

Should pre-hospital REBOA be introduced by Essex and Hertfordshire Air Ambulance Trust?

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Background

Major pelvic trauma can cause massive bleeding and rapid death. Resuscitative Endovascular Balloon Occlusion of the Aorta (REBOA) is a procedure recently successfully introduced into the pre-hospital arena to manage such life-threatening haemorrhage¹.

REBOA involves the percutaneous insertion of a balloon tipped catheter into the descending aorta to occlude distal blood flow. Zone 3 REBOA describes placement of the balloon in the distal abdominal aorta below the renal arteries and above the aortic bifurcation. The aim is to temporarily control catastrophic pelvic haemorrhage so as to enable transfer to definitive intervention.

Aim

To establish the clinical need for Zone 3 REBOA for a mixed urban-rural Air Ambulance service in southeast England.

Method

We performed a retrospective search of all patients attended by our service over a 2 year period. We identified patients who triggered our major haemorrhage protocol - a systolic blood pressure of <90 mmHg, not responsive to a fluid challenge and had actual or suspected bleeding.

Patient report forms were independently assessed by three experienced pre-hospital care physicians, trained in delivery of pre-hospital REBOA, to establish if they would have performed the procedure in each case had it been available.

Results

Between 28th November 2012 and 28th November 2014 a total of 1218 patients were attended. Forty-four patients were identified as triggering the major haemorrhage protocol criteria.

Of these 44 patients, in only one case did all three clinicians agree that they would have performed pre-hospital zone 3 REBOA if it were available. This represents 0.08% of all patients attended in the study period.

Agreement between two of three clinicians was demonstrated in two patients and a single clinician would have performed zone 3 REBOA in a further two patients.

Discussion

Given the novelty of pre-hospital REBOA and the difficulty of retrospective case note review it is unsurprising that some disparity exists between clinicians in whether they would have performed the procedure on the identified patients.

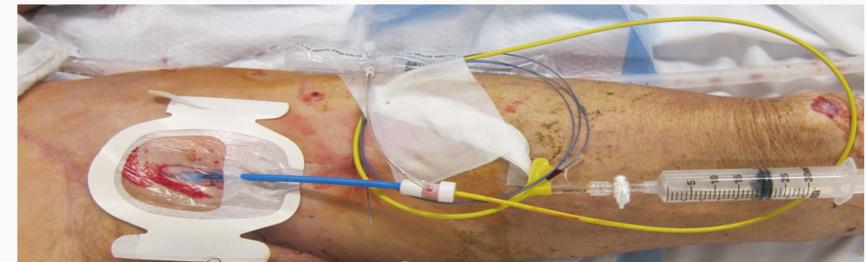
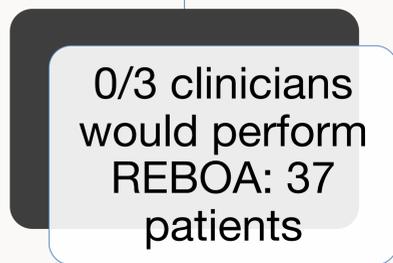
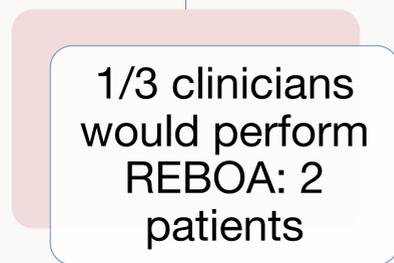
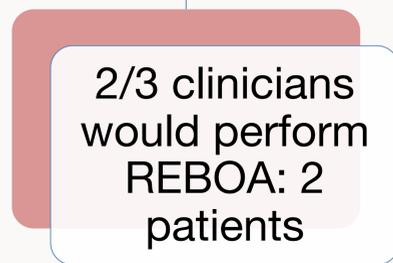
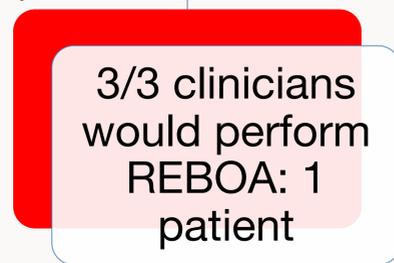
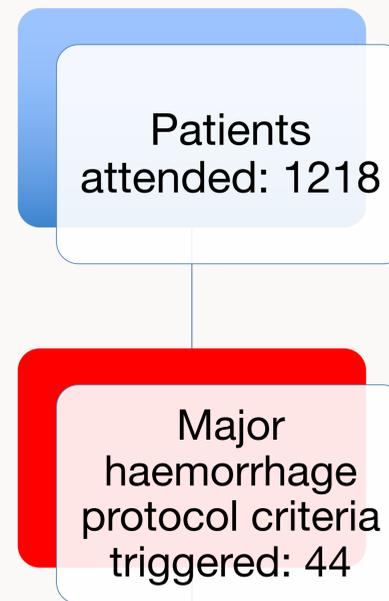
Patients where two or more clinicians were in agreement all had clinically evident pelvic fractures with haemodynamic compromise. All other patients where REBOA was considered had sustained blunt trauma but with no consistent injury pattern.

Conclusion

REBOA serves as a bridge to full vascular control. The case of need is rare but a successful procedure may be life-saving.

Risks of pre-hospital REBOA (particularly when performed only rarely on patients) may be reduced by a rigorous training and governance programme with careful patient selection. Infrequent need for a procedure should not exclude it from our treatment options but would require regular simulation and clinical moulage to learn and maintain skills.

Successful introduction of pre-hospital REBOA would only be feasible with involvement and support of the receiving major trauma centres.



1 – Walsh, S (2015) Resuscitative Endovascular Balloon Occlusion of the Aorta “REBOA” [Lecture to SATS Aarhus Symposium, 24th September]