

Advantages of Off-Pump CAB

- No Cardiopulmonary Bypass
- No Hypothermia
- No Aortic Cross Clamping
- No Cardioplegia

Challenges for Off-Pump CAB

- Exposure of posterior and lateral sides of the heart
- Stabilization of target area
- Visualization
- Temperature
- **Anesthetic Management**

Relative Contra-indications of Off-Pump CAB

- Intra-myocardial vessels
- Small distal targets
- Poor conduits
- Calcified coronary arteries
- Hemodynamic instability due to cardiac manipulation or ischemic preconditioning
- Cardiogenic shock

Off-Pump CAB Demands

- Exposure of posterior and lateral wall coronary arteries
- Hemodynamic stability
- Stabilization of target area
- Visualization

Outcomes of Off-Pump CAB

- Less blood loss
- Reduction of pulmonary complications
- Fewer neurological complications
- Shorter ICU stays & earlier D/C
- Significant cost reduction

Anesthetic Management for OP-CAB

- GA w/ appropriate conservative induction
- Lines / Monitoring:
 - 2 large bore IV
 - A-line
 - 4 lumen CVL +/- PAC
 - BIS / PSA
 - TEE

Anticoagulation & Hemostasis

- Anti-fibrinolytics NOT standard
 - (Amicar, Tran-Examic Acid)
- Heparin dose: 3 mg/kg (ACT > 400 sec)
- The ACT q15 minutes (add heparin if ACT is < 400 sec)
- Protamine of 1:1 ratio (or 0.8 : 1) for heparin reversal at end of anastomotic time

Hemodynamic Maintenance

#1 Challenge:

Managing the cardiovascular changes that occur with dislocation / retraction of the heart during exposure of the anastomotic site.

Hemodynamic Maintenance

- Anastomotic exposure associated with kinking of systemic & pulmonary veins.
- Arrhythmias from surgical manipulation
- Mechanical compression of the right ventricle
- ↓ Preload
- ↓ CO if appropriate precautions are not taken

Hemodynamic Maintenance

- #2 Challenge: Preventing the consequences of acute myocardial ischemia during coronary artery occlusion.
- Severity of myocardial ischemia and reperfusion related to intracoronary shunt usage.

Hemodynamic Maintenance

- Maintenance of Cardiac Output at all times
 - Cardiac Index > 2 L/min
- Accomplished with appropriate attention to:
 1. Preload
 2. Contractility
 3. Heart rate (synchrony)
 4. Afterload

Hemodynamic Maintenance

The treatment of hemodynamic changes in OP-CAB surgery is based on an understanding of the pathology, pathophysiology, and external factors involved.