

unclear if specific symptoms are reliable to detect or exclude serious head and spinal injury from blunt trauma sustained during near shore aquatic activities. Patients with high risk clinical features for traumatic injury as observed by emergency physicians including HPI findings of loss of consciousness (LOC) or numbness or tingling in the extremities were examined to identify their utility in detecting serious head and spinal injury.

Methods: A multicenter retrospective comparative analysis was conducted from 2006-2017 on adult patients who were transported from Ocean City, Maryland to emergency departments for possible spinal injury. Inclusion was contingent upon Ocean City Beach Patrol examining the patient after blunt trauma and suspecting potential spinal injury. Patients met exclusion criteria if their emergency department medical records were missing or if patients were unable to verbalize their symptoms. Individuals who underwent computed tomography (CT) of the head and/or magnetic resonance imaging (MRI) of the spine were examined. The presence or absence of LOC was noted in patients receiving head CT and correlated with serious head injury, defined as skull fracture, intraparenchymal bleeding, subdural and epidural hematoma, or cerebral edema. Similarly, the presence or absence of numbness or tingling in the extremities was noted in patients who received MRI of the spine and correlated with spinal cord injury, which was defined as spinal cord contusion, transection, or cord compression. Sensitivity, specificity, and positive (PPV) and negative predictive value (NPV), as well as confidence intervals (CI) were calculated.

Results: The study encountered 445 adults with suspected spinal injury over the 12-year period. Of the 163 (59%) patients assessed on head CT, the HPI finding of LOC had a sensitivity of 43% (95% CI 10-82%), specificity of 89% (95% CI 82-93%), PPV of 14% (95% CI 6-30%), and a NPV of 97% (95% CI 95-99%) for serious head injury.

MRI of the spine revealed 91 studies with 58 (64%) patients verbalizing numbness or tingling in the extremities. Numbness or tingling in the extremities resulted in a sensitivity of 65% (95% CI 50-79%), specificity of 38% (95% CI 24-53%), PPV of 52% (95% CI 44-59%), and NPV of 52% (38-65%) for spinal cord injury.

Conclusion: In this small multicenter retrospective study, we examined the accuracy of components of the clinical evaluation in detecting serious head or spinal injury for patients suffering blunt trauma injury from near shore related aquatic events. LOC was a useful HPI finding with a NPV of 97% for serious head injury. Numbness and tingling in the extremities alone were not a reliable HPI finding to identify or exclude serious spinal injury. Further evaluation of registries for blunt near shore aquatic trauma, particularly employing blunt head trauma decision rules, could decrease the frequency of head CTs in this particular patient population.

373 Determining Patterns of Postconcussive Symptoms in Adults Presenting to the Emergency Department After Motor Vehicle Collision Across Age Groups



Herres J, Beaudoin F, Chang B, Datner E, Rabinowitz A, McGrath M, Peacock F, House S, Musey P, Hendry PL, McLean S/Einstein Medical Center, Philadelphia, PA; Rhode Island Hospital and The Miriam Hospital, Providence, RI; New York-Presbyterian/Columbia, New York City, NY; Moss Rehabilitation Research Institute, Philadelphia, PA; Boston Medical Center, Boston, MA; Baylor College of Medicine, Houston, TX; Washington University in Saint Louis, Saint Louis, MO; Indiana University School of Medicine, Indianapolis, IN; University of Florida College of Medicine, Jacksonville, FL; University of North Carolina School of Medicine, Chapel Hill, NC

Study Objectives: Most studies that have examined post-concussion symptoms (PCS) across age groups have examined samples with mixed etiology. In examining the relationship between age and the development of PCS after trauma, mechanism of injury has confounded previous studies (eg, older adults more likely to fall). As the population ages, understanding the differences in minor traumatic brain injury (mTBI) symptoms and sequelae is important to effectively screen and to tailor rehabilitative services. This study aims to characterize PCS in an age-stratified sample of patients presenting to the ED after a motor vehicle collision (MVC) upon ED presentation, at 2 weeks and at 8 week follow up.

Methods: Data were drawn from the AURORA Study, an ongoing longitudinal prospective multi-center study of patients who present to the emergency department (ED) after trauma exposure. The presence of mTBI was assessed using symptoms consistent with disruption of brain function (amnesia, confusion, loss of consciousness) in the setting of traumatic injury. Study assessments included a series of validated surveys on depression, anxiety and post-concussive symptoms during the ED visit and at 2- and 8-week follow-up. Participants experiencing MVC included in the present analyses were stratified into the following age groups: 18-34, 35-59, and 60+. Post-concussive symptoms were compared

using multivariate analysis of variance (MANCOVA). Separate MANCOVAs were run for the different time points controlling for reported pre-trauma symptoms and demographic variables (ethnic/racial minority status, sex, and income).

