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, 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

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.

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

<table>
<thead>
<tr>
<th>Table 1 Prehospital TS vs. No Prehospital TS</th>
<th>N=173</th>
<th>N=406</th>
<th>P Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age (years)</td>
<td>35±31</td>
<td>37±22</td>
<td>0.23</td>
</tr>
<tr>
<td>Gender Female</td>
<td>45 (26%)</td>
<td>132 (33%)</td>
<td>0.15</td>
</tr>
<tr>
<td>Male</td>
<td>128 (74%)</td>
<td>274 (67%)</td>
<td></td>
</tr>
<tr>
<td>Weight (kg)</td>
<td>80±21</td>
<td>78±26</td>
<td>0.79</td>
</tr>
<tr>
<td>ISS</td>
<td>14±10</td>
<td>19±13</td>
<td>0.001</td>
</tr>
<tr>
<td>Extremity AIS</td>
<td>3±0.3</td>
<td>3±0.3</td>
<td>0.71</td>
</tr>
<tr>
<td>Blood 1st 24 hrs (units)</td>
<td>1.6±6</td>
<td>3.8±13</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Hospital LOS</td>
<td>6.7±17</td>
<td>8.6±11</td>
<td>0.004</td>
</tr>
<tr>
<td>Complications</td>
<td>11 (6.3%)</td>
<td>45 (11%)</td>
<td>0.09</td>
</tr>
<tr>
<td>Mortality</td>
<td>9 (5%)</td>
<td>35 (9%)</td>
<td>0.21</td>
</tr>
</tbody>
</table>

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 placement 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.

Limitations

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