Updates in screening and early detection of gastrointestinal cancers: A comprehensive overview.

Alizamen Mirzaei*

Department of Medical Biotechnology, Shahrekord University of Medical Sciences, Shahrekord, Iran

Introduction

Gastrointestinal (GI) cancers pose a significant health challenge globally, with their incidence steadily rising. Early detection plays a crucial role in improving outcomes and reducing mortality rates associated with these malignancies. Recent advancements in screening technologies and strategies have paved the way for more effective and accessible methods for early detection. Colorectal cancer (CRC) remains a leading cause of cancer-related morbidity and mortality. Colonoscopy, a gold standard for CRC screening, has seen technological enhancements aimed at improving its efficacy and patient experience. Virtual colonoscopy, or computed tomography colonography, is gaining popularity as a non-invasive alternative. It utilizes advanced imaging techniques to generate detailed 3D images of the colon, offering a less invasive option for individuals averse to traditional colonoscopy [1, 2].

Furthermore, fecal immunochemical tests (FIT) and stool DNA tests have emerged as convenient at-home screening options. FIT detects blood in the stool, while stool DNA tests can identify specific genetic mutations associated with CRC. These non-invasive tests provide an accessible and user-friendly alternative for individuals who may be hesitant to undergo traditional screening methods. Esophageal cancer, particularly adenocarcinoma and squamous cell carcinoma, has a high mortality rate due to late-stage diagnoses. Advances in endoscopic technology have enabled the development of innovative screening techniques. Narrow Band Imaging (NBI), for instance, enhances the visibility of subtle mucosal changes, aiding in the early detection of esophageal lesions. Endoscopic ultrasound (EUS) has also evolved, allowing for more accurate staging and localization of tumors within the esophagus [3, 4].

The development of minimally invasive techniques, such as capsule endoscopy, offers a less invasive approach to evaluating the esophagus for abnormalities. This ingestible capsule equipped with a tiny camera captures images as it travels through the digestive tract, providing valuable diagnostic information without the need for traditional endoscopy. Stomach or gastric cancer often presents late in its course, making early detection challenging. Recent advances in imaging technologies, such as positron emission tomography (PET) and endoscopic ultrasound, contribute to more accurate staging and localization of gastric tumors. These tools help guide treatment decisions and improve overall patient outcomes [5, 6].

Serum biomarkers, such as carcinoembryonic antigen (CEA) and carbohydrate antigen 19-9 (CA 19-9), play a role in the surveillance and early detection of gastric cancer. Regular monitoring of these markers, especially in high-risk populations, can aid in identifying potential cases at an earlier, more treatable stage. Hepatocellular carcinoma (HCC) is the most common primary liver cancer, often associated with chronic liver diseases such as cirrhosis. Routine surveillance of high-risk individuals, such as those with chronic hepatitis B or C infections, is crucial for early detection [7, 8].

Ultrasonography, alpha-fetoprotein (AFP) testing, and MRI are among the tools employed in the surveillance and early diagnosis of liver cancer. The advent of liquid biopsy, a non-invasive method for detecting circulating tumor DNA, is showing promise in the early detection of liver cancer. This approach allows for the identification of genetic mutations associated with HCC through a simple blood test, offering a convenient and potentially more sensitive screening method [9, 10].

Conclusion

The landscape of gastrointestinal cancer screening is rapidly evolving, with continuous advancements in technology and a growing emphasis on accessibility. From innovative endoscopic techniques to non-invasive screening options, the field is making significant strides in improving early detection rates. As these technologies become more widely available, there is hope that the burden of gastrointestinal cancers on global health can be alleviated through earlier diagnoses and more effective interventions.

References

1. Coates MD, Johri A, Gorrepati VS, et al. Abdominal pain in quiescent inflammatory bowel disease. Int J Colorectal Dis. 2021;36:93-102.
2. Ford AC, Yuan Y, Moayyedi P. Helicobacter pylori eradication therapy to prevent gastric cancer: Systematic review and meta-analysis. Gut. 2020;69(12):2113-21.
3. Zhu GH, Li J, Li J, et al. The characteristics and related factors of insomnia among postoperative patients with gastric cancer: A cross-sectional survey. Support Care Cancer. 2021;29(12):7315-22.

***Correspondence to:** Alizamen Mirzaei, Department of Medical Biotechnology, Shahrekord University of Medical Sciences, Shahrekord, Iran, E-mail: mirzae.a@skums.ac.ir

***Received:** 17-Oct-2023, Manuscript No. JGDD-23-120824; **Editor assigned:** 19-Oct-2023, Pre QC No. JGDD-23-120824 (PQ); **Reviewed:** 02-Nov-2023, QC No. JGDD-23-120824; **Revised:** 06-Nov-2023, Manuscript No. JGDD-23-120824 (R); **Published:** 13- Nov-2023, DOI: 10.35841/ jgdd -8.6.179*

***Citation:** Mirzaei A. Updates in screening and early detection of gastrointestinal cancers: A comprehensive overview. J Gastroenterol Dig Dis.2023;8(6):179*

4. van Huijgevoort NC, Del Chiaro M, Wolfgang CL, et al. Diagnosis and management of pancreatic cystic neoplasms: Current evidence and guidelines. Nat Rev Gastroenterol Hepatol. 2019;16(11):676-89.
5. Kleeff J, Korc M, Apte M, et al. Pancreatic cancer. Nat Rev Dis Primers. 2016;2(1):1-22.
6. Palm SJ, Russwurm GP, Chang D, et al. Acute enlargement and subsequent rupture of an abdominal aortic aneurysm in a patient receiving chemotherapy for pancreatic carcinoma. J Vasc Surg. 2000;32(1):197-200.
7. Niedermaier T, Tikk K, Gies A, et al. Sensitivity of fecal immunochemical test for colorectal cancer detection differs according to stage and location. Clin Gastroenterol Hepatol. 2020;18(13):2920-8.
8. Bu F, Yao X, Lu Z, et al. Pathogenic or Therapeutic: The Mediating Role of Gut Microbiota in Non-Communicable Diseases. Front Cell Infect Microbiol. 2022;12:906349.
9. Hirasawa T, Aoyama K, Tanimoto T, et al. Application of artificial intelligence using a convolutional neural network for detecting gastric cancer in endoscopic images. Gastric Cancer. 2018;21:653-60.
10. Ikenoyama Y, Hirasawa T, Ishioka M, et al. Detecting early gastric cancer: Comparison between the diagnostic ability of convolutional neural networks and endoscopists. Dig Endosc. 2021;33(1):141-50.

Citation: *Mirzaei A. Updates in screening and early detection of gastrointestinal cancers: A comprehensive overview. J Gastroenterol Dig Dis.2023;8(6):179*