MP014

What ultrasonography characteristics predict surgical intervention for children with testicular torsion?

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Introduction: The timely diagnosis and treatment of testicular torsion is essential as a longer duration of symptoms is correlated with testicular necrosis and infertility. Ultrasound imaging assists in separating this diagnosis from other causes of acute scrotal pain. Our objective was to characterize which ultrasound findings predicted surgical intervention. **Methods:** We performed a retrospective health records review of all patients, ages 0-17 years that presented to the emergency department of the Children's Hospital of Eastern Ontario over a 5-year period (2009-14) with scrotal pain <24 hours duration who were assessed by an emergency physician (EP) and received a testicular ultrasound by the Diagnostic Imaging Department. Patients' records and ultrasound reports were reviewed by two reviewers who recorded ultrasound findings, times of EP assessment, ultrasound and surgical intervention in a standardized data extraction form. Sensitivity, specificity and positive and negative predictive values were calculated for the ultrasound findings. **Results:** 190 patients were analyzed of which 34 had a final diagnosis of testicular torsion (mean age 11.5 years, range 0-17.3). The mean time from EP assessment to ultrasound was 67.6 minutes (95%CI 50.5-84.6) during the daytime (800-2159) and 83.2 minutes (95%CI 36.7-130.4) for overnight presentations (2200-759). The absence of blood flow on colour Doppler ultrasound of the affected testicle was the best predictor of surgical intervention (sensitivity = 94.1% [95%CI 80.3%-99.3%], specificity = 99.4% [95%CI 96.5%-99.9%], positive likelihood ratio = 146.8 [95%CI 20.7-1037.7] and negative likelihood ratio = 0.06 [95%CI 0.02-0.23]. Other ultrasound findings that help rule in testicular torsion were the presence of a heterogeneous testicle on the symptomatic side (specificity = 91.0% [95%CI 85.4%-95.0%] and the presence of the whirlpool sign (specificity = 99.4% [95%CI 96.5%-99.9%]). **Conclusion:** The absence of blood flow on ultrasound is the best ultrasound finding for predicting surgical management of testicular torsion. Neither a heterogeneous testicle nor whirlpool sign had strong enough sensitivity to warrant their independent use. Future studies, such as those utilizing point of care ultrasound by EPs, should be conducted to study the affect on delays in treatment.
Keywords: testicular torsion, ultrasound

MP015

Daily encounter cards: evaluating the quality of documented assessments

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Introduction: In response to concerns in the literature over the quality of completed work-based assessments (WBAs), faculty development and rater training initiatives have been developed. The Completed Clinical Evaluation Report Rating (CCERR) was designed to evaluate these interventions by providing a measure of the quality of documented assessments on In-Training Evaluation Reports (ITERs). Daily Encounter Cards (DECs) are a common form of WBA used in the Emergency Department setting. A tool to evaluate initiatives aimed at improving the quality of completion of this widely used WBA is also needed. The purpose of this study was to provide validity evidence to support using the CCERR to assess the quality of DEC completion. **Methods:** This study was conducted in the Department of Emergency Medicine at the University of Ottawa. Six experts in resident assessment grouped 60 DECs into three quality categories (high, average, poor) based on their perception of how informative each DEC was for reporting judgments of the resident's performance. Eight clinical supervisors (blinded to the expert groupings) scored the 10 most representative DECs in each group using the CCERR. Mean scores were compared using a univariate ANOVA to determine if the CCERR was able to discriminate DEC quality. Reliability for the CCERR scores was determined using a generalizability analysis. **Results:** Mean CCERR scores for the high (37.3, SD = 1.2), average (24.2, SD = 3.3), and poor (14.4, SD = 1.4) quality groups differed (p < 0.001). A pairwise comparison demonstrated that differences between all three quality groups were statistically significant (p < 0.001), indicating that the CCERR was able to discriminate DEC quality as judged by experts. A generalizability study demonstrated the majority of score variation was due to differences in DECs. The reliability with a single rater was 0.95. **Conclusion:** There is strong validity evidence to support the use of the CCERR to evaluate DEC quality. It can be used to provide feedback to supervisors for improving assessment reporting, and offers a quantitative measure of change in assessor behavior when utilized as a program evaluation instrument for determining the quality of completed DECs.
Keywords: daily encounter cards, assessment, residency education

MP016

Measuring frailty can help emergency departments identify seniors at risk of functional decline after minor injuries

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Introduction: The CETI team has shown that around 18% of otherwise independent seniors remain in a state functional decline up to six months after a minor injury. In that context, frailty may be associated with increased likelihood of decline. As most seniors consult Emergency Departments (EDs) when injured, measuring frailty may help identify those at risk of functional decline. **Objectives**: This study aims to 1) describe frailty in the sub-group of independent community-dwelling seniors consulting Emergency Departments (ED) for minor injuries, 2) examine the association between frailty and functional decline three months post-injury, 3) ascertain the predictive accuracy of frailty measures and Emergency Physicians' (EPs) for functional decline. **Methods:** Prospective cohort in 2011-2013 among 1072 seniors aged ≥ 65, independent in basic daily activities, evaluated in Canadian EDs for minor injuries and discharged home. Frailty was assessed at EDs using the Canadian Study of Health and Aging-Clinical Frailty Scale (CSHA-CFS) and the Study of Osteoporotic Fracture index (SOF). Functional decline was defined as a loss ≥ 2/28 on the Older American Resources Services scale three months post-injury. Generalized mixed models were used to explore differences in functional decline across frailty levels. Areas Under the Receiver operating characteristic curve (AUC) were used to ascertain the predictive accuracy of frailty measures and EPs' clinical judgement. **Results:** The SOF and CSHA-CFS were available in 342 and 1058 participants, respectively. The SOF identified 55.6%, 32.7%, 11.7% patients as robust, prefrail and frail. These CSHA-CFS (n = 1058) proportions were 51.9%, 38.3% and 9.9%. The 3-month incidence of functional decline was 12.1% (10.0%-14.6%). The AUCs of the CSHA-CFS and the EPs' were similar (0.548 - 0.777), while the SOF was somewhat higher (0.704 - 0.859). **Conclusion:** Measuring frailty in community-dwelling seniors with minor injuries in EDs may enhance current risk screening for functional decline. However, before implementation in usual care, feasibility issues such as inter-rater reliability and acceptability of frailty tools in the EDs have to be addressed.