



Whole Blood Administration During Inflation of a Zone I Resuscitative Endovascular Balloon Occlusion of the Aorta (REBOA); A 30 vs. 60 Minutes Comparison

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Background

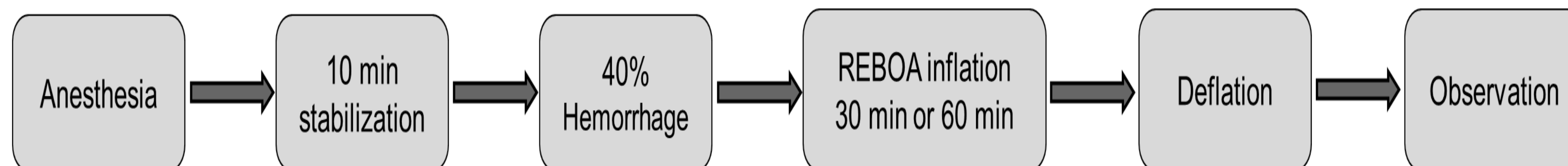
- Traumatic hemorrhage is the leading cause of death in civilian and military environments
- Little is known about the cardiovascular effects of simultaneous whole blood (WB) administration and REBOA following hemorrhagic shock
- Information about the feasibility of this resuscitation strategy would be invaluable in en route scenarios

Aims

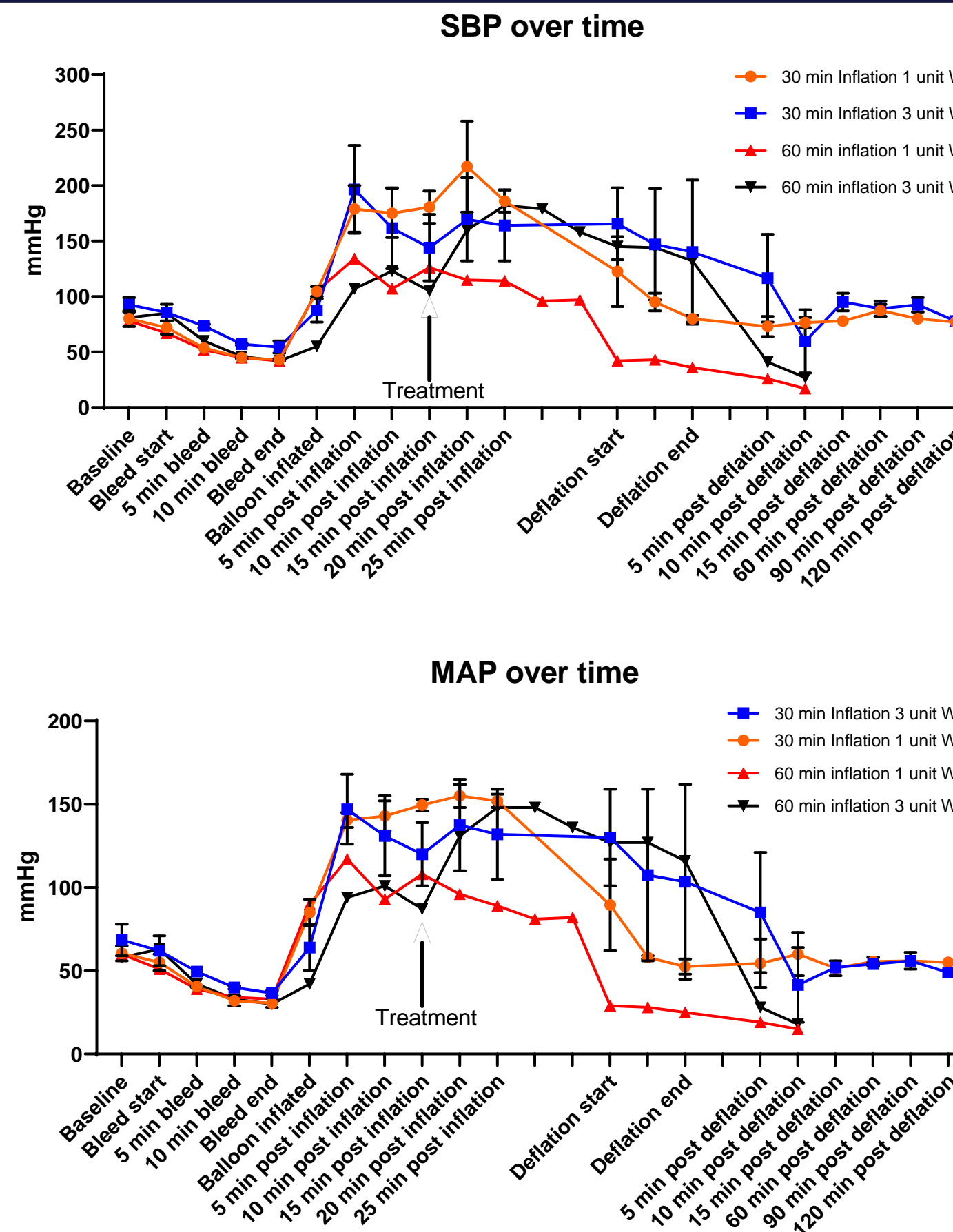
1. To determine most successful time parameters for balloon inflation: 30 minutes vs. 60 minutes
2. To determine if the administration of WB during REBOA will maintain a normal blood pressure and increase survival after balloon deflation

