Introduction: The number of CT scans prescribed in the Emergency department (ED) for suspected renal colic has increased over recent years without an associated improvement in patient-centred outcomes. We assessed whether Point-of-Care Ultrasound (PoCUS) decreases the use of formal radiologic imaging. Methods: We completed a retrospective cohort study on consecutive patients 18 years of age and older presenting to the ED with suspected uncomplicated renal colic in a tertiary care centre in Quebec in 2016. Exclusion criteria included: previous urologic intervention, solitary kidney, dialysis, fever, pyuria, acute kidney injury, pregnancy, suspicion of a serious alternative diagnosis or persistent symptoms despite analgesia. We compared the proportion (95% CI) of formal radiologic imaging performed (Ultrasound or CT) in patients who had PoCUS in the ED vs. those who did not. Two-tailed Fisher exact test (α = 0.05) and odds ratios (95% CI) calculated from multivariate logistic regression models adjusted for age, gender, Charlson Index and previous renal colic were used to compare the two groups. The reliability of data collection was evaluated with a kappa score (95% CI). Results: 169 patients with uncomplicated renal colic were included. There was no difference between the groups in terms of age, gender, Charlson Index, or previous renal colic. The PoCUS level of training and the doctor’s education level was significantly higher in the PoCUS group. There was a non-significant trend towards less formal imaging in patients of the PoCUS group 65/88 (73.9% [63.4-82.7%]) vs. the non-PoCUS group 69/81 (85.2% [75.6-92.1%]), p = 0.087. After adjustment for confounders, the patients not evaluated with PoCUS were more likely to have formal imaging with a significant odds ratio of 2.41 (1.05-5.56). Among patients who underwent a CT, incidentalomas were found in 16.5% and only 2.0% demonstrated significant findings leading to changes in ED management, such as an alternative diagnosis, need for admission, or an urgent urological intervention. Interobserver agreement was excellent between assessors with a kappa score of 0.88 [0.66-1.00]. Conclusion: ED patients with uncomplicated renal colic who are investigated with PoCUS tend to have fewer formal imaging test. When CT scans were performed, incidentalomas were found in 16.5% and ED management changed only 2.0% of the time. PoCUS appears to be a useful tool for decreasing CT utilisation in this low-risk ED population.

Keywords: computed tomography, point-of-care ultrasound (PoCUS), renal colic

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Functional & cognitive decline in older delirious adults after an emergency department visit

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Introduction: The Canadian C-Spine rule (CCR) was validated for use by paramedics to selectively immobilize stable trauma patients. However, the CCR “Dangerous Mechanism” is highly prevalent in sports. Our objective was to compare the CCR performance in sport-related vs. non-sport-related injuries and describe sport-related mechanisms of injury. Methods: We reviewed data from the prospective paramedic CCR validation and implementation studies in 7 Canadian cities, which already included identification of sport-related injuries. A single trained reviewer further categorized mechanisms of injury using a pilot-tested standardized form, with the aid of a sport medicine physician in 15 ambiguous cases. We compared the CCR’s recommendation to immobilize sport-injured versus non-sport-injured patients using chi-square and relative risk statistics with 95% confidence intervals. Results: There were 201 amateur sport-injuries among the 5,978 patients. Sport-injured patients were younger (mean age 36.2 vs. 42.4) and more predominantly male (60.5% vs 46.8%) than non-sport-injured patients. Paramedics did not miss any c-spine injuries when using the CCR. Although cervical spine injury rates were similar between sport (2/201; 1.0%) and non-sport injured patients (47/5,777; 0.8%), the absolute number of sport-related injuries was very small. Although CCR recommended immobilization equally between the two groups (46.4% vs 42.5%; p = 0.29; RR 1.17 95%CI 0.87-1.57), the reason for immobilization was more likely to be a dangerous mechanism in sport injuries (68.6% vs 54.5%, p = 0.012). Although we observed a wide range of mechanisms, the most common dangerous mechanism responsible for immobilization in sport was axial load. Conclusion: The CCR identified all significant c-spine injuries in a cohort of patients assessed and transported by paramedics. Although an equal proportion of sport and non-sports related injuries were immobilized, a dangerous mechanism was most often responsible for immobilization in sport-related injuries.