Implementing a REBOA Program at a Rural Trauma Center

Grant Rynn, MHS, PA-C, FP-C

48th Denver Health Rocky Mountain Trauma and Emergency Medicine Conference
Disclosures: None
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Resuscitative Endovascular Balloon Occlusion of the Aorta
2017 ACS COT & ACEP Joint Statement
Transfer of patients

Due to the inability of prehospital providers to appropriately manage and troubleshoot the devices during transport, and the lack of evidence to support safe duration of aortic occlusion, transfer of patients with REBOA is not recommended. Thus, REBOA should not be placed in Emergency Departments in institutions where the patient cannot receive definitive surgical care and hemostasis at that same institution.

We can deploy a REBOA and perform DCR/DCS, now what?

- Placement in ER with transport straight to a Level 1?
- Aeromedical critical care transport with Flight RNs/Flight Paramedics
- Ground critical-care, acts allowed, waivers?
Limitations of Our Level 3 Trauma Center
Limitations of Our Level 3 Trauma Center

- No dedicated OR for Trauma
- Limited surgical teams after hours/weekends/holidays
- Limited blood bank
- Limited subspecialties
- Always changing weather and road conditions
- Need for transfer to higher level of care
Hurdles
Hurdles

- Balloon occlusion times
  - Z1: 30 min
  - Z3: 1 hour
- Work with EMS for state waivers
- Transfer to tertiary care facility
  - Air vs. Ground
  - Weather and Capabilities
- Strict Policy & Protocols
- Training
- Equipment
- Rollout

Is this even possible?

- Internal policy and implementation
- Care of patient once they leave an OR
- Limitations with transfer to higher level of care
Transfer Logistics
Transfer of patients

► In extremely rare circumstances in which patients with REBOA have immediate access to transportation and where the system can meet the time targets for aortic occlusion to initiation of definitive hemorrhage control (<15min for Zone 1, <30min for Zone 3) interfacility transfer may be considered.

In this situation, protocols must be developed to ensure training of transport personnel, seamless communication among centers, and direct access to hemorrhage control at the receiving facility. This should include a direct-to-OR/IR policy, bypassing the emergency department.”
SO YOU'RE SAYING

THERE'S A CHANCE.
Policy and Procedure
Policy and Procedure

- Who can place a REBOA?
  - Acute care surgeon trained in REBOA
    - ED Physician may assist with placement, gain access to CFA

- Zone I should only be performed if the anticipated time to start of operation is less than 15 minutes, ideally deflated within 30 minutes from time of placement, but no longer than 60 minutes.

- Zone III may be tolerated for longer periods of time. Clinical guidelines have not been established to define a safe duration of balloon inflation. Current evidence suggests that 1-2 hours of duration is tolerable.

- Transfer of patients with Zone III REBOA placement may considered if there is a reasonable expectation that definitive control can be accomplished within the guidelines for duration of inflation.

- All cases of REBOA placement shall be reviewed as part of the ongoing Trauma Services Committee Performance Improvement Process.
Training, training, and more training
Training

- **High Acuity, Low Occurrence** events
- Didactic
- Case reviews & grand rounds
- Simulator
- Multidisciplinary and multidepartmental
  - ED
  - Anesthesia
  - OR
  - ICU, PRE-OP, PACU
  - OBGYN
  - Imaging, respiratory, lab, pharmacy
- Debriefs

**Lessons learned**

- Communication on balloon status throughout the room
- Do NOT draw ABGs through the arterial line
- Repetition is key
- Realistic simulation training works
REBOA Kits
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REBOA Cases
REBOA Cases

1. GSW Left posterior flank
2. Skier-Skier collision on Plavix
3. Abdominal aortic injury at bifurcation
4. Aortic laceration at level of L2
5. MVC I-70 rollover ejection
Shift of Focus
Shift of Focus

- Bridge to our own operating room
  - Rapid placement to conserve blood products and hemorrhage control at our facility,
  - Determining need for transfer for higher level of care
  - Giving transport team the ability to inflate balloon en route

- Value of realistic training and demonstration of competence of team with large multidisciplinary simulations

- Shifting focus of placement and transfer to placement, damage control, resuscitation, and transfer once stabilized
Is partial REBOA the Future?
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grant.rynn@vailhealth.org