**MEDICAL-LEGAL FLIER BI-MONTHLY**

**Trauma Series #169**

**Near vs. Far Side Crashes**



When evaluating the traumatically injured patient, the vector of impact plays a critical role in diagnosis, prognosis and treatment planning. One area of concern is both near and far side impacts in severe crashes. Fildes et. Al (2007) reported that side impacts were responsible in the United States for 26% of fatal crashes and 31% of non-fatal crashes.

When considering side impact crashes, the location or position and kinematics (movement) of each occupant must be considered. Near-side occupants are those on the side of the impact and far side, are those on the opposite side of impact.

Fildes wrote “The kinematics of the occupants in far-side crashes are noticeably to those on the near or struck side. Because their 3-point belt is not designed to restrain them laterally, they are thrown towards the impacting object on the struck side, some 100ms from the moment of impact.” (pg. 1) “**Severe head injuries predominated both** in terms of frequency and HARM (algorithm for severity), upper and lower extremity injuries were also quite frequent.” (pg. 2).

**Older occupants (70 years old+) had significantly high injuries, with rig cage and lungs accounting for 80% of the injuries. 5% of injuries were abdominal, that was attributed to seatbelts and belt-buckles in combination to seatbacks. In far-side crashes liver and spleen each accounted for 25% of abdominal injuries, abdominal hematomas account for 21.5%.**

Aortic rupture was found in 4.4% of far side crashes. These resulted in 80-88% fatalities for this sequella to far side injury. A previous study to Fildes et. Al, revealed that near sided crashes caused greater aortic ruptures. Due to the limited focus in the latter study, it is safe to say that **both near and far side crashes can have fatal results with aortic ruptures.**

When it comes to evaluating the trauma patient, a comprehensive evaluation requires history, physical examination and often, immediate imaging to prevent fatal sequella from crashes. Typically, this level of severe injury is evaluated in the emergency room, however some non-fatal, but severe injuries can go undetected. To understand what the patient’s true injuries are requires advanced specialty training in trauma care.

**Reference:**

1. Fildes, B., Fitzharris, M., Gabler, H. C., Digges, K., & Smith, S. (2007, June). Chest and abdominal injuries to occupants in far side crashes. In *The 20th International Technical Conference on Enhanced Saefty of Vehicles Proceedings. Lyon, France*.