REBOA FOR HEMORRHAGIC SHOCK

Resuscitative Aortic Occlusion (RAO)

Facilitates distal hemorrhage control/ increased cardiac afterload

REBOA as RAO Option

- Site of hemorrhage **BELOW** diaphragm
- REBOA in austere locations may facilitate:
  - Treatment of multiple casualties
  - Blood conservation
  - Facilitate DCS operative field

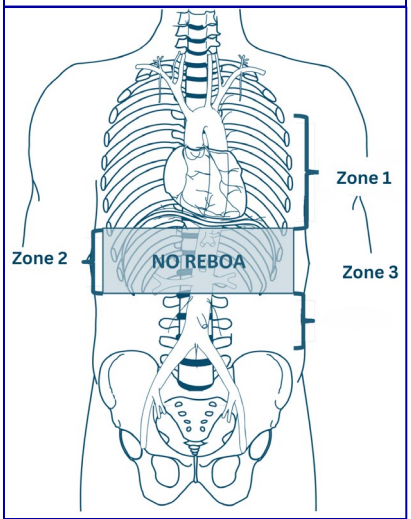
Initial Management

- **NO** if penetrating chest trauma
- Chest Tubes/CXR/eFAST (no HTX)
- Optimal timing: SBP 60-80mmHg

Rapidly determine:

- Mechanism of Injury
- Pulses/duration of cardiac arrest
- Cardiac rhythm (narrow complex)
- Resources/number of casualties

REBOA
Resuscitative
Endovascular
Balloon
Occlusion of the
Aorta



Common Femoral Artery Access (CAF) Most Rate-limiting Step

- Ultrasound above Profunda Brachi: Visualize needle in CFA
- Preemptive placement of A-line
- 5Fr micropuncture kit/18g A-line
- Upsize to 7Fr (dilator over wire)
- Open cut down

DoD REBOA Catheters

- ER-REBOA-Plus
  - Complete Aortic Occlusion only
- pREBOA-PRO
  - Allows partial flow past balloon
- Target SBP
  - Above Balloon 90-110mmHg (MAP 55-65)
  - Below Balloon 20mmHg (MAP 20)
- Required supplies (Appendix D)
- Decision algorithms: (Appendix A/B)

Management Steps

1. Arterial Access:
   Position/2cm below Inguinal ligament (ASIS→pubis)
2. Inflate Balloon/Establish AO: (secure balloon/sheath)
   - Zone 1: markers 45-49cm or meas. to mid-sternum
   - Zone 3: markers 26-29cm or umbilicus
   - Monitor above/below balloon (doc times/pressures)
3. Operative Control of Bleeding:
   - DCS maneuvers ASAP (clamp/Pringle/packing)
   - Defer shunts/excisions/repairs to after balloon deflated
4. Deflate Balloon:
   - Communicate! (10% flow ↑/0.2ml balloon vol↓)
   - Hypotension may require intermittent inflation/deflation
5. Remove Sheath: (majority of REBOA complications) :
   - 30min direct pressure/hourly n/v checks x 24hrs
   - May leave in place if ? re-bleed/ travel time < 4hrs
   - **NEVER** leave in place for transfer to host nation

REBOA Pitfalls

- Performed too late (absent pulses)
- Difficulty accessing CFA
- Insert below femoral artery bifurcation
- Failure to address thoracic pathology
- Failure to recognize complete AO when partial AO was intended
- Unrecognized proximal femoral/Iliac artery transection
- Catheter/guidewire doesn't pass freely
- Overinflating balloon
- Leaving balloon inflated too long
- Visceral/spinal ischemia d/t AO time
- Balloon migration d/t failure to secure
- Deflating balloon too quickly
- Premature arterial sheath removal
- Injury to arterial access point
- Resources committed to futile effort

METRICS:

- ✓ REBOA not performed in patients without signs of life/CPR >15min
- ✓ REBOA performed for hemorrhagic shock associated with abd, pelvic, junctional LE bleeding/ indication clearly documented
- ✓ Pt assessed for thoracic hemorrhage before REBOA performed
- ✓ Pre and Post REBOA BPs/balloon times documented on REBOA procedure note (Appendix H)
- ✓ LE pulses documented hourly x 24hrs post REBOA

This information is pulled from the evidence-based Joint Trauma System (JTS) REBOA for Hemorrhagic Shock Clinical Practice Guideline (CPG). JTS CPGs can be found at the JTS CPG website or the JTS Deployed Medicine site.