

Title: Evaluating Prehospital Characteristics of Motorcycle Fatalities: Can We Save More?

Background: Motorcycle crashes (MCC) are a common cause of trauma mortality. Previous investigations have identified possibly preventable deaths in this patient population. We sought to identify areas of improvement by evaluating discrepancies in the MCC population.

Methods: The 2013-2015 National Trauma Databank (NTDB) was queried for all MCC patients. Demographics, Injury Severity Score (ISS), Glasgow Coma Score (GCS) and emergency medical service (EMS) response time were collected. Survival to hospital admission or discharge from the Emergency Department (ED) was evaluated; patients were grouped based on $ISS \leq 15$ or > 15 and survival or mortality in the ED.

Results: During the study period, 122,263 MCC patients were identified, of these 14,946 (12%) were women. A total of 2,118 (2%) patients died or expired in the ED, of which 979 (46%) had signs of life on arrival. When evaluating patients who died in the emergency department prior to admission, patients with an $ISS < 15$ had shorter total EMS times than those with an $ISS > 15$ or patients who survived to admission or discharge with $ISS < 15$ or $ISS > 15$ (median 36 vs 43, 44 & 45 min, $p < 0.001$). The amount of prehospital scene time, for those patients who died in the ED did not differ significantly between ISS groups (median 12 vs 13 min, $p = 0.063$). Patients with an $ISS < 15$ and mortality in the ED, also had the lowest prehospital GCS scores versus survivors with $ISS < 15$, $ISS > 15$ and deaths with $ISS > 15$ (median 3, 15, 14 and 14 minutes, respectively, $p < 0.001$).

Conclusion: Patients with $ISS < 15$ who died in the emergency department spent the least amount of time in transport. Additionally, the median GCS score for patients with an $ISS < 15$ who died in the ED was significantly lower than those who survived with an $ISS < 15$. These findings correlate with previous reports that blunt trauma patients may benefit from increased time spent on stabilization in the field before transport.