Prophylactic Support for High Risk PCI Case Presentations

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Faculty Disclosures

- Advisory Board / Board Member - Abbott Vascular
- Consultant - Abbott Vascular; Edwards Lifesciences
- Employee: None
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- Stock owner or Shareholder: None
Case #1
UPLM; LAD; occluded RCA
Normal LV fxn

47 yo male

Morbid obesity; HTN; OSA; NASH; Type 2 DM on insulin

1 month worsening angina

Positive nuc: inferolateral large reversible defect

Cath: LM and 3 v CAD

CTS declined CABG b/o co-morbidities
Coronary Angiography

SYNTAX Score 24
Echocardiography

Normal LV size

EF 50-55%
Pelvic Angiography

Iliacs, femorals with minimal ASCVD

MLD Iliac > 8 mm
Preclose LFA x2

14 Fr sheath LFA

Pigtail into LV

0.018 Platinum Plus
Long wire

CP Impella device over
PP wire into LV

7 Fr 3.75 EBU guide
ICUS LM and LAD

0.014 guidewire into distal LAD

Mechanical scanner ICUS
ICUS LAD and LM

LAD ref diameter 3.5 mm
LM ref diameter 5.5 mm
Pre-dilate LM and LAD

PTCA LAD and LM 2.5 x 12 balloon
Stent LM and LAD

Stent LAD 3.0 x 24 2nd gen everolimus eluting DES

Stent LM 4.0 x 12 2nd gen everolimus eluting DES

Post dilate LAD 3.5 x 20 nc balloon

Post dilate LM 5.0 x12, 5.5 x15 nc balloons
Final LM and LAD
ICUS LM after Final Post dil

Final MLA LM 21.9 mm²
Clinical Course

Impella device explanted in cath lab with Preclosure

RFA closed with Angioseal

Uneventful recovery

Pt discharged home next day
### 2011 PCI Guidelines of UPLM

**Table 2: Recommendations Pertaining to Unprotected Left Main Intervention in the American College of Cardiology Foundation/American Heart Association/Society of Cardiovascular Angiography and Intervention 2011 Guidelines for PCI**

<table>
<thead>
<tr>
<th>Classification</th>
<th>Level of Evidence</th>
<th>Recommendation</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>C</td>
<td>A heart team approach to revascularization is recommended in patients who have unprotected left main disease or complex CAD</td>
</tr>
<tr>
<td>IIa</td>
<td>B</td>
<td>Calculation of the STS and SYNTAX scores is reasonable in patients who have unprotected left main and complex CAD</td>
</tr>
<tr>
<td>IIa</td>
<td>B</td>
<td>IVUS is reasonable for the assessment of angiographically indeterminate left main CAD</td>
</tr>
<tr>
<td>IIb</td>
<td>B</td>
<td>IVUS may be considered for guidance of coronary stent implantation, particularly in cases of left main coronary artery stenting</td>
</tr>
<tr>
<td>IIa</td>
<td>B</td>
<td>PCI to improve survival is reasonable as an alternative to CABG in selected patients whose disease is stable with significant unprotected left main CAD with: 1) anatomic conditions associated with a low risk of PCI procedural complications and a high likelihood of a good long-term outcome (e.g., a low SYNTAX score ≤22, ostial or trunk left main CAD); and 2) clinical characteristics that predict a significantly increased risk of adverse surgical outcomes (e.g., STS-predicted risk of operative mortality ≥5%)</td>
</tr>
<tr>
<td>IIa</td>
<td>B</td>
<td>PCI to improve survival is reasonable in patients who have UA/NSTEMI when an unprotected left main coronary artery is the culprit lesion and the patient is not a candidate for CABG</td>
</tr>
<tr>
<td>IIa</td>
<td>C</td>
<td>PCI to improve survival is reasonable in patients who have acute STEMI when an unprotected left main coronary artery is the culprit lesion, distal coronary flow is TIMI flow grade 1, and PCI can be performed more rapidly and safely than CABG</td>
</tr>
<tr>
<td>IIb</td>
<td>B</td>
<td>PCI to improve survival may be reasonable as an alternative to CABG in selected stable patients who have significant unprotected left main CAD with: 1) anatomic conditions associated with a low to intermediate risk of PCI procedural complications and an intermediate to high likelihood of good long-term outcome (e.g., low-intermediate SYNTAX score of &lt;33, bifurcation left main CAD); and 2) clinical characteristics that predict an increased risk of adverse surgical outcomes</td>
</tr>
<tr>
<td>III (harm)</td>
<td>B</td>
<td>PCI to improve survival should not be performed in stable patients with significant unprotected left main CAD who have unfavorable anatomy for PCI and who are good candidates for CABG</td>
</tr>
</tbody>
</table>
Comprehensive Intravascular Ultrasound Assessment of Stent Area and Its Impact on Restenosis and Adverse Cardiac Events in 403 Patients With Unprotected Left Main Disease