Results: Participants (n=584) experiencing MVC were distributed across the 18-34 (n=334), 35-59 (n=219), and 60+ (n=31) age groups. Across age groups, 287 (49%) hit their head during the MVC and 170 (29%) had initial symptoms consistent with mTBI. More than half of participants (n=317, 64%) reported increases in post-concussive symptoms from baseline through 8 weeks. Though there were no differences in the presence or absences of post-concussive symptoms (headache, dizziness, fatigue) across the age groups ($F(2, 191) = 2.10, p = .13$), among patients with mTBI, those 60 or older did report less anxiety ($M = 5.71, SE = 1.24$) than those ages 35-59 ($M = 8.45, SE = 0.50$), ($F(2, 191) = 2.73, p = .068$; $Mdiff = 2.74, p = .043$).

Conclusion: Similar and substantial proportions of both older and younger adults involved in an MVC reported PCS despite not reporting head injury or experiencing typical mTBI symptoms such as amnesia, confusion, and disorientation in the ED. Younger patients who experienced PCS [FB1] in the 35-59 age range reported higher levels of anxiety when compared to those in the 60 and over age group. Additional work is needed to identify and treat both older and younger patients at risk for PCS, especially when they do not report a head injury.

374 Knowledge, Attitudes, and Behaviors Regarding Care of Sexual Assault Survivors in the Emergency Department



Liu AY-L, Gogia K, Clark S, Rao RB/Weill Cornell Medicine, New York, NY

Study Objectives: Sexual assault (SA) survivors may qualify for state-mandated specialized forensic care, which requires extensive time and expertise. Few studies have looked at provider experience. We examined the knowledge, attitudes, and behaviors of providers of forensic care in a high-volume, urban emergency department (ED) serving SA patients aged 12 years or older. Providers are defined as either sexual assault forensic examiners (SAFEs) or emergency medicine faculty (EMF) who typically perform forensic care when no SAFE is available. SAFEs are individuals who have completed either a 40-hour course or an 8-hour advanced practitioner course and take call. SAFEs are RNs, NPs, PAs and residents at our institution.

Methods: Anonymous, IRB-approved surveys were disseminated to SAFEs and EMF via email. Surveys collect demographic data and assess providers' level of knowledge, perceptions of their knowledge, attitudes, emotions, perceived barriers to providing care, and preferences for continuing education regarding SAFE care. Data was collected using a REDCap database and analyzed using R 3.5.3. Comparisons were made using Chi-square tests, Student's t-tests, and Wilcoxon rank-sum tests.

Results: Among SAFEs (n=16, 35% response rate), the average years of SAFE experience was 2.2, and 2 (13%) had completed at least 20 forensic exams in their career. Among faculty (n=30, 50.8% response rate), the average years of general emergency medicine practice was 10.9. None of the faculty with the most SAFE experience (ie, performed ≥ 20 exams in their career) have formal SAFE training (n=3, 1%). Overall, 33% of EMF have completed a SAFE course. This group was analyzed as faculty only, as they do not take call. There were no significant differences in knowledge, attitudes, or behaviors between faculty who completed a SAFE course and those who did not.

A larger proportion of faculty reported feelings of high anxiety (70.0% vs. 13.3%, $p < 0.001$) and high conflict (70.0% vs. 13.3%, $p < 0.001$) when a survivor was triaged to their area and there was no SAFE vs. there was a SAFE present. When comparing EMF to SAFEs, there were no significant differences in knowledge regarding indications for drug-facilitated sexual assault (DFSA) kits, the role of advocates in evidence collection, post-discharge resources for survivors, or their role in determining whether SA occurred. However, a lower proportion of faculty, compared to SAFEs, rated themselves as knowledgeable about forensic documentation (46.7% vs. 87.5%, $p = 0.017$) and DFSA kits (40.0% vs. 93.8%, $p = 0.001$). Faculty also reported less competency in screening for sexual violence compared to SAFEs ($p = 0.014$). The most common barriers to providing SAFE care for faculty include clinical management of all other patients in the ED (93.3%) and staffing (80.0%) and for SAFEs include staffing (68.8%) and paperwork (56.2%).

Conclusion: This novel evaluation of providers' knowledge, attitudes, and behaviors regarding the care of SA survivors demonstrates that EMF experience greater distress when caring for survivors in the absence of a SAFE and report less knowledge and competency in areas of care unique to SA patients. History of formal SAFE training did not mitigate these findings. This study highlights the importance of adequate SAFE coverage as well as a need for continuing and greater support and education to providers of care for SA survivors.