Abstracts

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THE ROLE CYTOMEGALOVIRUS DETECTION IN ACTIVE INFLAMMATORY BOWEL DISEASE

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Background It is known that Cytomegalovirus (CMV) can be detected in the colon during active Inflammatory Bowel Disease (IBD). However, its pathogenic role in causing active inflammation remains unclear as this ubiquitous virus is also regarded as innocent bystander. We aim to examine the utility of CMV testing in the colonoscopic specimen and correlate with clinical outcome.

Methods A retrospective review of IBD patients with active symptomatic disease undergoing colonoscopy in National University Hospital Singapore from 2012-2020 and CMV tissue studies (histology with CMV Immunohistochemistry (IHC), CMV polymerase chain reaction (PCR), and tissue CMV culture) was conducted. The electronic medical record was analysed for clinical outcomes and CMV treatment.

Results Of 4912 patients with CRCLM in our cohort, 2956 (60.12%) were male. Comparing with male patients, females showed a significantly higher frequency of extrahepatic metastasis (28.2% vs. 19.8%, \( P<0.0001 \)). Moreover, male had better 8-year OS than female in both left and right colon cancer (Left: male 44.3% vs female 34.4%; \( P=0.0001 \); Right: male 51.9% vs female 39.5%, \( P=0.0004 \) (IDDF2021-ABS-0191 Figure 1A, IDDF2021-ABS-0191 Figure 1B). Similarly, in both simultaneous and metachronous liver metastasis males also showed a better 8-year OS (simultaneous: male 44.0% vs female 36.9%, \( P<0.0001 \); metachronous: male 53.3% vs female 41.1%, \( P=0.0006 \) (IDDF2021-ABS-0191 Figure 2A, IDDF2021-ABS-0191 Figure 2B). Among patients with KRAS mutant status or age ranged from 44 to 74 years old, males also showed a favorable 8-year OS (IDDF2021-ABS-0191 Figure 3A, IDDF2021-ABS-0191 Figure 3B, IDDF2021-ABS-0191 Figure 4A, IDDF2021-ABS-0191 Figure 4B, IDDF2021-ABS-0191 Figure 4C).

Conclusions The advantage of males in survival indicates the impact of sex disparity in CRCLM. Further investigation in regard of the gender differences in CRCLM is warranted to investigate the potential mechanisms.

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A NEW COMPUTER-ASSISTED DIAGNOSIS SCORING SYSTEM BASED ON DEEP LEARNING FOR PREDICTING INFLAMMATORY ACTIVITY FROM PATIENTS WITH ULCERATIVE COLITIS

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Background Endoscopy is increasingly important for the evaluation of patients with ulcerative colitis (UC). However, there were considerable differences in endoscopic assessment because of the endoscopists’ training experience, not only that, existing endoscopy scoring methods cannot reflect the inflammation’s details of the full-length endoscopic video; therefore, we sought to develop an automatic scoring system using deep learning technology for consistent and objective of endoscopic images and videos from patients with UC.
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IDDF2021-ABS-0208 DEVELOPMENT OF AN AUTOMATIC SYSTEM TO FAST QUANTIFY MARKING AND INCISION DURING ENDOSCOPIC SUBMUCOSAL DISSECTION

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Background Facilitating accurate location of marking points and circumferential incision in the mucosa at a certain distance outside the boundary of the lesion is important to ensure the quality of endoscopic submucosal dissection (ESD). However, the decision-making of different endoscopists has a large variance due to subjective experience, leading to difficulty in quality control of ESD. To tackle this problem, this study aims at utilizing an intelligent automatic system to give real-time guidance during the operation.

Methods We built an Artificial Intelligence (AI) assistant system that can detect the lesion boundary and marked points in real-time to quantify the location of marking points and cutting path during ESD of early esophageal cancer (EEC). This system was composed of two major components, that were the marking points suggestion module and the cutting line suggestion module. We collected 499 endoscopic images with Lugol’s staining of EEC from 20 cases and 3397 detailed images of ESD from 12 cases. With these images, we built datasets for the evaluation of lesion boundary detection and marked points detection. Then, the algorithm was built to display the marking position and the mucosal incision position.

Results We conducted the experiments, including two parts. The first one was to assess the real-time boundary detection performance and marked points detection performance. Specifically, we achieved a satisfactory real-time lesion segmentation performance with Dice score of 96.1%, and a good marked points detection performance with average precision (AP) 70.2%. On the basis of boundary detection, our algorithm can automatically display the marking position at a certain distance (such as 0.3 cm, which can be adjusted as needed) outside the boundary of the lesion. After the guidance of marking points, the automatic system can detect the marked points and display the mucosal cutting line at a certain distance outside the marked points.

Conclusions Suggesting position of marking and incision were successfully achieved during ESD with our automatic system, which can improve consistency of standard ESD procedure among different level hospitals.

IDDF2021-ABS-0211 CO-OCCURRENCE OF GUT MICROBIOTA DYSBIOSIS AND BILE ACID METABOLISM ALTERATION IS ASSOCIATED WITH PSYCHOLOGICAL DISORDERS IN CROHN’S DISEASE

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Background Metabolites of the gut microbiota interviewing with signals derived from the host immune, endocrine, and neuronal systems intertwining may influence the development of mucosal injury and inflammation and impacts also distal central nervous system, underlying the psychophysiological vulnerability of Crohn’s disease (CD) patients. This study aims to elucidate the relationships between bile acid metabolism, gut microbiota, and psychological comorbidity in CD.

Methods A total 39 CD patients and 14 healthy controls were enrolled in this study. The psychological status of the participants was accessed by using Zung Self-rating Depression Scale (SDS) and Self-rating Anxiety Scale (SAS). Bile acids in the feces and serum samples were quantified by using liquid chromatography-tandem mass spectrometry (LC-MS/MS). 16S