Since January 2020 Elsevier has created a COVID-19 resource centre with free information in English and Mandarin on the novel coronavirus COVID-19. The COVID-19 resource centre is hosted on Elsevier Connect, the company's public news and information website.

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Simulation-based mastery learning improved participant performance. These results have important patient safety implications and require validation in a larger sample.

No, authors do not have interests to disclose

161 Multicenter Interobserver Agreement of Lung Ultrasound Findings in COVID-19 Patients

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Study Objectives: Point-of-care ultrasound (POCUS) can detect sonographic features of COVID-19 on lung ultrasound including B-lines, thickened/irregular pleural lines, subpleural consolidations, and effusions. However, there is still a need to standardize classification and severity rating of these diverse findings. The purpose of this study was to develop a severity rating scale for lung ultrasound images collected on patients with COVID-19 disease based on multicenter expert consensus, and to test inter-rater reliability.

Methods: Development of the severity rating scale was done with a group of ten POCUS-trained emergency physicians from three academic institutions through review of the literature, expert opinion, pilot testing, and iterative refinement of the tool. The rating scale was refined after 8 one-hour consensus-building discussions based on challenging cases from three smaller-sample rater studies. The final scale consisted of a set of ordinal scores ranging from 0 to 6 based on five sonographic findings: B-lines, pleural line abnormalities, consolidations, pleural effusions, and overall lung aeration. Lung POCUS clips from adult patients with COVID-19 were selected from a database of prospectively collected ultrasound exams curated at two academic hospitals. Ultrasounds were acquired from 14-zones (two anterior, two lateral, and three posterior zones on each side of the chest) using a handheld C5-2 curvilinear transducer on a lung preset. Using the refined scale, ten blinded reviewers independently rated selected clips using a Web-based annotation software. We analyzed the ratings to determine inter-rater agreement based on intraclass correlation coefficient (ICC) and linear-weighted Krippendorff’s alpha statistic (α).

Results: We acquired 11,041 cine clips from 220 patients with lower respiratory tract symptoms suspected to have COVID-19. 62 patients were excluded due to negative COVID-tests, and an additional 40 patients were excluded because the exams were either incomplete or performed with an incorrect preset or different transducer. A research investigator independently completed pre-ratings for the remaining 4,115 clips using the refined scale. We then applied stratified random sampling to select one clip per patient, resulting in a dataset of 118 cine clips with high pathological burden sampled from this group of patients. After severity ratings were completed on the first 30 clips of the dataset, we held a final discussion session with a case-by-case review. For subsequent ratings done on the remaining 88 clips in the dataset, the average ICC was 0.80 across the five sonographic findings (0.85 for B-lines, 0.68 for pleural line abnormalities, 0.79 for consolidations, 0.88 for pleural effusions, and 0.81 for overall lung aeration). A similar trend in rater agreement was seen based on intraclass correlation coefficient (ICC) and linear-weighted Krippendorff’s alpha statistic (α).

Discussion: We achieved good inter-rater agreement with our lung POCUS severity rating system established by expert consensus. This severity scale will be used in future studies for training machine learning algorithms and could be utilized clinically for longitudinal management of COVID-19 severity.

162 Feasibility and Diagnostic Yield of Mobile Cardiac Outpatient Telemetry (MCOT) Initiated from the Emergency Department

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Study Objectives: Complaints such as syncope, near-syncope, and palpitations remain common presenting ailments in the emergency department (ED), accounting for an estimated >1 million visits per year in the United States alone. In patients who are discharged from the ED, ambulatory electrocardiogram (ECG) monitoring can provide valuable diagnostic information and is recommended by many professional societies. Unfortunately, such monitoring is often underutilized due to concerns about patient compliance, diagnostic yield, and the cumbersome application process of older devices. However, significant advances in ambulatory ECG monitoring technology over the past decade prompt reevaluation of the role of this technology in the ED setting.

Methods: This retrospective review included all patients at an urban academic medical center in a 6-month period that underwent application of a mobile cardiac outpatient telemetry (MCOT) patch device prior to discharge from the ED. The decision to provide a patient with a patch was per provider discretion. These devices were prescribed for a 14-day period and were capable of continuous monitoring and transmission for the full duration. Patients were also able to trigger events when symptomatic which were correlated with the underlying cardiac rhythm. Data including arrhythmia information and compliance metrics were collected from the online device management suite. Significant arrhythmias were defined as ventricular tachycardia (VT) ≥4 beats, supraventricular tachycardia (SVT) ≥4 beats, ≥3 second pause, 2nd degree Mobitz II, 3rd degree AV block, atrial fibrillation, or ventricular fibrillation.

Results: In total, 117 patients underwent MCOT placement with mean age of 61.5 years. The most common indications included palpitations (29.9%), chest pain (20.5%), syncope and collapse (9.4%), bradycardia (6.8%), and tachycardia (6.8%). Data was received from 100% of patients with a median wear time of 13.8 days (range 1-14) and median compliance of 98.8%. Overall, 71.8% of patients were noted to have at least one significant arrhythmia with 27.4% having multiple arrhythmias. Symptomatic events occurred in 84.6% of patients, and an arrhythmia was noted during symptomatic events in 22.2% of patients. The most common arrhythmia observed were SVT ≥4 beats (65%), VT ≥4 beats (22.2%), atrial fibrillation (10.3%), sinus pause ≥3 seconds (6.0%), and high-grade atrioventricular block (2.6%). The average duration until first event was 4.1 days with a max duration until first event of 12.1 days. In 23.1% of patients, symptomatic events were reported despite no arrhythmia being recorded for the full duration of the wear period.

Conclusion: The development of MCOT patches have significantly increased the ease in which such devices can be administered from the ED. Patients who receive the device show high compliance with them after discharge. These devices demonstrate stronger diagnostic yield for arrhythmias when compared to traditional event or Holter monitoring. Given the prolonged time from ED discharge to first event, there may be less utility in 24-hour observation admissions in patients with syncope which may improve overall hospital resource utilization.