OPTIMIZING THE USE OF GASTROSCOPE FOR ICU PATIENTS BASED ON MACHINE LEARNING MODEL

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Background We aim to establish an objective and feasible pre-gastroscopic screening standard to solve the overuse of gastroscopy for ICU patients. Methods This study collected the demographic information, diet, lifestyle, medical history, symptoms, PGI, PGII, G-17 and Hp antibody of the patients from the MIMIC-III and Philips eICU collaboration databases. The decision tree model, logistic regression model, random forest model and support vector machine model were trained by the collected information. The accuracy and validity of the machine learning models predicting positive gastroscopic results were evaluated by comparing the efficiencies of different pre-gastroscopic screening ways.

Results 1273 gastroscopic positive cases of a total of 720 cases were enrolled in this study. In the training set, support vector machine model fitted the highest degree (AUC=1.000), the random forest model (AUC=0.941), the decision tree model (AUC is 0.885), and the worst is the Logistic regression model (AUC=0.839). In the test set, four machine learning model has better prediction effect, AUC from high to low were random forest model (0.879), logistic regression model (0.842), the decision tree model (0.827) and support vector machine model (0.826). Assuming risk cut-off value was 0.85, the sensitivity of the model is 93.17%, as well as specificity is 15.70%, and only recommended gastroscopy in 89% of patients, the average 2.27 times gastros copy can be found that the positive cases. Compared with direct gastroscopy, the efficiency of gastroscopy is increased by 3.57 times after using the screening model.

Conclusions This study compared the variables in the model with single-factor analysis results, and proved that the history of upper gastrointestinal polyps, PG II, PG I, Hp antibody, smoking, drinking were important predicting variables for positive gastroscopic results, as well as the single alarm symptom is difficult to predict the results of gastroscopy accurately. The model can predict positive gastroscopic risk effectively and provide objective criteria for optimizing the use of gastroscopy, which may be a new way to decrease the overuse of gastroscopy for ICU patients. However, before being applied in clinical practice, the models need externally validated.

DIAGNOSTIC VALUE OF DOUBLE-BALLOON ENTEROSCOPY, CT ENTEROGRAPHY AND THEIR COMBINATION FOR SMALL BOWEL CROHN DISEASE

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Background To investigate the value of double-balloon endoscopy(DBE), CT enterography (CTE) and their combination for the diagnosis of small bowel Crohn disease(CD). Methods Data of 35 patients admitted from January 2018 to December 2019 who were clinically suspected of small bowel CD undergoing double-balloon endoscopy(DBE) were reviewed. 30 patients underwent CT enterography (CTE). Diagnosis was made based on pathological, endoscopic findings, CT enterography findings and clinic follow-up results. Detection rates and diagnosis rates of small bowel CD were compared by double-balloon endoscopy(DBE) and CT enterography(CTE). Results The detection and diagnosis rates of small bowel CD by double-balloon endoscopy (DBE) were 97.1%(34/35) and 91.2%(31/34), respectively. These two variables by CT enterography(CTE) were 86.7%(26/30) and 88.5%(23/26). Both double balloon endoscopy (DBE) and CT enterography (CTE) detected small intestinal CD in 25 cases, with a detection rate of 83.3%(25/30) and a diagnosis rate of 92%(23/25). The detection rate and diagnosis rate of double balloon enteroscopy (DBE) were higher than that of CT enterography (CTE). Double balloon enteroscopy(DBE) combined with CT enterography(CTE) has the highest rate of diagnosis.

Conclusions Double balloon enteroscopy(DBE) has high application value for the diagnosis of small bowel CD, and can be recommended as the first choice for the diagnosis of small bowel CD. For those contraindicated with endoscopy, CT enterography(CTE) can be considered as a preferred auxiliary diagnostic modality. The combination of the two methods can complement each other and provide more information for the diagnosis of small bowel CD, thus improving the diagnosis rate of small intestinal CD.
A SINGLE CENTRE RETROSPECTIVE STUDY OF INPATIENT MANAGEMENT IN ACUTE LOWER GASTROINTESTINAL BLEEDING

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Background Acute lower gastrointestinal bleeding (ALGB) is a common presenting condition in hospital with an estimated incidence of 33–87/100000. Recent national audit in the United Kingdom has shown that the bleeding stops in the majority of the cases without any intervention. In this retrospective study, we aim to describe patient characteristics and to identify factors that predict clinical outcomes.

