

DETROIT CSI Treatment Algorithm

Exclusion Criteria

- Septic, anaphylactic, hemorrhagic, and neurologic causes of shock
- Non ischemic causes of shock/hypotension (Pulmonary Embolism, Pneumothorax, Myocarditis, etc)
- Active Bleeding
- Recent major surgery
- Mechanical Complications of AMI
- Known left ventricular thrombus
- Mechanical aortic valve

Inclusion Criteria

- Symptoms such as chest pain or dyspnea lasting for >30 minutes in duration
- EKG evidence of ischemic changes (including STEMI or NSTEMI)
- Hypotension (<90/60)
- Need for vasopressors or inotropes to maintain systolic blood pressure >90

ACTIVATE CATH LAB

ACCESS

- Obtain femoral arterial access (via direct visualization with use of ultrasound)
- Obtain venous access (Femoral or Internal Jugular)
- Obtain either fick calculated cardiac index or LVEDP

IF LVEDP >15 or Cardiac Index < 2.2 AND anatomy suitable, place IMPELLA

PCI

- Obtain Coronary Angiography and PCI (attempt to provide complete revascularization of all obstructive lesions other than CTO)
- Obtain TIMI III Flow, if unable to obtain administer Nicardapine and/or Adenosine

Hemodynamic Calculations

- (1) Cardiac Power Output (CPO) $\frac{MAP \times CO}{451}$
- (2) Pulmonary Artery Pulsatility Index (PAPI) $\frac{sPAP - dPAP}{RA}$

- If CPO remains <0.6 operators should consider the two listed possibilities:
 - PAPI <0.9 provide right sided hemodynamic support.
 - PAPI >0.9 consideration should be made to provide additional hemodynamic support. Local practice patterns should dictate the next steps, which may include:
 - Placement of a more robust hemodynamic support devices
 - Transfer to LVAD/Transplant center
- If CPO is >0.6 and PAPI <0.9 operators should consider providing right sided hemodynamic support.
- If CPO is >0.6 and PAPI >0.9 operators should determine if MCS should be weaned and removed in the cath lab or left in with transfer to ICU.

WEANING

- MCS device should only be considered for explanation once the following criteria are met.
 - Weaning off of all inotropes and vasopressors
 - CPO >0.6
 - PAPI > 0.9
- In patients who do not meet the above criteria MCS should remain for 2-5 days with strong consideration for transfer to LVAD/Transplant centers.

*** QUALITY MEASURES ***

- Shock Onset to Device < 90 minutes
- Establish TIMI III Flow
- Complete Revascularization
- Maintain CPO >0.6
- Maintain PAPI > 0.9
- Improve survival to hospital discharge to >80%

DETROIT CARDIOGENIC SHOCK INITIATIVE