

# Prehospital Midthigh Trauma and Traction Splint Use: A Retrospective Review of a Trauma Registry

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## Introduction

- Traction splints (TS) are mandated in many EMS prehospital care protocols for treatment and stabilization of presumed femur fracture.
- Traction splints use prior to transport has been theorized to relieve pain, limit continued injury from mobile bone fragments and decrease the potential bleeding space in the injured thigh.
- Despite their widespread use for over 30 years, there is limited data regarding the benefits and complications of TS use in the prehospital setting.

## Objectives

The goal of this study was to compare outcomes between patients with midshaft femur fractures who did and did not receive prehospital TS with regard to:

- Injury severity
- Units of blood transfused in the first 24 hours
- Hospital length of stay (LOS)
- Overall mortality
- Complications



Sager Traction Splint



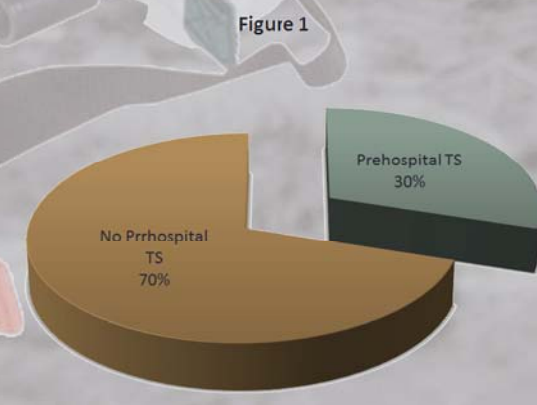
Hare Traction Splint

## Methods

- Design: Retrospective chart review
- Setting: Central California trauma region which has one EMS agency, the Central California EMS agency (CCEMSA). All ambulances are stocked with traction splints.
- Patients: All trauma patients from 2001 to 2011
- Data Collection: We identified all patients in the Trauma Registry Database with a final diagnosis of "fracture of shaft of femur closed" or "fracture of shaft of femur open". Using patient identifiers from the trauma registry, we then reviewed all of the patients hospital records. Chart review was performed manually by the investigators.
- Outcome Measures: Mortality, Hospital LOS, Units of blood transfused and complications.

## Statistical Methods

- Those with and without prehospital TS placement were compared using nonparametric testing, Chi Square analysis, and logistic regression analysis, as appropriate. Significance was attributed to a p value < 0.05.

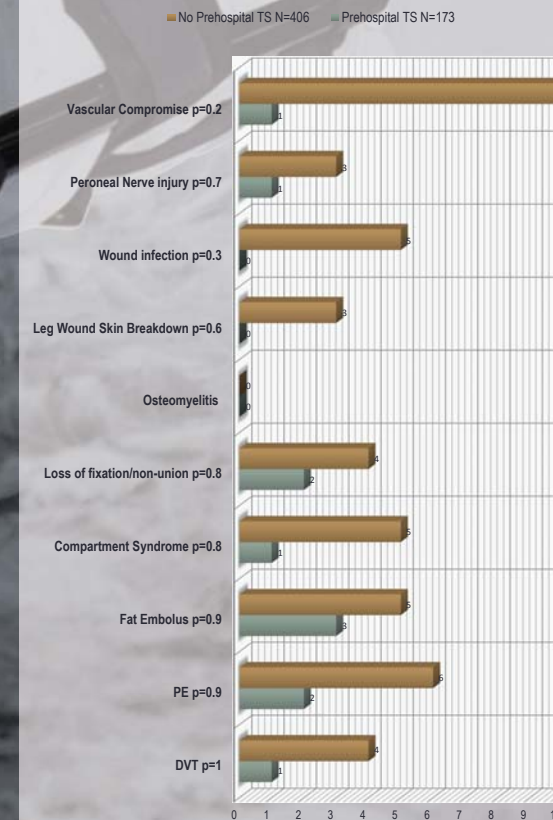


## Results

- Out of 579 patients with a confirmed midshaft femur fracture, 173 (30%) had prehospital TS placement and 406 (70%) did not. (Figure 1)
- Patient age, weight, and extremity Abbreviated Injury Score (AIS) were comparable in both groups. (Table 1)
- The group receiving prehospital TS had a lower mean Injury Severity Score (ISS), fewer units of blood transfused in the first 24 hours and a shorter hospital LOS.
- There was no statistical difference in complications (Figure 2) or mortality between groups.

Table 1 Prehospital TS vs. No Prehospital TS	Prehospital Traction Splint N=173	No prehospital traction splint N=406	P Value
Age (years)	35 ± 31	37 ± 22	0.23
Gender Female	45 (26%)	132 (33%)	0.15
Male	128 (74%)	274 (67%)	
Weight(kg)	80 ± 21	78 ± 26	0.79
ISS	14 ± 10	19 ± 13	0.001
Extremity AIS	3 ± 0.3	3 ± 0.3	0.71
Blood 1 <sup>st</sup> 24 hrs (units)	1.6 ± 6	3.8 ± 13	<0.001
Hospital LOS	6.7 ± 17	8.6 ± 11	0.004
Complications	11 (6.35%)	45 (11%)	0.09
Mortality	9 (5%)	35 (9%)	0.21

Figure 2 Complications



## Limitations

- Retrospective
- Not blinded
- Chart review
- Single EMS system
- Single center

## Conclusion

- This study shows no difference in complications or mortality in patients receiving prehospital TS versus those who did not.
- Patients who had a prehospital TS placed had fewer units of blood transfused in the first 24 hours and shorter hospital LOS. However, these patients had a lower ISS and thus were not as sick as the no traction group.

