Faster to the resuscitation: Air vs. ground transport systems

Introduction

Trauma is the leading cause of death in young adults. At least 50% of deaths due to traumatic hemorrhage occur in the pre-hospital setting and many could have been prevented with early hemorrhage control and resuscitation. In this limited prospective cohort study, we are comparing pre-hospital blood administration (PHBA) systems of transportation: air versus ground transportation. We hypothesize that the PHBA ground transport system will provide quicker access to pre-hospital blood administration.

Methods

Prospective data collection from 10/15/21 - 3/31/22of trauma patients that received a PHBA and were transported to a Level I Trauma Center (TC) in New Orleans, LA. Data elements included demographics, mechanism of injury, Injury Severity Score (ISS), various elapsed times relevant to pre-hospital services, pre-hospital blood volume and units administered, and outcomes such as mortality, hospital length of stay, and dispositions. Univariate analyses performed using independent t-tests.

Results

More ground transports were recorded during the study period (ground n=30, 71.5%, air n=12, 28.5%). Patients transported by air programs traveled farther and took longer to arrive to the TC than patients transported by ground programs. Patients transported by ground units received blood products sooner following initial patient contact than those transported by air programs (Fig.1), despite those transported by air programs having more significant injuries (ISS: air 24(IQR 21-33), ground 15 (IQR 6-20), p=0.02)





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Conclusion

Ground transportation systems provide quicker access to live-saving measures such as blood transfusions for the trauma patient. Further data collection is required for analysis on outcomes and final dispositions.

Figure 1

Variable

Response time (in mir

PSAP to on scene

Unit notified to on sce

Scene time

Transport time

Time to PH blood administration

Mileage

ISS

Final disposition

Lived

Died



	Air transports N=12 (28.5%)	Ground transports N=30 (71.5%)	P
inutes)			
	40.9 (28.0-47.3)	11.5 (7.3–14.0)	<0.001
cene	31.7 (19.5–40.5)	7.1 (4.3–10.0)	<0.001
	16.2 (7.0–20.5)	8.8 (7.0–10.0)	<0.001
	25.4 (17.8–30.5)	10.6 (7.5–14.0)	<0.001
	17.6 (10.0–20.3)	9.8 (6.3–11.0)	0.003
	41.6 (34.3-45.8)	5.6 (3.0-6.7)	<0.001
	24 (21–33)	15 (6–20)	0.02
	7 (58.3)	22 (73.3)	0.29
	5 (41.6)	8 (26.6)	0.45