Soo-Jin Kang, MD, PhD; Jung-Min Ahn, MD; Haegeun Song, MD; Won-Jang Kim, MD; et al
Teaching Points

Unprotected LM and LAD dz in pt at higher risk for CABG candidate for prophylactic supported high risk PCI

Determine vascular anatomy prior to PCI

Optimize stent results using ICUS
Case #2
Distal LM; atretic LAD via LIMA; RCA
EF 20%

81 yo male

CAD with CABG; Systolic CHF; COPD; type 2 DM on insulin

Admitted with c/o SOB; acute on chronic systolic CHF

CMR: viability inferior and lateral walls; scar anterior wall

Cath: LM and 3 v CAD; LIMA to atretic LAD

CTS declined redo CABG b/o co-morbidities
Coronary Angiography

LCA

LIMA to LAD

SYNTAX Score 29

RCA
Echocardiogram

4 chamber dilation

EF 20%
Pelvic Angiography

Note 75% Stenosis LFA
Impella Implantation and Guide Shot LM

Preclose RFA x2

14 Fr sheath RFA

Pigtail into LV

0.018 Platinum Plus long wire

CP Impella device over PP wire

6 Fr 3.5 EBU guide
ICUS LM

LM ref diameter 5.0 mm
Pre-dil LM

PTCA LM 1.5 x 8 mm, then 2.5 x 12 mm, and finally 3.0 x 15 nc balloons
Stent LM

Stent LM 3.5 x 20 2\textsuperscript{nd} gen everolimus eluting stent

Post dil LM 4.0 x 8 nc Balloon

ICUS confirmed good stent expansion and apposition
Unable to advance stent or balloon into distal RCA
Preclose RFA

Crossover sheath over LIMA diagnostic catheter from LFA into rt iliac artery

0.035 wire placed into rt SFA

10 x 40 mm balloon used to tampanode iliac flow while Preclose knots secured
Clinical Course

Impella device explanted in cath lab

LFA manual compression b/o stenosis in LCFA

AKI post procedure requiring transient HD

Pt discharged home on day 9 post procedure

Cardiac arrest 30 days post procedure despite LifeVest
VENTRICULAR SUPPORT

Patients with 3-Vessel Coronary Artery Disease and Impaired Ventricular Function Undergoing PCI with Impella 2.5 Hemodynamic Support Have Improved 90-Day Outcomes Compared to Intra-Aortic Balloon Pump: A Sub-Study of The PROTECT II Trial

JASON C. KOVACIC, M.D., PH.D.,¹ ANNAPOORNA KINI, M.D.,¹ SUBHASH BANERJEE, M.D.,²,³ et al
Impella 2.5 Labeling

**Indication for Use**

Indications for use

Temporary support (< 6 hrs) for high risk PCI in elective or urgent hemodynamically stable pts with severe CAD and depressed LV function

Additionally, potential for the following risks has been found to exist with use of the Impella 2.5: Acute renal dysfunction; Aortic insufficiency; Aortic valve injury; Atrial fibrillation; Bleeding; Cardiogenic shock; Cardiac tamponade; Cardiopulmonary resuscitation; Cerebral vascular accident/Stroke; Death; Device malfunction; Failure to achieve angiographic success; Hemolysis; Hepatic failure; Insertion site infection; Limb ischemia; Myocardial infarction; Need for cardiac, thoracic or abdominal operation; Perforation; Renal failure; Repeat revascularization; Respiratory dysfunction; Sepsis; Severe hypotension; Thrombocytopenia; Thrombotic vascular (non-CNS) complication; Transient ischemic attack; Vascular injury; Ventricular arrhythmia, fibrillation or tachycardia

*The Impella 2.5’s product labeling allows for the clinical decision to leave Impella 2.5 in place beyond the intended duration of ≤6 hours due to unforeseen circumstances.*
Teaching Points

Single remaining functional vessel and reduced LV function candidate for prophylactic supported high risk PCI

Determine vascular anatomy prior to PCI

Optimize stent results using ICUS

Complete revascularization if possible