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(O-B1) A Retrospective Cohort Study to Determine the Injury Prevalence of Cervical Spine Injuries in Elderly Patients Undergoing Full Trauma CT

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injury: a machine learning approach. *Intell Based Med* 6 (2022): 100052. 7. Pavlov V et al. Mild traumatic brain injury in the United States: demographics, brain imaging procedures, health-care utilization and costs. *Brain inj* 33.9 (2019): 1151-1157. 8. Tardif P, et al. Hospital length of stay following admission for traumatic brain Injury in a Canadian integrated trauma system: a retrospective multicenter cohort study." *Injury* 48.1 (2017): 94-100.

17 (O-C7) De-escalating Techniques to Reduce Tension in the Emergency Department Among Staff

Mohamad Moussa, MD, FAAEM

Objectives: We hypothesized that some techniques utilized by emergency department (ED) staff would be less effective than other techniques at reducing tension.

Background: Due to the unique nature of the work environment in the ED, healthcare providers and staff in the ED often adapt unique strategies to respond to periods of increased tension that can regularly occur at work. This study aimed to identify the most effective techniques used by ED staff to rapidly de-escalate tension. Tension among staff may impair performance and team cohesion; therefore, it is important to understand which techniques will effectively decrease this tension and which will not.

Methods: An online survey was administered to staff from seven separate EDs. Of 634 potential participants, 163 responses were received, representing physicians, nurses, PAs, NPs, and clinical support staff. Participants indicated whether they had experienced a period of increased tension in the ED and chose which techniques they used to de-escalate this tension. For each technique selected, participants rated perceived effectiveness at de-escalating tension on a personal level and among their healthcare team, ranging from completely effective (5) to not at all effective (1). ANOVA was used to analyze for significant differences between technique effectiveness.

Results: Of 163 participants, 152 participants (93.3%) reported experiencing a period of increased tension while working in the ED, and these responses were further analyzed for techniques used in response to tension. "Withdrawing or becoming silent" in response to tension was shown to be significantly less effective than the other techniques at reducing tension on both a personal and team level ($P < 0.001$). There were no significant differences in the perceived effectiveness of other techniques used. Humor was the most commonly reported technique (84.2% reported) while motivational speech was the least commonly reported (13.82%).

Conclusion: Withdrawing oneself from the situation was shown to be least effective at de-escalating tension. Therefore, a proactive approach to resolving tension in the ED was shown to be more efficacious, regardless of which proactive technique was used. This data, along with the relative levels of technique effectiveness, can inform an approach to resolving tension that can be utilized by medical staff in emergency departments across the country.

18 (O-B1) A Retrospective Cohort Study to Determine the Injury Prevalence of Cervical Spine Injuries in Elderly Patients Undergoing Full Trauma CT

Pedro Simoes, MD; Khalid Abdelsadig, MD

Oral Presenter: John S. Batchelor, MD

Objectives: The aim of the study was to determine the prevalence of cervical spine injuries and injury patterns in elderly patients (>65 years) with low energy injuries who underwent a pan trauma computed tomography (CT).

Background: Cervical spine injuries sustained from low energy injuries or falls are often relatively occult due to the absence of significant cervical spine symptoms or pre-existing arthritis. There is some debate as to the whether the pan CT should be undertaken in all elderly fallers. Recent evidence has shown that cervical spine fragility fractures are uncommon in the elderly fallers due to a higher bone density in this region.[1] In contrast osteoarthritis of the cervical spine is common and has been shown to be a risk fracture for cervical spine fractures.[2]

Methods: The Emergency Department at North Manchester General Hospital automatically undertakes a pan CT in elderly patients with one or more of the following: haemodynamic instability; evidence of chest wall tenderness; evidence of respiratory compromise; multi-level spinal pain; cervical spine tenderness plus evidence of torso injury or high impact injury. The CT reports and clinical notes were reviewed of all elderly patients (over 65 years of age) who had a full trauma CT (head, neck, chest, abdomen and pelvis) over a 12-month period (September 2020–September 2021). The number of patients with cervical spine fractures and their age were recorded. The type and location of cervical spine injuries was also recorded.

