

Supplemental Online Content

Lendrum RA, Perkins Z, Marsden M, et al. Prehospital partial resuscitative endovascular balloon occlusion of the aorta for exsanguinating subdiaphragmatic hemorrhage. *JAMA Surg*. Published online July 10, 2024. doi:10.1001/jamasurg.2024.2254

eFigure 1. Individual Hemodynamic responses to Z1-REBOA and P-REBOA

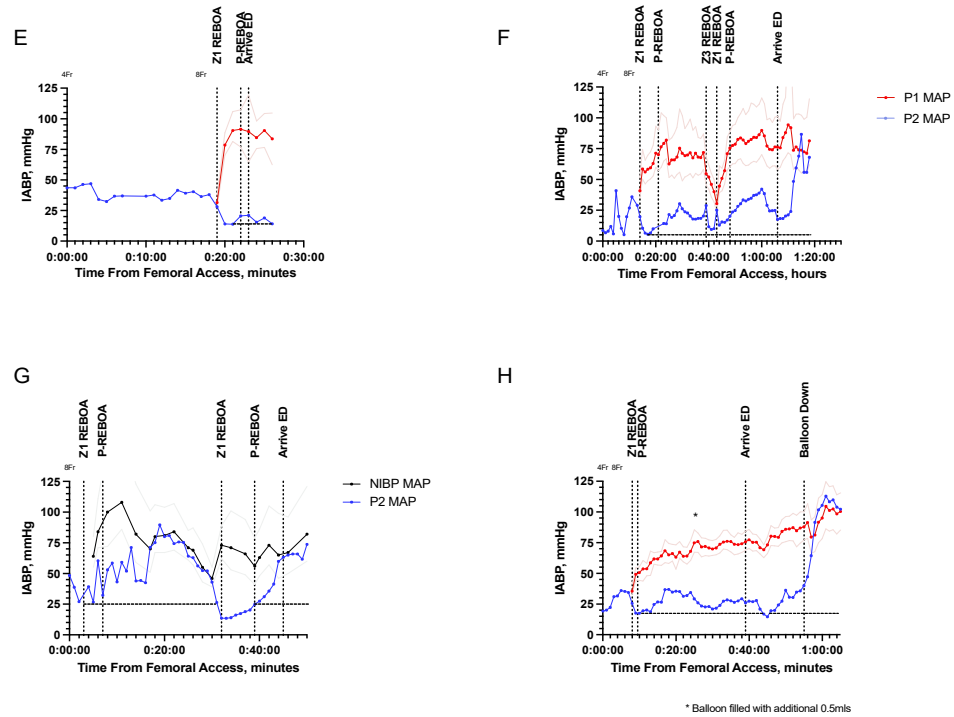
eFigure 2. Kaplan-Meier Survival Estimates Z1 REBOA, P-REBOA and Resuscitative Thoracotomy

eTable 1. Technical Outcomes – Z1 REBOA Patients

eTable 2. Key Timings (minutes)

This supplemental material has been provided by the authors to give readers additional information about their work.

eFigure 1. Individual Hemodynamic responses to Z1-REBOA and P-REBOA

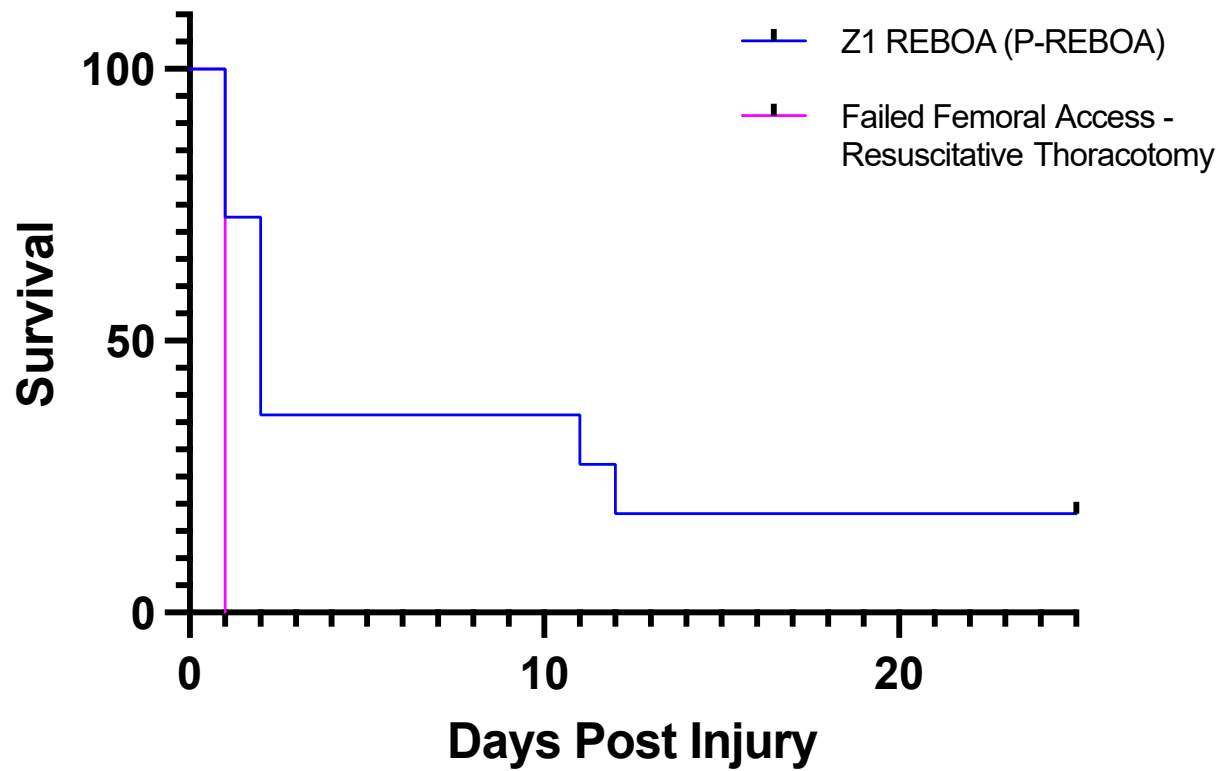


Legend eFigure 1

P1 MAP	Proximal (aortic) mean arterial pressure measured tip REBOA catheter
P2 MAP	Distal mean arterial pressure measured side arm 8Fr access sheath CFA
NIBP MAP	Non-invasive blood pressure - mean arterial pressure
-----	Post inflation distal mean arterial pressure

