



Out-of-hospital cardiac arrest following trauma: What does a Helicopter Emergency Medical Service offer?

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INTRODUCTION

Helicopter emergency medical services (HEMS) are often dispatched to patients in traumatic cardiac arrest (TCA) as they can provide treatment and advanced interventions in the pre-hospital environment that have the potential to contribute to an increased survival. This study aimed to investigate the added value of HEMS in the treatment of TCA in a non-urban environment.

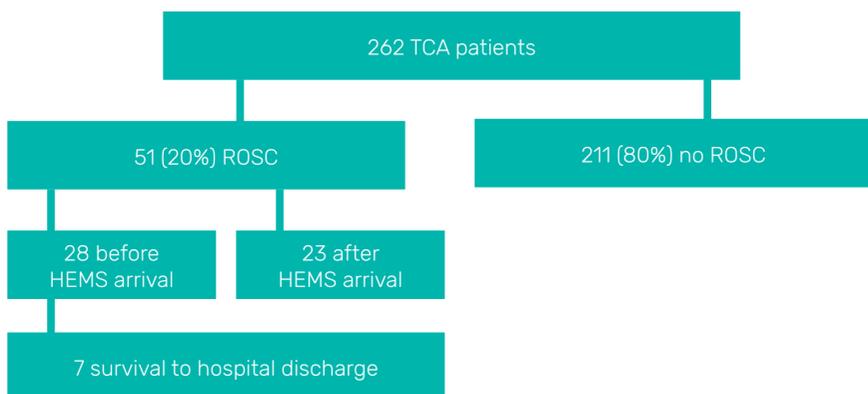
METHODS

- Retrospective cohort study of all patients with a TCA
- July 1st 2013- May 1st 2018
- Non-urban HEMS (Air Ambulance Kent Surrey Sussex)

RESULTS AND DISCUSSION

Patients:

- Median age 45 (5-93), 75% male
- Median response time 30 (13-109) min
- Blunt trauma predominantly (85.9%), both in patients with- and without ROSC and in survivors (6/7)



Interventions

- 387 HEMS interventions performed in 227 patients



TABLE 1: HEMS INTERVENTIONS IN PATIENTS WITH TCA

	Total group (n=262)	Sustained ROSC (n=51)	No ROSC (n=211)	p
Patients with one or more HEMS Interventions	277 (86.3)	40 (76.9)	187 (88.6)	.007
RSI	43 (16.3)	19 (36.5)	24 (11.4)	<0.001
Blood Products	114 (42.9)	32 (61.5)	81 (38.4)	.005
Thoracostomies	221 (84.0)	36 (69.2)	185 (87.7)	.001
Release of blood or Air	152 (57.8)	27 (52.9)	125 (59.2)	.38
Thoracotomy	8 (3.0)	2 (3.8)	6 (2.8)	.98
Surgical Airway	2 (0.8)	2 (3.8)	0 (0)	.015

ROSC:

- ROSC not associated with trauma mechanism (r=0.04, p=0.55)
- ROSC associated with both HEMS- and non-HEMS interventions:
 - Blood product administration OR 8.54 [2.84-25.72].
 - RSI OR 2.95 [1.32-6.58].
 - Ventilation (BVM) OR 2.54 [1.19-5.02].
- Many non-HEMS interventions performed by HEMS team in patients who get ROSC

	Sustained ROSC (n=51)	No ROSC (n=211)	p
HEMS Interventions			
RSI	9	10	.29
Blood Products	12	20	<.001
Thoracostomies	15	21	.003
Release of blood or Air	11	16	.57
Thoracotomy	0	1	.70
Surgical Airway	1	1	.70
Other Interventions			
ETI w/o drugs	1	7	.05
SGA	0	3	.10
IV Access	6	5	.1
IO Access	1	8	.03
Pelvic Binder	2	3	.41

Survival:

- 7 survivors, all had ROSC before arrival of HEMS.
- All had one or more HEMS interventions (average 2).

CONCLUSION

HEMS teams should be involved in the treatment of patients with TCA, even in non-urban areas with prolonged response times, as they provide knowledge and skills that contribute to regaining and maintaining a sustained ROSC in this critically ill and injured cohort of patients.