REBOA – what, who, where?

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SAAS MedSTAR

*nanos gigantium humeris insidentes*
“The whole is greater than the sum of its parts”
REBOA
Retrograde Endovascular Balloon Occlusion of the Aorta
Resuscitative Endovascular Balloon Occlusion of the Aorta (REBOA)
REBOA - Location

Aortic Zone I

Aortic Zone II

Aortic Zone III
Technique

• Femoral access
  – Palpation
  – Ultrasound
  – Cut-down

• Needle

• Guidewire
Technique

- **Sheath**
  - Art-line

- **Guidewire**
  - Stiff
  - Very long

- **Balloon Catheter**
Placement

- External landmarks
- X-ray
- Fluroscopy
- Ultrasound
Does it work?

<table>
<thead>
<tr>
<th>Ref</th>
<th>Year</th>
<th>n</th>
<th>Weight</th>
<th>Mean SBP Rise (95% CI)</th>
<th>Forrest Plot</th>
</tr>
</thead>
<tbody>
<tr>
<td>34</td>
<td>1989</td>
<td>16</td>
<td>16.3%</td>
<td>51 (33 – 68)</td>
<td></td>
</tr>
<tr>
<td>14</td>
<td>2010</td>
<td>13</td>
<td>7.1%</td>
<td>70 (41 – 99)</td>
<td></td>
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<tr>
<td>45</td>
<td>2012</td>
<td>6</td>
<td>20.4%</td>
<td>37 (23 – 51)</td>
<td></td>
</tr>
<tr>
<td>13</td>
<td>2013</td>
<td>6</td>
<td>8.7%</td>
<td>61 (35 – 87)</td>
<td></td>
</tr>
<tr>
<td>22</td>
<td>2015</td>
<td>7</td>
<td>8.3%</td>
<td>52 (25 – 79)</td>
<td></td>
</tr>
<tr>
<td>19</td>
<td>2015</td>
<td>14</td>
<td>39.2%</td>
<td>57 (51 – 63)</td>
<td></td>
</tr>
</tbody>
</table>

**Overall Effect** 53 (44 – 61)

Model: p < 0.001
Heterogeneity: $I^2 = 35.5$

Abbreviations: SBP – Systolic Blood Pressure; CI – Confidence Interval

Overall, the evidence base is weak with no clear reduction in hemorrhage-related mortality demonstrated. Formal, prospective study is warranted to clarify the role of this adjunct in torso hemorrhage. (*J Trauma Acute Care Surg.* 2016;80: 324–334.

**Survival of severe blunt trauma patients treated with resuscitative endovascular balloon occlusion of the aorta compared with propensity score-adjusted untreated patients**

*Tatsuya Norii, MD, Cameron Crandall, MD, and Yusuke Terasaka, MD, Albuquerque, New Mexico*

**Implementation of resuscitative endovascular balloon occlusion of the aorta as an alternative to resuscitative thoracotomy for noncompressible truncal hemorrhage**

*Laura J. Moore, MD, Megan Brenner, MD, Rosemary A. Kozar, MD, PhD, Jason Pasley, DO, Charles E. Wade, PhD, Mary S. Baraniuk, PhD, Thomas Scalea, MD, and John B. Holcomb, MD, Houston, Texas*
Joint Theater Trauma System Clinical Practice Guideline

Hypotensive (SBP < 90) partial or non-responder

Access common femoral artery for a-line or REBOA

CXR possible aortic injury?

No REBOA

Position REBOA in ZONE 1, inflate and proceed to emergent laparotomy

Yes

FAST positive?

Pelvic xray fracture?

No

No

Position REBOA in ZONE III and inflate

Yes
Indications:

Zone III REBOA is indicated in the following “Code Red” patients with severe shock due to non-compressible exsanguinating haemorrhage when a definitive means of haemorrhage control is not immediately available.

- Blunt trauma patients with suspected pelvic fracture (predicted co-existing intra-abdominal haemorrhage is not a contraindication).
- Patients with penetrating injury to the pelvic or groin area with uncontrolled haemorrhage from a lower limb junctional vascular injury (iliac or common femoral vessels).
- Patients in an agonal state as a result of exsanguination from a pelvic fracture or lower limb junctional vascular injury.
Key determinants

• An appropriate mechanism of injury

• Injuries compatible with haemorrhage

• Going to die imminently.
But only one component of a system
Walking again: London cyclist crushed by skip lorry hails medic who saved her

Victoria Lebrec, 25, thanks medic whose pioneering procedure saved her life

A cyclist who suffered near-fatal injuries when she was crushed by a skip lorry today told of her joy at being able to walk again and return to work.
Thank-you

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