Computer-Assisted Colonoscopy Is Better at Detecting Precancerous Polyps

Using artificial intelligence software during a colonoscopy can reduce the number of overlooked polyps left behind in the colon.

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By Sahar Alam, a Colorectal Cancer Prevention intern with the Colon Cancer Foundation.

Colonoscopy is the most effective test for colorectal cancer (CRC) screening and prevention. This procedure minimizes the incidence and mortality of colorectal cancer through early detection. During a colonoscopy, a physician inserts, and threads a flexible tube with a tiny camera called a colonoscope into the rectum and through the entire colon, or large intestine. This helps identify abnormal growths and excise any polyps which can then be sent for diagnosis.

However, research has shown that despite being the gold-standard for CRC screening, 23–30% of adenomas are overlooked and missed during a traditional colonoscopy, the success of which can vary depending on operator skills.

“Colorectal cancer is the second leading cause of cancer-related deaths in the United States, and it is one of the few cancers that can be prevented if caught early,” said Aasma Shaukat, MD, MPH, at NYU Grossman School of Medicine and the Robert M. and Mary H. Glickman Professor of Medicine and Gastroenterology and Director of Outcomes Research for the Division of Gastroenterology and Hepatology. “Our mission remains to improve and enhance the quality and efficacy of the colonoscopy across the board to provide the best care for patients.”

In order to improve the efficiency and efficacy of colonoscopies, Dr. Shaukat and her team have developed an artificial intelligence (AI) platform to assist endoscopists. The findings of their prospective, randomized, multicenter collaborative study to test the AI platform were recently published in the journal Gastroenterology. Between January and September 2021, twenty-two skilled, board-certified gastroenterologists performed colonoscopies on 1,440 patients. The patients were randomized to receive a traditional colonoscopy or a colonoscopy with computer-aided detection software—the software detects colorectal polyps during high-definition white-light colonoscopy procedures. This device can identify potential polyps and identify areas of concern, refining the results of the procedure in real-time.

The researchers found that using AI during a screening colonoscopy increased the adenoma per colonoscopy rate by 22%: from 0.82 to 1.05. This evidence indicates that AI can be an effective and efficient tool for gastroenterologists and endoscopists to reduce the number of overlooked polyps left behind in the colon, many of which can be precancerous.

Dr. Shaukat states, “Our findings add to the growing amount of literature that shows using computer-aided technology during an endoscopy procedure can improve the quality of exams performed and improve outcomes for our patients. Several software technologies are currently available for clinicians and incorporating the use of these resources will only enhance the care we provide our patients and improve the quality of exams we as physicians are able to perform.”

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