Keywords: clinical decision rule, computed tomography, minor head injury

P038

Comparison of diagnostic imaging rates between workplace and non-workplace injuries in the emergency department: a ten-year review

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Background: In Canada, injuries represent 21% of Emergency Department (ED) visits. Faced with occupational injuries, physicians may feel pressured to provide urgent imaging to facilitate expedited return to work. There is not a body of literature to support this practice. Twenty percent of adult ED injuries involve workers compensation. **Aim Statement:** Tacit pressures were felt to impact imaging rates for patients with workplace injuries, and our aim was to determine if this hypothesis was accurate. We conducted a quality review to assess imaging rates among injuries suffered at work and outside work. A secondary aim was to reduce the harm resulting from non-value-added testing. **Measures & Design:** Information was collected from the Emergency Department Information System on patients with acute injuries over the age of 16-years including upper limb, lower limb, neck, back and head injuries. Data included both workplace and non-work-related presentations, Canadian Triage and Acuity Scale (CTAS) levels and age at presentation. Imaging included any of X-ray, CT, MRI, or Ultrasound ordered in EDs across the central zone of Nova Scotia from July 1, 2009 to June 30, 2019. A total of 282,860 patient-encounters were included for analysis. Comparison was made between patients presenting under the Workers' Compensation Board of Nova Scotia (WCB) and those covered by the Department of Health and Wellness (DOHW). Imaging rates for all injuries were also trended over this ten-year period. **Evaluation/Results:** In patients between 16 and 65-years, the WCB group underwent more imaging (55.3% of visits) than did the DOHW group (43.1% of visits). In the same cohort, there was an overall decrease of over 10% in mean imaging rates for both WBC and DOHW between the first five-year period (2009-2013) and the second five-year study period (2013-2018). Imaging rates for WCB and DOHW converged with each decade beyond 35 years of age. No comparison was possible beyond 85-years, due to the absence of WCB presentations. **Discussion/Impact:** Patients presenting to the ED with workplace injuries are imaged at a higher rate than those covered by the DOHW. Campaigns promoting value-added care may have impacted imaging rates during the ten-year study period, explaining the decline in ED imaging for all injuries. While this 10% decrease in overall imaging is encouraging, these preliminary data indicate the need for further education on resource stewardship, especially for patients presenting to the ED with workplace injuries.

Keywords: quality improvement and patient safety, value-added care, workplace injuries

P039

Utilization of serum D-dimer assays and computed tomography pulmonary angiography (CTPA) scans in the diagnosis of pulmonary embolism among emergency department (ED) physicians

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Introduction: As the availability of Computed Tomography Pulmonary Angiography (CTPA) to rule out pulmonary embolism (PE) increases, so too does its utilization, and consequent overutilization. A variety of evidence-based algorithms and decision rules using clinical criteria and D-Dimer testing have been proposed as instruments to allow physicians to safely rule out a PE in low-risk patients. However, studies have shown mixed results with respect to both physician uptake of these decision rules and their impact on improving ordering practices among physicians. The objective of this study is to describe the prevalence of D-Dimer utilization among ED physicians and its impact on positive yield rates of CTPAs in a community setting. **Methods:** Data was collected on all CTPA studies ordered by ED physicians at two very high-volume community hospitals and an affiliated urgent care centre during the 2-year period between January 1, 2016 and December 31, 2017. For each CTPA, we determined if 1) a D-Dimer had been ordered prior to CTPA, if 2) the D-Dimer was positive, and if 3) the CTPA was positive for a PE. Using a chi-square test, we compared the diagnostic yield for those patients who had a D-Dimer prior to their CTPA and those who did not. **Results:** A total of 2,811 CTPAs were included in the analysis. Of these, 964 CTPAs (34.3%) were ordered without a D-Dimer. Of those 1,847 patients who underwent D-Dimer testing prior to the CTPA, 343 (18.7%) underwent a CTPA despite a negative D-Dimer. When compared as a group, those CTPAs preceded by a D-Dimer showed no significant difference in positive yields when compared to those CTPAs ordered without a prior D-Dimer (9.9% versus 11.3%, $p = 0.26$). **Conclusion:** The findings of this study present a complicated picture of the impact of D-Dimer utilization on CTPA ordering patterns. There is evidence of suboptimal uptake of routine D-Dimer ordering, and adherence to guidelines in terms of forgoing CTPAs in low-risk patients with negative D-Dimers. While this study design leaves unanswered the question of how many CTPAs were avoided as a result of a negative D-Dimer, the finding of a similar positive yield among those patients who had a D-Dimer ordered versus those who did not is interesting, and illustrative of the issues arising from the high false-positive rates associated with D-Dimer screening.

Keywords: computed tomography, overutilization, pulmonary embolism

P040

Retrospective assessment of discrepancies in preliminary radiological reports in the emergency department

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Background: Preliminary reports and subsequent immediate management decisions of radiological scans are often performed by emergency physicians and on-call radiology residents. Many academic hospitals have resident-only coverage for after-hour shifts. Generally, these preliminary reports are eventually reviewed by a staff radiologist, during which discrepancies may be identified. Depending on the severity of the discrepancy and the time taken to notify the treating physician, there is potential for significant impact on the patient's care. **Aim Statement:** In an attempt to identify and minimize errors in radiological readings, and to improve the communication of discrepancies, our project aims to retrospectively audit all radiological discrepancies that have occurred at The Ottawa Hospital's emergency departments from April 2018 to May 2019. **Measures & Designs:** A systematic review of all cases with noted radiological discrepancies was obtained from the Picture Archive and Communication System

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