197. Defining The Value Of Pulse Character Assessment After Injury By Prehospital Providers

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Background: Systolic blood pressure (SBP) is a standard physiologic measure to assess and triage trauma patients in the prehospital environment and a SBP < 110 mmHg is associated with shock. However, the equipment and time to measure SBP is not always available, particularly in austere or hostile environments and mass casualty incidents. Emergency medical service (EMS) providers, both civilian and military, are trained to assess radial pulse character as a marker of hemodynamic status. The purpose of this analysis was to assess the utility of the radial pulse character to identify prehospital hypotension after trauma.

Methods: The electronic field data collection registry of a large regional trauma system was utilized to identify 135,971 transported by EMS for injury. Data collected included patient demographics, injury mechanism, SBP, and pulse character classified as normal or abnormal (weak/absent). In addition, EMS providers were identified as basic life support (BLS), advanced life support (ALS), and air medical transport (AMT). Associations were developed between radial pulse character relative to SBP and mortality.

Results: The mean SBP found associated with the subjective qualification of abnormal pulse character was 95 +/ −53 mmHg. Injured patients with abnormal pulse character had a mortality of 6.0% compared to 1.2% in those with normal pulse character (P < 0.05). The ability to discern pulse character differences was associated with the level of training of the prehospital provider. The sensitivity of AMT providers to recognize abnormal pulse character at 60 mmHg was 93%, 75 mmHg was 82%, and 90 mmHg was 66%. In contrast, the sensitivity at the same levels of SBP were 76%, 53%, and 31% for ALS and 36%, 30%, and 14% for BLS respectively (p < 0.05).

Conclusions: These data suggest that abnormal pulse character is a useful clinical tool to rapidly assess hemodynamic status and predict mortality risk. Prehospital provider experience level played a significant role in the value of this physical assessment tool. These results highlight the value of rudimentary physical exam skills and prehospital provider training in order to optimize prehospital trauma triage and patient management decisions.