Results: Sixty-six elderly patients underwent a full trauma series over the 12-month period. Hig- impact injuries and haemodynamic instability account for a small number of patients because the ED at North Manchester General Hospital is a non-trauma centre. The mean age of the cohort was 83.2 years; 26% (of the patients (17) in the cohort were aged 90 years or over. 39% (26) of the patients were identified to have a least one injury detected on CT; 86% (57) were due to ground level falls. Three patients out of 66 were noted to have cervical spine fractures (4.5%). One patient was an isolated C2 fracture, one patient had a C2 fracture with an associated T4 fracture, and the third patient had a C5 fracture with an

associated T1 and occipital fracture.

Conclusion: The results of this study demonstrated that 4.5% of elderly patients sustained cervical spine injuries following low-level falls; 39% of the cohort had at least one significant injury identified by the pan CT. The results from this study justify a fairly liberal approach to the use of the pan trauma CT in elderly patients.

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19 (O-E6) Active Threat: Evaluating a Borderland's Emergency Department Staff's Preparedness

Jessica Vanschuyver, MS-IV; Erica Guerrero, PA

Oral Presenter: Neha Sehgal, DO

Objectives: The purpose of the study was to determine the fundamental knowledge of the current active threat policy and the effectiveness of training provided to the emergency department (ED) personnel at an urban borderland Level 1 Trauma Center in El Paso, TX, over the course of one year.

Background: The Department of Homeland Security defines an active shooter as "an individual actively engaged in killing or attempting to kill people in a confined and populated area; active shooters use firearms with no pattern or method to their victim selection." In 2012 the *Annals of Emergency Medicine* published a study highlighting 154 hospital-related shootings from 2000–2011 in the United States. Furthermore, Texas was cited as one of five states that accounted for more than a third of the hospital-related shootings, with 53% of shooting events occurring in hospitals that had 100-399 beds.

Methods: This study took place at the University Medical Center (UMC) in El Paso, TX. UMC is an urban Level 1 trauma center that sees 70,000 patients annually in a 45-bed ED. A total of 193 surveys were collected from ED personnel, which included resident physicians, faculty physicians, advanced practice providers, bedside nurses, technicians, paramedics, and nursing management. The purpose of the study was to determine their knowledge of the current active threat policy and the effectiveness of the training provided. We initially collected pre-test surveys, then provided didactic training, and immediately collected post-test surveys. The didactic training took place in the form of a standardized PowerPoint lecture given at resident conference and staff meetings over three months. We then used *t*-tests and ANOVA to compare across pre- and post-test survey results. Seven months post education

an active-threat tabletop simulation was conducted to gauge ED personnel's retention during a simulated high-pressure scenario. Participants were informed that participation in the survey was anonymous and voluntary, all answers were kept confidential, and their participation in the survey had no bearing on their current and/or future employment.

Results: The following survey questions were statistically significance when comparing pre- and post-survey results. "In the event of an active threat, the current policy at UMC calls for you to take 1 of 3 actions in a specific order. What are those actions in the correct order?" 16% answered incorrectly on the pre-survey, while no one got it wrong on the post-survey, $P< 0.001$. "In the ED, where would you go to secure yourself if there was an active threat?" 36% answered incorrectly on the pre-survey, while 19% answered it incorrectly on the post-survey, $P=0.034$. "If you see a situation that has the potential to be an active threat do you call 911 or UMC security?" 62% chose the incorrect answer on the pre-survey, while 22% chose the incorrect answer on the post survey, $P< 0.001$. "On a 10 point scale, please rate how confident you are that you would know how to protect yourself and your patients in the event of an active threat, with 0 being not confident at all and 10 being completely confident." The mean pre-survey score was 5.32, while the post-survey score was 7.33, $P< 0.001$.

Conclusion: Our aim was to determine the fundamental knowledge of the current active threat policy and the effectiveness of training provided to the ED personnel at an urban borderland Level 1 trauma center in El Paso, TX. Training included a didactic presentation and an active-threat tabletop simulation seven months post education to gauge ED personnel's retention. Four survey questions indicated a statistically significant change, suggesting that even a brief didactic training can be effective. Responding to an active threat does not come naturally to most healthcare workers, which is why ED personnel warrant structured education and training.

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