Conclusions Local performance in percutaneous hepatic biopsy is safe, with low complication rates. Using the guidelines from the British Society of Gastroenterology, the Royal College of Radiologists and the Royal College of Pathology, we identified areas for improvement such as using recommended needle size and increasing liver biopsy size for diffuse parenchymal disease. These findings provide a basis for ongoing local quality improvement, and a framework on which other general hospitals can structure quality improvement whilst contributing to the evidence-basis for UK-wide guidelines.

Education & training

PTU-78 GI AND NON-GI MANIFESTATIONS OF COVID-19 DURING FIRST WAVE OF THE PANDEMIC AT DARLINGTON, UK

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Background Gastrointestinal (GI) manifestations of COVID-19 have been increasingly reported from many centres but it is not clear as to whether the presence of GI manifestations influences the outcomes of COVID-19. The data from the UK is still emerging and there is significant variability between the North of England and the rest of the UK.

Aim of this study DarCoVE was a single centre epidemiological study initiated over a 3 week period during the peak of the first wave of the COVID-19 pandemic in the United Kingdom. This prospective cohort analysis evaluated the GI and non-GI manifestations of the disease and produced a multivariate analysis of prognosticators for COVID-19.

Methods Consecutive patients admitted with fever, cough or shortness of breath to the Acute Medical Admissions Service of Darlington Memorial Hospital between 26 March 2020 – 12 April 2020 were recruited to an electronic database, and divided into two cohorts: RT-PCR positive for SARS-CoV-2 (COVID+) and negative (COVID-). Demographic parameters, underlying co-morbidities, GI and non-GI symptoms, BMI, haematological and biochemical laboratory parameters, chest radiology, need for supplemental oxygen, need for high dependency and intensive care treatment, length of hospital stay and mortality were recorded. Univariate survival analysis was performed by Cox proportional hazard model in R, multivariate analysis was done by forward selection model, cumulative survival by Kaplan-Meier method using log-rank test.

Results 275 patients formed the dataset for analysis, 130 COVID+. Median age of COVID+ was 70(range 23-95yrs), 63% were over age 65yrs, M:F=1.28. 73% had at least one co-morbidity, diabetes commonest. Median BMI 29.7 (range 13.9-44.9). 60.8% patients had a BMI>30, compared to UK average of 10.9% (p<0.001). GI manifestations included: diarrhoea in 10.1%, vomiting 13%, abdominal discomfort 9.4%, loss of appetite 5.7%, abnormal liver functions 37%, mean

ALT 52.4 IU/L, ALT >150 in 5.1%. Of 43 clinical and biochemical factors investigated for prognostic value, 9 factors were associated with outcome at p<0.05 with cough and diarrhoea associated with lower risk of death compared to the other 7 factors. On multivariate analysis, high frailty score > 5, worst oxygenation SpO₂ < 93%, platelets < 100 x 10⁹/L and immunocompromised were poor prognosticators. None of the GI manifestations co-related with risk of death in this analysis, with a trend for ALT >150 to be associated with higher mortality. Overall mortality was 30.8% compared to UK national mortality of 26%, with ITU mortality higher at 37%.

Conclusion This study has shown a regional variation in the outcome of COVID-19, with slightly different prognosticators. GI manifestations continue to be significant in COVID-19, with a trend seen with high ALT. The data from this analysis will help management in future pandemics.

PTU-79 DEVELOPMENT OF A VIRTUAL REALITY TRAINING CURRICULUM FOR ERCP

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Introduction Assessment of Endoscopic skills involved in performing Endoscopic Retrograde Cholangiopancreatography (ERCP) in procedural environment is complex. Tutors and experts emphasize the need to develop and use precise and significant assessments measuring tools that are valid for evaluating trainees' progress in obtaining essential gastroenterology-related procedural skills. The purpose of this research was to develop a structured evidence-based virtual reality training curriculum and set a proficiency performance benchmark for a set of objective metrics of endoscopic skills during ERCP procedures using the Simbionix GI Mentor 2 Simulator. Our second aim of the study was to form a face and construct validity of the simulator for the ERCP module to show significant differences between competent and non-competent operators in that module.

Keywords: *Simbionix, GI Mentor 2, ERCP Module, ERCP training, Simulation, ERCP simulators, Benchmark, Virtual Reality, Training curriculum*

Materials and Methods In this study, a total of 39 participants were divided into three groups according to their level of experience and number of endoscopies performed in their career (Novices, Intermediate, and Experts). They were required to perform ERCP procedure, case number 2 in Module 1 in the GI Mentor 2 Simulator, and upon completion of the study, they were asked to fill a questionnaire about the simulator, simulation in general, and their previous experience. The time taken for task completion, number of papillary contacts before cannulation, number of cannulation to the Pancreatic Duct, and other metrics calculated from the simulator along with the questionnaire results were collected and compared between the groups. The first group consisted of novices; medical students, foundation doctors, and core trainees, with no previous knowledge or exposure to ERCP or endoscopic procedures.

