

outcomes (CT = 29; XR = 20; US = 13). Among traumatic studies, 26 imaging outcomes were reported; CT was the most commonly reported outcome (CT = 15; XR = 9; US = 1). Of the CT outcomes, 33% reported significant decreases and five decreased but were either not significant or did not report significance. XR significantly decreased in 44% (4/9). In the non-traumatic studies, the most common imaging outcome remained CT (12 outcomes); 58% of which reported significant decreases. XR was the second most frequent outcome, with 63% reporting significant reductions. Combined success of the interventions to reduce CT and XR was 60%. Reported changes in ordering were less consistent in US. **Conclusion:** Multifaceted passive interventions have been implemented to reduce imaging in pediatric EDs. Most reported some success changing ordering practices, specifically among patients with non-trauma presentations. Future research exploring relationships between intervention content, effectiveness, and fidelity may provide insight into how to develop more effective interventions to change image ordering in the ED and guide which presentations to target.

Keywords: diagnostic imaging, pediatric emergency medicine, systematic review

P053

Mismatches in pre-injury activities and return-to-activity advice received by concussion patients presenting to the emergency department

L. Gaudet, MSc, L. Eliyahu, MD, M. Mrazik, PhD, J. Beach, MD, G. Cummings, MD, D. Voaklander, PhD, B. Rowe, MD, MSc, University of Alberta, Edmonton, AB

Introduction: Patients with concussion often present to the emergency department (ED). Current guidelines recommend graded return to work and physical activity (i.e., sport, recreation and exercise activities); however, whether emergency physicians target this advice based on patient-reported activities is unknown. This study aimed to assess mismatches between physicians' rest and return-to-activity advice and self-reported pre-injury work and physical activity of adult concussion patients. **Methods:** Adults (>17 years) presenting with a concussion from April 2013 to April 2015 to a study ED with Glasgow coma scale score ≥ 13 were recruited by on-site research assistants. Data on patient characteristics (i.e., age, sex, employment, and physical activity level) and activity leading to injury were collected from structured patient interviews. A structured questionnaire collected data from the treating physician about discharge advice provided. "Working" was defined as employed or enrolled in any level of school at the time of injury. "Physically active" was defined by reporting regular exercise (≥ 2 times a week) or concussed during a sports-related activity. Proportions or medians (interquartile range [IQR]) are reported, as appropriate. **Results:** Physician questionnaires were completed for 198/248 enrolled patients (median age: 37 years [IQR: 23, 49]; 46% male). Overall, 89% (177/198) were working; 110/177 (62%) received return-to-work advice, while 10/21 (48%) patients also received return-to-work advice, despite not working. Mentally strenuous work/school duties were reported by 143 patients, of which 85 (60%) were recommended cognitive rest. Overall, 148 patients were physically active and 115 (78%) of these were recommended physical rest while 124 (82%) were advised on safe return to physical activity. On the other hand, 35/50 (70%) patients who were not physically active received advice on safe return to physical

activity. Sustaining a sports-related injury significantly increased the likelihood of safe return to physical activity advice among physically active patients (Fisher's exact $p = 0.001$). **Conclusion:** There is a mismatch between concussed patients' pre-injury activities, and the rest and return-to-activity (i.e., work and physical activity) advice provided by emergency physicians. The possible effect of this mismatch on patient outcomes should be assessed in future research, as should strategies to improve emergency physician-patient communications around concussion management.

Keywords: concussion, emergency department, mild traumatic brain injury

P054

The effectiveness of emergency department-based interventions for patients with advanced or end-stage illness: a systematic review

A. Ghalab, BSc, M. Kruhlak, BSc, S. Kirkland, MSc, H. Ruske, BSc, S. Campbell, MLS, C. Villa-Roel, MD, PhD, B. Rowe, MD, MSc, University of Alberta, Edmonton, AB

Introduction: Patients with advanced or end-stage illness frequently present to emergency departments (EDs), many of whom are in need of palliative care (PC). Emergency physicians have struggled in providing high quality care to these patients and there is a need to identify cost-effective PC interventions delivered in the ED to improve patient outcomes. The objective of this systematic review was to examine the effectiveness of ED-based PC interventions. **Methods:** A comprehensive search of nine electronic databases and grey literature sources was conducted to identify any comparative studies assessing the effectiveness of ED-based PC interventions to improve health outcomes of patients with advanced or end-stage illness. Two independent reviewers completed study selection, quality assessment, and data extraction. Differences were mediated via third-party adjudication. Relative risks (RR) with 95% confidence intervals (CIs) were calculated using a random effects model and heterogeneity (I²) was reported. **Results:** From 5882 potentially eligible citations, 12 studies were included. Two studies are currently on-going clinical trials, and as such, 10 studies were included in this analysis. The studies consisted of before-after studies (n = 5), RCTs (n = 4), and an observational cohort (n = 1). Interventions assessed among the included studies consisted primarily of ED-directed PC consultations (n = 6), while other studies assessed screening of patients with advanced or end-stage illness and PC needs (n = 2), education on PC for ED-staff (n = 1), and an ED-based critical care unit (n = 1). Infrequent reporting of important outcomes (e.g., Mortality, ED relapse) limited the ability of this review to conduct meaningful meta-analysis. There was no difference in patient mortality between two studies assessing ED-directed PC consultations (RR = 0.89; 95% CI: 0.71, 1.13; I² = 0%). One before-after study (RR = 0.73; 95% CI: 0.47, 1.13) and two RCTs (RR = 2.19; 95% CI: 0.40, 11.92; I² = 96%) did not identify significant differences in PC consultations intervention (implementation of ED-directed PC consultations) and control (usual care) patients. **Conclusion:** This review found limited evidence to support the recommendation of any particular ED-based intervention for patients presenting to the ED with advanced or end-stage illness. High quality studies and standardized outcome reporting are needed to better understand the impact of PC interventions in the ED setting.

Keywords: consultation, emergency department, palliative care