

Evidence-Based Practice (EBP) - E149

Poster

Abstract Title:

Half Pipes, Terrain Parks and Hospital Air: Treatment options for Splenic Trauma in a Rural Environment.

Authors:

Shelly J. Almroth RN, BSN, CEN; Paula Hanson RN, BSN

Background & Purpose:

Snowboarding is a fast growing sport in the U.S. Ski resorts have created terrain parks which contain features that allow riders to jump and perform aerial tricks. Resorts also promote extreme sport events that are very popular with young males. Purpose of this study is to identify patients who sustain splenic trauma in an alpine setting and outline treatment of their injuries. Splenic injury is a leading cause of hemorrhage, often causing shock and potential death. Common mechanisms of injury include falling onto snow surface, impacting the elbow into left side, or striking a fixed object with their abdomen.

Study/Project Design:

Trauma registry review of 43 patients with ICD-9 865, Injury of the Spleen.

Setting:

Level III Trauma Center, Community hospital with 550 annual trauma admissions.

Sample:

Retrospective review of all patients with splenic injury 06/1/11 to 05/31/12.

Procedures:

Trauma Registry identified an increase of patients with splenic injury. The spleen is especially susceptible to blunt force trauma. Patients from ski clinics require transfer for imaging and surgical evaluation. Transfer from clinics is often compounded by delays of inclement weather and difficult road conditions. Ski patrol and clinic staff education for prompt treatment of abdominal trauma included trauma activation initiated by ski patrol. Ski clinics implemented specific treatment protocols that include FAST exam, 2 large bore IV's, frequent vital signs and hematocrits, and emergent transfer to Level III center by EMS. Trauma criteria at Level III added positive FAST exam from clinics so that highest level activation occurs. Repeat FAST exam in receiving ED confirms injury. Surgical Team Activation Response (STAR) protocol developed for expedient transfer to OR when necessary.

Findings/Results:

There were 43 patients with splenic injury. 88% were male (N=38). Average age was 26 years. Mechanism of injury included 79% skiing/snowboarding, 11% bike, and 10% MVC and falls. Average ISS was 15.5. 25 patients were admitted to Level III center with average LOS of 3.9 days. 2 patients required secondary transfer to Level I for Interventional Radiology. Emergent laparotomy required for 7 patients when transfer not possible due to patient condition or inclement weather. Average time from ED arrival to time of cut was 80 minutes. Management of shock symptoms were implemented in early stages of injury and continued until patient condition stabilized. 2 were transferred after splenectomy due to need for additional blood products. 5 were discharged to home. 15 patients were referred to Level I for angiography, co-morbid conditions or concurrent injuries. Transfer was accomplished by helicopter or critical care ground transport. All patients with splenic injury survived.

Discussion/Conclusions/Implications:

System of care network involving pre-hospital education and outreach to ski patrols was crucial to the success of identifying and caring for patients with blunt abdominal trauma. Local PI process with each ski area was implemented. State of the art video conferencing provided ski patrollers and EMS with real time review of specific calls from receiving facilities. Joint peer review process and PI process between clinic and hospital physicians and trauma nurse coordinators also identify successes and opportunity for improvement of the care of the trauma patient. Trauma data will be reviewed before ski season to determine high risk traumatic injuries and incorporated into ski patrol orientation.