RCEM Lightning Papers

1042 IMPROVING THE ACCURACY OF FRONTLINE CLINICIANS IN DETECTING SARS-COV-2 ON CHEST X-RAYS USING A BESPOKE VIRTUAL TRAINING PLATFORM
1Jaddeep Bahra, 1Sarah Ather, 1Sarah Wilson, 1Lisa Keating, 1Divyansh Gulaft, 1Mohshik Banerji, 2Fergus Gleeson, 3Alex Novak. 1Oxford University Hospitals; 2Frimley Healthcare NHS Trust; 3Royal Berkshire NHS Trust; 4Milton Keynes University Hospital; 5Buckinghamshire Healthcare NHS Trust; 6Oxford University Hospitals

Aims/Objectives/Background The non-specific symptoms of COVID-19 and the lack of a highly-sensitive point-of-care test make it difficult to reliably detect and diagnose in acute care settings. The early identification of COVID-19 using chest X-rays (CXR) in the Emergency Department (ED) is a crucial skill for frontline clinicians. We wanted to measure the accuracy of ED clinicians in detecting COVID-19 CXR changes and assess for improvement using an adaptive online learning module.

Methods/Design ED clinicians working across five hospitals in the Thames Valley Emergency medicine Research Network (TaVERN) were recruited over six months. Participants’ reporting performance was assessed by interpreting 30 anonymised CXR via the Report and Image Quality Control (RAIQC) online platform, using an image bank which contained both COVID-19 and non-COVID-19 pathological findings. Participants subsequently completed an online training module, and repeated the assessment using different image sets. Diagnostic accuracy and speed of CXR reporting was assessed both before and after training, with results compared against radiologists. The ground truth for each case was established by consensus of three thoracic radiologists. RT-PCR results were reviewed for each case to ensure that all the COVID-19 cases were positive and all COVID-19 cases were negative.

Results/Conclusions ED clinicians working in emergency departments across five hospitals in the Thames Valley Emergency Medicine Research Network (TaVERN) were recruited over a six month period. 112 clinicians completed the initial assessment. 56 clinicians completed all three training components. The initial mean accuracy for clinicians in identifying COVID-19 on chest X-rays was 43%. The mean accuracy was 57% amongst clinicians who completed all three online training components. These clinician showed improved reporting speed with mean time reduction to CXR interpretation from 69 to 50 seconds.

ED clinicians do not perform well at detecting COVID-19 CXR related changes on CXR, but accuracy and speed can be improved by online training.

1078 THE PROGNOSTIC ACCURACY OF NEUTROPHIL-LYMPHOCYTE RATIO IN COVID-19 PATIENTS
Mustafa Ed. Al Ain Hospital

Aims/Objectives/Background COVID-19 is a newly emerging pandemic viral disease. Multiple management guidelines were introduced; nevertheless, their efficacy is still under debate. Thus, the presence of prognostic factors are essential for predicting which patients will need more invasive treatments.

The study aims to investigate the prognostic accuracy of neutrophil-lymphocyte ratio in COVID-19 infection.

Methods/Design This is a prospective study done in Al-Ain Hospital in the United Arab Emirates. All the Covid-19 patients presenting to the hospital were enrolled over one month from 20/3 to 20/4/2020. We gathered information about their age, sex, mode of transmission and calculated their Neutrophils/Lymphocytes ratio (NLR) from the first complete blood picture on admission. We divided the patients into two groups: those aged 30 years and above and those aged less than 30 years. We chose the best NLR cut-off value based on the Youden index and receiver operating characteristic (ROC) curve analysis. The target endpoint was the presence or absence of intensive care unit (ICU) admission.

787 EVALUATION OF THE ROLE OF ANAL TONE AND PERIANAL SENSATION EXAMINATION IN THE ASSESSMENT OF SUSPECTED CAUDA EQUINA SYNDROME
1Carlos Curtis Lopez, 2Andrew Berg, 3Bethan Clayton, 4Irfan Siddique, 5Roberto Carrasco, 2Daniel Horner, 1Michelle Angus. 1Salford Royal Foundation Trust; 2Salford Royal NHS Foundation Trust

Aims/Objectives/Background Cauda equina syndrome (CES) can present with a varied constellation of clinical signs and symptoms, which together with the time sensitive nature of the condition and risk of catastrophic clinical outcome, presents a significant challenge to those assessing patients with this suspected diagnosis. Anal tone is commonly tested during initial assessment using a digital rectal examination (DRE). This study aims to evaluate the diagnostic value of anal tone and perianal sensation assessment in patients with suspected CES and report modern prevalence data on CES within a neuroscience centre.

Methods/Design Consecutive patients with suspected CES presenting over a three-year period to the Emergency Department (ED) of a busy tertiary centre were included in the study. History and examination findings, documented in the ED notes, were assessed and these variables were correlated with the presence or absence of cauda equina compression on subsequent magnetic resonance imaging (MRI).

Results/Conclusions Out of 1005 patients with suspected CES, 117 (11.6%) had MRI confirmed cauda equina compression (MRI +ve CES). 35% of MRI +ve patients and 31% of MRI -ve patients had reduced anal tone. Using univariate and multivariable logistic regression analyses, no associations were found between abnormal anal tone and MRI +ve CES for patients of all ages. The univariate logistic regression analysis identified altered perianal sensation to be significantly associated with MRI +ve CES in patients ≤ 42 years old. This association was no longer present when an adjusted multivariable logistic regression was performed.

The prevalence of MRI +ve CES was 11.6%. Our findings suggest that the clinical finding of reduced anal tone has no demonstrable diagnostic value for those with suspected CES, either in itself or in combination with other clinical findings. Further studies are needed to confirm the diagnostic efficacy of assessing perianal sensation in this context.