The second group were categorized as intermediates; specialty trainees from all levels, whom had some experience with endoscopy and has done or assisted in at least 250 procedures. The third group was the expert group, which consisted of consultants in Gastroenterology specialty and each one of them at least has done 2500 procedures in order to be eligible to be placed in the group.

Results We have analysed the data of the participants performance collected from the simulator and compared the results of the three groups together. It was clear that the expert group have done better with shorter time than other groups (264.4 sec); intermediates (321.14 sec), and novices (822.05 sec). The results were analysed further using the IBM SPSS® Software. The date generated showed a statistical significance between the groups having a p value of ($P < 0.022$). Then the experts' results were isolated to define a set of benchmark ranges for the ERCP Module. The average of experts' performance was collected, then we have calculated the Standard Deviation of each mean. Later, the mean of each task was trimmed by excluding any consultant performance beyond the standard deviation by $1 \pm$. six out of twelve metrics were considered significant based on literature and up to date practice which were included; total time of procedure (178.2 – 361.8 seconds), papilla contact before cannulation (2.25 – 3.25 times), number of cannulations to the PD (1 time), number of cannulations to the CBD (1 time), number of contrast injections to the PD (9.6 – 19.6), and number of contrast injections to the CBD (6.6 – 18.4). The new recalculated mean was used to set a reference criterion and a benchmark range for the performance of the ERCP module in the GI Mentor 2 Simulator.

Afterwards, we recruited these results as a reference in our syllabus. Through analysis of operators' performance and psychological dynamics in practice, we created an evidence-based curriculum that we deemed to be suitable for training ERCP using virtual reality simulator and demonstrated that is possible to define and develop a virtual reality training curriculum for ERCP using structured scientific methodology.

Conclusion The ERCP module in the Simbionix GI Mentor 2 simulator demonstrate face and construct validity as they show statistically significant differences between novice, intermediate, and expert groups as proved in our results and has been done previously in other studies.

We have defined a reference criterion level to develop proficiency performance benchmark for all metrics obtained from our studies on the ERCP procedure based on 5 experts. And we have demonstrated and managed to set a proficiency performance benchmark range in the ERCP module to be used as a baseline when comparing any operator performance on the simulator. Also, our study further our understanding and knowledge of endoscopic expertise and provides trainees with predefined proficiency performance benchmarks that can be used to help and support in their learning of endoscopic skills.

Furthermore, this study has demonstrated that it is possible to define and develop a virtual reality training curriculum for ERCP using structured scientific methodology.

PTU-80

IMPROVING CLINICIANS' CONFIDENCE IN GASTROENTEROLOGY AND HEPATOLOGY MANAGEMENT: SIMULATION VIA INSTANT MESSAGING- BIRMINGHAM ADVANCE (SIMBA)

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Introduction SIMBA is an innovative virtual simulation-based learning model where participants solve real-life cases using WhatsApp and Zoom. The primary objective of this study was to evaluate the effectiveness and acceptance of case-based simulations delivered through SIMBA for inflammatory bowel disease (IBD) and Hepatology.

Methods Five IBD and four hepatology cases were anonymised and adapted to the SIMBA format. A total of 42 participants and 39 moderators interacted with each other through WhatsApp, followed by an expert panel debrief via Zoom. Differences in participants' self-reported confidence in simulated case management were analysed by pre- and post-SIMBA surveys using Wilcoxon Signed Rank test.

Results Thirty-seven participants completed both pre- and post-SIMBA surveys for both sessions, and were included in the analyses. 94.6% ($n=35/37$) rated the overall quality of the session as excellent/good.

86.5% ($n=32/37$) strongly agreed/agreed that the simulated topics were applicable to their practices, 91.2% ($n=31/34$) strongly agreed/agreed that the session was engaging, 97.3% ($n=36/37$) strongly agreed/agreed that the session accommodated their personal learning style and 86.5% ($n=32/37$) preferred SIMBA as a learning method compared to lecture-based learning.

There was significant improvement in approach to simulated cases of SIMBA IBD in all parameters: diagnosis ($p=0.0001$), interpret diagnostic imaging ($p<0.0001$), management ($p<0.0001$) and follow up ($p<0.0001$). In SIMBA Liver, there was an overall significant improvement ($p<0.0001$) in participants' confidence in approach to all cases.

Participants felt an improvement in clinical competency in the following areas: 94.6% ($n=35/37$) patient management, 81.1% ($n=30/37$) practice-based learning, 72.3% ($n=27/37$) system-based practice, 56.8% ($n=21/37$) patient care, 24.3% ($n=9/37$) professionalism and 16.2% ($n=6/37$) communication skills.

Two recurring themes were identified from responses to open ended questions in the sessions namely professional competence and clinical practise changes; analysis using an inductive thematic theme analysis approach.

Conclusions SIMBA is a novel effective teaching model for continuing education in gastroenterology and hepatology with potential to deliver similar success in other areas of medicine, especially during this pandemic.