

Characterization of all-terrain vehicle-related chest injury patterns in children

Tuesday 9:30-9:40 AM | RC313-06 | Room: N228

PURPOSE

To evaluate chest injury patterns in pediatric patients involved in all-terrain vehicle (ATV) accidents.

METHOD AND MATERIALS

A retrospective review of the trauma registry at a level I trauma institution from 1992-2013 was performed for patients between 0-18 years admitted after ATV-related incidents. Only patients with chest imaging were included. Type of chest injuries, mechanism of injury, driver/passenger status and demographic data were recorded. Clinical data such as length of hospital stay and intensive care unit (ICU) admission were documented. Comparison of demographic data and clinical data between patients with and without chest injury was conducted using the Chi-square test for categorical variables and two-sample t test for continuous variables.

RESULTS

A total of 455 pediatric patients were admitted after an ATV injury during the study period. Of these, 102 patients (22%) had a chest injury. Most injuries occurred due to a rollover (44/102, 43%), collision with landscape (20/102, 20%) or falls (16/102, 16%). The patient was the driver in 41 (40%) and passenger in 33 (32%) cases (others unknown). Patients with chest injury were older (13 vs 11 years, $P = 0.0027$), taller (157 cm vs 148 cm, $P = 0.0012$), and heavier (57 kg vs 48 kg, $P = 0.0006$) than those without chest injury. The most common injury was pulmonary contusion (62/102, 61%), followed by pneumothorax (46/102, 45%) and non-flail rib fracture(s) (35/102, 34%). There were no cardiac, esophageal, or airway injuries, and no vascular injury other than a case of subclavian artery transection. Patients with chest injury more often required ICU care (41/102, 40% compared to 77/353, 22%, $P = 0.0002$) and had longer median hospital stay (3 days vs 2 days, $P = 0.0054$) compared to patients without chest injury. Eight patients with chest injury died (8%).

CONCLUSION

Chest injuries are a relatively common occurrence in children following ATV accidents, which remain a significant public health issue in terms of morbidity and mortality. Patients with chest injuries were more likely to require ICU care and to have a longer hospital stay.

CLINICAL RELEVANCE/APPLICATION

Chest injuries following ATV accidents in the pediatric population are common and increased public awareness of these potentially devastating injuries is needed.