Results and Conclusion Results Rate of manipulations in PED increased from 41% to 78% in the 3rd cycle; improving to 86.36% after interventions stopped. Of those manipulated in PED, 73.68% were discharged from the department. Admissions for MUA decreased from 85% to 70% in the 3rd cycle; decreasing to 36.36% after interventions stopped.

The project showed success in improving management of paediatric angulated upper limb fractures. By identifying appropriate fractures, involving the senior orthopaedic team and providing adequate analgesia, admission for general anaesthesia can be avoided.

RCEM Free Papers

1480 THE APPLICATION OF AN AGE ADJUSTED D-DIMER THRESHOLD TO RULE OUT SUSPECTED VENOUSTHROMBOEMBOLISM (VTE) IN AN EMERGENCY DEPARTMENT SETTING: A RETROSPECTIVE DIAGNOSTIC COHORT STUDY

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Aims, Objectives and Background Venous Thromboembolic disease (VTE) poses a diagnostic challenge for clinicians in acute care. Over reliance on reference standard investigations can lead to over treatment and potential harm.

We sought to evaluate the pragmatic performance and implications of using an age adjusted d-dimer (AADD) strategy to rule out VTE in patients with suspected disease attending an emergency department setting.

We aimed to determine diagnostic test characteristics and assess whether this strategy would result in proportional imaging reduction and potential cost savings.

Method and Design

Design Single centre retrospective diagnostic cohort study.

All patients >50 years old evaluated for possible VTE who presented to the ED over a consecutive 12-month period between January and December 2016 with a positive D-dimer result.

Clinical assessment records and reference standard imaging results were followed up by multiple independent adjudicators and coded as VTE positive or negative.

Results During the study period, there were 2132 positive D-dimer results. 1236 patients received reference standard investigations. A total increase of 314/1236 (25.1%) results would have been coded as true negatives as opposed to false positive if the AADD cut off point had been applied, with 314 reference standard tests subsequently avoided.

The AADD cut off had comparable sensitivity to the current cut off despite this increase in specificity; sensitivities for the diagnosis of DVT were 99.28% (95% CI 96.06–99.98%) and 97.72% for PE (95% CI 91.94% to 97.72). There were 3 potential false negative results using the AADD strategy.

Conclusion In patients with suspected VTE with a low or moderate pre-test probability, the application of AADD appears to increase the proportion of patients in which VTE can be excluded without the need for reference standard imaging. This management strategy is likely to be associated with substantial reduction in anticoagulation treatment, investigations and cost/time savings.

1522 THE COMPOSITE OUTCOME FALLACY IN THE PRIEST COVID-19 CLINICAL PREDICTION SCORE

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Aims, Objectives and Background Clinical prediction models are often developed using composite outcomes, based on the implicit assumption that the predictors have similar associations with each component outcome. Using an example of a clinical prediction tool for adverse outcome in suspected COVID-19, we aimed to test this assumption and determine whether using a composite outcome led to suboptimal prediction of individual elements of the composite outcome.

Method and Design We reanalysed data from the Pandemic Respiratory Infection Emergency System Triage (PRIEST) study; data was collected from 20,891 patients attending 73 emergency departments with suspected COVID-19 and was used to develop a clinical score predicting a composite outcome of mortality or receipt of major organ support up to 30 days following attendance. In this reanalysis we created Least Absolute Shrinkage and Selection Operator (LASSO) multiple regression models to produce unrestricted prediction models for (1) the composite outcome, (2) mortality, and (3) receipt of major organ support.

Results and Conclusion Unrestricted regression models had c-statistics of 0.86 (95% Confidence Interval (CI) 0.85–0.86) for mortality, 0.78 (95% CI 0.77–0.80) for receipt of major organ support, and 0.82 (95% CI 0.82–0.83) for the composite outcome. Key variables in the clinical score (increased age, reduced performance status and reduced consciousness) predicted increased risk for mortality and the composite outcome but decreased or no significant risk for receipt of major organ support. The assumption that predictors have similar associations with individual elements of a composite outcome may not hold. Clinical prediction models may incur a 'composite outcome fallacy' if they are driven by predicting one element of the composite outcome but used to predict another. Further research into other clinical prediction score with composite outcomes is required.

1726 INTEGRATING ESTABLISHED CLINICAL SCORES WITH A NOVEL TRANSCRIPTOMIC SEVERITY CLASSIFIER AUGMENTS EARLY RISK ASSESSMENT IN THE ED

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Aims, Objectives and Background Reliable risk assessment in patients presenting to emergency departments (ED) with suspected infection is of utmost importance to support clinical decisions. Vital sign-based scoring systems such as NEWS2 or qSOFA enable a rapid first assessment of patient urgency at triage. However, their inherent high sensitivity might drive over-utilization of healthcare resources. Our aim was to evaluate if adding the result of a transcriptomic severity classifier can synergistically improve current score-based risk assessment in the ED.