Methods Haemodynamically unstable patients with ALGB are admitted to the medical high dependency unit (MHDU) at Aberdeen Royal Infirmary for monitoring. Patients with a primary diagnosis of ALGB between 01/05/2015 to 15/09/2017 were identified from the MHDU database. Patients who presented with haematemesis or had upper gastrointestinal (UGI) bleeding found at esophagogastroduodenoscopy were excluded. Patient’s demographic data, laboratory results, medications, endoscopy and radiology reports were collected. Clinically relevant outcomes of the study included 28-day mortality and red cell transfusion requirement. Multivariable logistic regression analysis was used to identify factors independently associated with outcomes.

Results 130 patients (Median Age 73; male predominance 68%) were included in the study after excluding readmissions (n=8) and UGI bleedings (n=9). 51% had major comorbidity, 37% taking antplatelets and 25% taking anticoagulants. 60% received blood transfusion and 31% required intervention (endoscopic therapy (n=17), mesenteric embolization(n=18) and surgery (n=5)). 72% had diagnostic endoscopy on admission with the majority being flexible sigmoidoscopy (n=74). Median Length of hospital stay was 6 days, and 12% experienced rebleeding on the same admission. 10 patients died within 28 days of admission. Low Haemoglobin (p=0.027), raised C-reactive protein (CRP) (p=0.047) and no endoscopy performed on admission (p=0.014) were associated with 28-day mortality. Low Haemoglobin (p< 0.0001) was also significantly associated with red cell transfusion requirement.

Conclusions In our study, the majority of patients who were admitted with severe ALGB were elderly with a high burden of co-morbidities and frequent antithrombotic use. Nevertheless, antithrombotic medication and co-morbidities were not significantly associated with mortality or red cell transfusion requirement.

LIGHT WEIGHT PROLENE MESH WAS ASSOCIATED WITH LOWER INCIDENCE OF MESH REJECTION ON INGUINAL HERNIA UNDERGOING OPEN EMERGENCY HERNIA SURGERY

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Background Incarcerated hernia was one of the most common procedures in gastrointestinal surgery. According to the latest Hernia Guidelines 2018, emergency hernia surgery has been suggested to used mesh in cases without contamination, whether we did by laparoscopic or open conventional procedures, but there was lack of data and recommendation, which kind of mesh should we used which could reduce the incidence of mesh rejection during emergency hernia surgery.

Methods Incarcerated hernia cases which have been done open conventional hernia repair procedure (Lichtenstein procedure) were included in this study during January-December 2019. The patients were divided into two groups; the first group would use light-weight prolene mesh and the other one using heavy-weight mesh. The outcome that would be evaluated was the incidence of mesh rejection during those procedures after 6 months follow up. The cases with the presence of contamination would be excluded from this study.

Results 45 patients were included in this study, 24 patients with light-weight prolene mesh following Lichtenstein procedure and 21 patients using the heavy-weight mesh. During the follow-up, there was no drop out of the patient, and during 5 months follow up, we found 1 case of mesh rejection, 2 months after those procedures using heavy-weight mesh and had been managed by the operative procedure for debride ment of the mesh rejection. On the other hand, we found no mesh rejection on light-weight mesh group (p < 0.05).

Conclusions Light-weight prolene mesh was associated with a lower incidence of mesh rejection during open emergency hernia surgery.

THE LENGTH OF STAY DIFFERENCE BETWEEN OPEN CONVENTIONAL VS LAPAROSCOPY CHOLECYSTECTOMY ON CALCULUS CHOLECYSTITIS PATIENTS IN THE CURRENT GOVERNMENT INSURANCE ERA

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Background For the last two decades, laparoscopy cholecystectomy has been announced as the gold standard procedure for symptomatic cholelithiasis, and calculus cholecystitis with the main benefits was less post-operative pain and shorter length