E	Case 3
F	Case 6
G	Case 7
H	Case 9

eFigure 2. Kaplan-Meier Survival Estimates Z1 REBOA, P-REBOA and Resuscitative Thoracotomy



eTable 1. Technical Outcomes – Z1 REBOA Patients

Case (Sequential order)	Catheter insertion depth (cm)	Z1 REBOA				P-REBOA				Duration (min)				Total Duration REBOA
		Proximal IABP transduced	Balloon inflation (vol, ml)	Confirmed Z1 positioning	Repositioned (Zone)	Post inflation D- MAP mmHg (C-REBOA)	Increase D-MAP mmHg	Return distal pulsatility	Pre- hospital P-REBOA achieved	SP- REBOA	Z1 C- REBOA	Z1 P- REBOA	Z3 REBOA	
1(1)	47	Yes	8	Yes	No	10	12	Yes	Yes	No	19	70 + 100 ^J	0	189
2 (2)	45	Yes ¹	8	Yes ^a	Yes (Z3) ^D	20	0	No	No	N/A	79	N/A	49	128
3 (3)	45	Yes	8	N/I	Yes (Z3) ^D	13	10	Yes	Yes	Yes	2	35	20	57
4 (4)	45	Yes	8	No ^b	Yes (Z3) ^E	7	14	Yes	Yes	No	10	5	65 ^I	80
5 (9)	45	Yes	8	Yes	No	15	10	Yes	Yes	No	18	102	0	120
6 (10)	45	Yes ²	8	Yes	Yes (Z3) ^{E, F}	6	9	Yes	Yes	No	10 + 5 ^F	17 + 28 ^F	4	64
7 (11)	45	No ^{3,4}	8	Yes	No	26	30	Yes	Yes	Yes	4	88	0	92
8 (12)	45	Yes ⁵	8	No ^c	No	8	0	No	No	N/A	13 ^C	N/A	0	13
9 (14)	45	Yes	5	Yes	No	18 ^H	N/A ^H	Yes ^H	Yes ^H	Yes	0	49	0	49
10 (15)	45	Yes ¹	8	Yes ^a	No	13	0	No	No	N/A	71	77 ^k	0	148
11 (16)	45	Yes	5	Yes	Yes (Z3) ^G	15	5	Yes	Yes	Yes	9	23	35	67

IABP – Intra-arterial blood pressure, N/I – Not imaged, D-MAP – Distal mean arterial pressure mmHg, P-REBOA – Partial REBOA, SP-REBOA – Spontaneous P-REBOA, N/A – Not applicable.

¹ Proximal IABP transduced post balloon inflation, monitoring setup issue (failed transducer “zero” therefore no numerical value recorded), ² Prolonged blockage access sheath and therefore lack of distal pressure value, ³ multiple set-up issues transducer on REBOA catheter lumen proximal to balloon (balloon transducer 3-way tap open to air/atmospheric pressure, failure pressurization REBOA catheter flush line, ultimately failure of arterial transducer requiring replacement on hospital arrival, NIBP values substituted) ⁴ Inadvertent balloon 3-way tap displacement resulting in balloon deflation and hypotension, ⁵ Proximal IABP transduced post REBOA (transducer cable disconnection).

^a Surgical palpation, ^b Repositioned – Z3 pre-hospital (peri-renal (Z2) on CT, ^c Pronounced Life Extinct on scene, device in situ, ^D Operating theatre, ^E Pre-hospital, ^F Repositioned Z1 due to hypotension, ^G Emergency Department, ^H Straight to P-REBOA, no period C-REBOA, distal pulsatility never lost, ^I 13 minutes Z3 C-REBOA + 52 minutes Z3 P-REBOA, ^J Second period Z1 P-REBOA during repeat DCS Laparotomy (approximate timings), ^k in-hospital P-REBOA, commenced in the ED (approximate timings) following titrated balloon deflation.

eTable 2. Key Timings (minutes)

Case (Sequential order)	Emergency call – REBOA	LAA arrival – REBOA	REBOA – P-REBOA	LAA Scene Time	Emergency call – Hospital Arrival
REBOA					
1 (1)	54	10	6	32	89
2(2)	67	49	N/A	67	108
3(3)	74	62	2	49	72
4(4)	56	31	10	39	73
5(9)	53	34	18	41	86
6(10)	67	38	10	77	115
7(11)	54	28	4	56	93
8(12)	54	30	N/A	59	N/A
9(14)	57	40	0	55	82
10(15)	74	43	N/A	56	115
11(16)	67	54	9	60	89
Failed femoral arterial access					
12(5)				47	84
13(6)				48	85
14(13)				32	94
EFA only					
15(7)				71	111
16 (8)				50	96
Median (IQR)	57 (54-67)	38 (30-49)	8 (3-18)	Cohort 53 (43-60) REBOA 55 (47-67)	Cohort 89 (84-108) REBOA 89 (82-108)