump (IABP) Counterpulseation And Veno-arterial Extracorporeal Membrane Oxygenation (VA-ECMO): The Liverpool Hospital Experience

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BACKGROUND IABP is a widely used circulatory support device. The IABP-SHOCK II trial (2012) showed that IABP did not improve 30-day mortality. US and European guidelines have subsequently revised their recommendations for IABP from class I to IIa and IIb, respectively. Despite limited evidence, peripheral VA-ECMO is an established treatment for refractory cardiogenic shock (CS). Current guidelines have a IIb recommendation for use. The aim of this retrospective, observational analysis was to study the contemporary usage patterns and outcomes of IABP, as well as to understand our early experience with VA-ECMO in patients who have initially received an IABP, at a single center.

METHODS From January 2010 to September 2014, we retrospectively analyzed the Cardiac Catheterization database at Liverpool Hospital, Sydney, for consecutive patients receiving an IABP, including those who subsequently required VA-ECMO during the same admission.

RESULTS Among 219 patients, who received a total of 222 IABP insertions (mean age 65.9±11.8 years, range 23.1-91.4 years), 49 (22%) were women; 38 (17%) had diabetes mellitus; 35 (16%) had left main stenosis >70%; 29 (13%) were administered a GPIIbIIIa antagonist; 60 (27.4%) died during hospitalization. The 7.5Fr 40cc Sensation catheter (Maquet, USA) was most commonly utilized (146 cases, 65.7%). Mean dwell time was 46.1±43.7 hours (range 0.3-240 hours). Complications occurred in 9 cases (2 severe access site bleeding requiring transfusion, 1 minor access site bleeding, 4 leg ischemia, 1 access related sepsis, I IABP related mortality), CS was the commonest indication and had high in-hospital mortality (46.3%). A total of 7 patients required VA-ECMO (mean age 64.7±9.6 years, range 49 to 75.2 years), 2 were women; 4 had diabetes mellitus. VA-ECMO was initiated before left main stenting in 2 cases, and after revascularization in the others. IABP was left in situ in 3 patients. VA-ECMO was
CONCLUSIONS In our experience, IABP was most commonly utilized in CS complicating myocardial infarction. The trend of use for this indication does not seem to have reduced after IABP-SHOCK II. Over half of the IABPs inserted were for indications other than CS. VA-ECMO may be life-saving treatment after failure of IABP support in shocked patients. Appropriate patient selection for VA-ECMO is challenging. Clinical trial of IABP may aid patient triage.

CATEGORIES CORONARY: Hemodynamic Support and Cardiogenic Shock

KEYWORDS Cardiogenic shock, Extracorporeal membrane oxygenation, Intra-aortic balloon pump

TCT-195

Outcomes of emergent percutaneous cardiopulmonary support in cardiac or respiratory failure: Comparisons of cardiac versus non-cardiac failure

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BACKGROUND Percutaneous cardiopulmonary support (PCPS) is a widely accepted treatment for severe cardiopulmonary failure because this system can be rapidly applied in emergency situations. However, there is no available data on clinical outcome in patients between cardiac and non-cardiac origin cardiopulmonary failure.

METHODS We analyzed 61 consecutive patients with severe cardiopulmonary failure and complicating cardiac shock who were assisted by an emergent bypass system (EBS®Terumo, Tokyo, Japan) between January 2012 and May 2015. The primary outcome was the success rate of weaning from EBS. The secondary outcome was inhospital mortality.

RESULTS The mean duration of PCPS was 77.6 hours and that of cardiopulmonary resuscitation (CPR) was 32 (52.5%). The rate of weaning was 23 (37.7%) and the rate of weaning from cardiac group was higher than non-cardiac group (51.2% vs. 10.0%, p=0.017). In-hospital mortality occurred for 45 patients (63.4% vs. 95.0%, p=0.012).

CONCLUSIONS Cardiopulmonary failure with non-cardiac origin was associated with high mortality. An APACHE II score & renal replacement therapy might serve as outcome for risk stratification.

CATEGORIES CORONARY: Hemodynamic Support and Cardiogenic Shock

KEYWORDS Cardiopulmonary Resuscitation, Percutaneous circulatory support, Prognosis

TCT-196

The Recover Right Trial Criteria for Right Ventricular Failure: An Analysis of the SHould we emergently revascularize Occluded coronaries for Cardiogenic shock (SHOCK) Trial and Registry

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BACKGROUND No studies have explored hemodynamic variables associated with right ventricular dysfunction (RVD) in the The SHould we emergently revascularize Occluded coronaries for Cardiogenic shock (SHOCK) trial and registry including; central venous pressure (CVP), CVP/pulmonary capillary wedge pressure (PCWP) ratio, pulmonary artery pulsatility index (PAPi), and right ventricular stroke work index(RVSWI). The Recover Right Trial defined RV failure using three variables (RR-RVF Criteria) including a cardiac index < 2.2, CVP > 15 or CVP/PCWP< 0.65, or use of an inotrope or vasopressor. We explored the hypothesis that RVD is common and contributes to higher mortality in the setting of acute myocardial infarction complicated by cardiogenic shock (AMI-CS).

Table 1. Univariate analysis between cardiac and non-cardiac group

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Cardiac (n=41)</th>
<th>Non-cardiac (n=20)</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age (years)</td>
<td>63.7±13.4</td>
<td>54.8±13.5</td>
<td>0.017</td>
</tr>
<tr>
<td>Sex, male (%)</td>
<td>29 (70.7)</td>
<td>14 (70.0)</td>
<td>1.000</td>
</tr>
<tr>
<td>BMI (kg/m2)</td>
<td>23.5±3.7</td>
<td>23.6±4.0</td>
<td>0.965</td>
</tr>
<tr>
<td>APACHEII score</td>
<td>16.2±9.8</td>
<td>21.8±12.7</td>
<td>0.068</td>
</tr>
<tr>
<td>Mean BP (mmHg)</td>
<td>76.0±13.5</td>
<td>79.6±25.6</td>
<td>0.754</td>
</tr>
<tr>
<td>Ejection Fraction (%)</td>
<td>40.4±16.8</td>
<td>51.6±13.5</td>
<td>0.017</td>
</tr>
<tr>
<td>CPR (%)</td>
<td>18 (43.9)</td>
<td>14 (70.0)</td>
<td>0.031</td>
</tr>
<tr>
<td>Weaning (%)</td>
<td>21 (51.2)</td>
<td>2 (10.0)</td>
<td>0.002</td>
</tr>
<tr>
<td>ECMO time (hours)</td>
<td>79.5±14.1</td>
<td>67.9±19.9</td>
<td>0.641</td>
</tr>
</tbody>
</table>

*p-value: l = left main stenting, dissections, STEMI without CS, severe triple vessel disease, papillary muscle rupture, in hospital all-cause mortality, @9 months data only.