Methods

- Six swine (*Sus scrofa*) weighing 65kg – 85kg
- 40% controlled hemorrhage
- Randomized to Zone I REBOA balloon inflated for either 30 minutes or 60 minutes
- Balloon placement confirmed by fluoroscopy
- Fifteen minutes after balloon inflation, subjects received either one or three units of WB (5 minutes per unit), therefore resuscitation occurred simultaneously with inflated balloon.
- Subjects were observed for 120 minutes following balloon deflation or until death criteria was met
- Physiological parameters, blood gas analysis and chemistries were collected

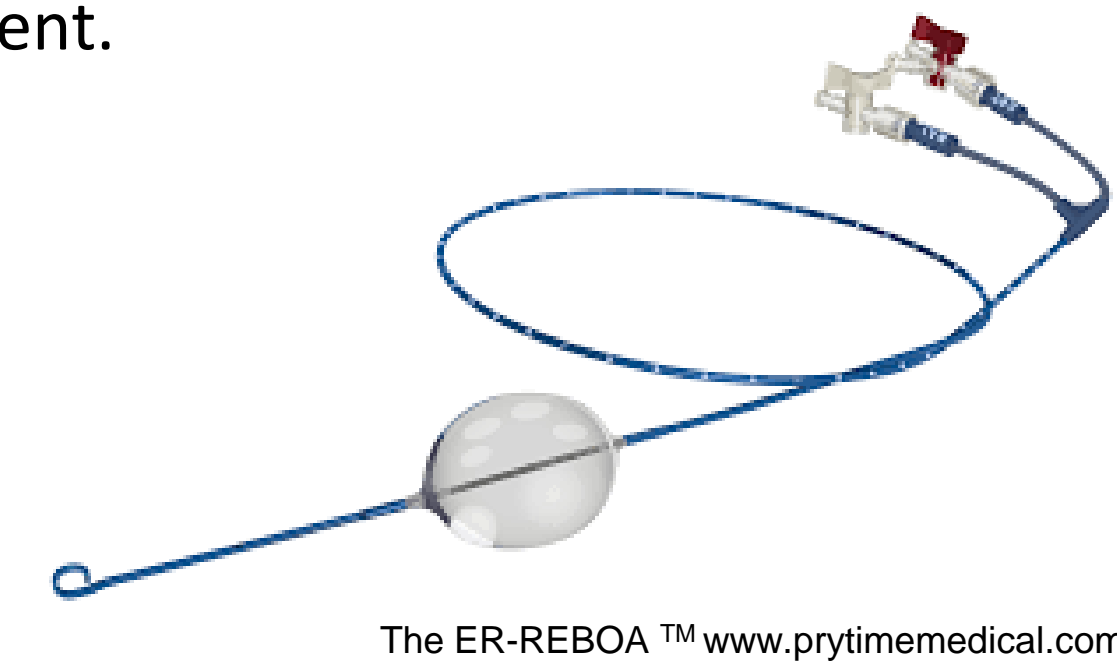


Results



	30 min 1 unit (mins)	30 min 3 units (mins)	60 min 1 unit (mins)	60 min 3 units (mins)
Average Time to death post deflation	0:90:00	0:90:00	0:06:00	0:03:00

- 4/4 subjects in the 30-minute cohort survived the entire observation period (2hrs) post-deflation.
- 2/2 subjects in the 60-minute cohort died at an average of 3 minutes post-deflation regardless of treatment.



Limitations

- Animal model
- Preliminary data from a larger study
- Low n number (n=6)

Conclusions

Simultaneous administration of WB during 30-minute REBOA is a viable resuscitation approach. However, simultaneous administration of WB during 60-minute REBOA does not prevent death after balloon deflation.

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