



Introduction for the Artificial Intelligence and Gastrointestinal Cancer Column

Gastrointestinal (GI) cancer is a leading cause worldwide of morbidity and mortality. In 2018, GI cancer accounted for 27% of all new cancer diagnoses. The incidence rate of colorectal cancer is rising in many countries, with a recent dramatic increase for people under the age of 50 years. Additionally, esophageal, stomach, and pancreatic cancer are often diagnosed at late stages leading to high rates of morbidity and mortality. Advances in artificial intelligence (AI) with machine learning and deep learning are rapidly evolving, and will soon change how gastroenterologists screen for, detect, and treat GI cancer. Currently, screening and surveillance of GI cancer consists of, for example, high definition white light endoscopy, endoscopic ultrasound, stool based tests or radiologic imaging. Challenges with these methods include missing small lesions, determining the likelihood of dysplasia of polyps, or predicting depth of invasion prior to lesion resection. Techniques such as narrow band imaging or dye staining are used to assist in optical evaluation of lesions, although these methods have their pitfalls and are time consuming. Optimal clinical outcomes are also influenced by the expertise of the endoscopist, and even in the best of circumstances physicians are subject to human error and fatigue. With advances in AI, innovative applications and improving technology aim to reduce and eliminate many of these factors to improve clinical outcomes. This column will focus on novel developments within the AI and gastroenterology space with a specific focus on improving methods for detection, surveillance, and treatment of GI cancer.

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