Prevention and Screening of Gastrointestinal Cancers

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Objectives: *This article reviews the current recommendations and data supporting various screening and prevention strategies for colorectal cancer (CRC) in average and high-risk individuals.*

Data Sources: *Published research reports, epidemiologic data, and published guidelines from professional organizations.*

Conclusion: *Properly applied screening tools can potentially decrease the morbidity and mortality associated with CRC.*

Implications for Nursing Practice: *Nurses need to be aware of current recommendations for the early detection of CRC so they can provide patients with an accurate assessment of risk for developing CRC and education about the appropriate CRC screening guidelines.*

Key Words: *Colorectal cancer, screening, prevention, risk assessment, colonoscopy.*

Together, gastrointestinal (GI) cancers comprise a significant percentage of cancers. To date, most efforts in screening and prevention have been directed toward colorectal cancer (CRC), which has a high incidence. Recommendations for the early detection of CRC have been modified over time and there is solid scientific evidence that these measures decrease the morbidity and mortality associated with CRC. More recently, guidelines have been released by the American College of Gastroenterology (ACG) for screening in patients with Barrett's esophagus, and a Japanese group has issued some early guidelines for gastric cancers.[1,2] This article includes an overview of the risk factors and early detection strategies for Barrett's esophagus and gastric cancer and a detailed discussion of risk assessment, prevention, and early detection strategies for CRC.

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Barrett's Esophagus

Barrett's esophagus (BE) is a progressive metaplasia of the distal esophagus. It often occurs as a result of prolong reflux esophagitis and gastroesophageal reflux. It is considered by many to be a precursor to the development of adenocarcinoma of the esophagus. The exact prevalence of BE in the general population is not known. The overall prevalence of BE is estimated to be 1.6%,

with a prevalence rate of 2.3% in those with reflux symptoms and 1.4% in those without reflux symptoms.[3] Major risk factors for development include male sex, advanced age, chronic gastroesophageal reflux disease (GERD) and, possibly, family history. Screening is further complicated by the fact that a large number of patients lack reflux symptoms and there is not a clear means to identify these persons. BE is a histologic diagnosis. An esophagogastroduodenoscopy (EGD) is performed to obtain tissue samples. Samples are usually taken from the distal esophagus just above the lower esophageal sphincter, where BE primarily occurs. Patients diagnosed with BE should be screened regularly with an EGD with biopsy.

Screening for BE remains controversial because of the lack of a clear algorithm for how and whom to screen and whether screening has a significant impact on mortality.[1] Currently esophageal capsule endoscopy appears to be a promising technique to screen for BE. This video endoscopy is accomplished by having the patient swallow a small camera about the size of a vitamin capsule. The camera emits a light and takes two pictures per second as it traverses the GI tract. The pill is easily swallowed and transmits the images to a recording device worn around the waist. These images are then downloaded to a computer where they are reviewed by a physician to determine if abnormalities are present. It provides a noninvasive means to detect a columnar line esophagus, which is suggestive of BE,[1] but the expense prohibits this test from being utilized routinely. Because of these limitations, the ACG does not routinely recommend screening for BE in the general population.

Once BE is identified in a patient, there should be a discussion regarding the relative strengths of surveillance endoscopy and the risk of developing esophageal adenocarcinoma, which has limited treatment options and poor survival (less than 13% 5-year survival rate).[1,3] It is recommended that persons with GERD be placed on proton pump inhibitor therapy to decrease inflammation so surveillance is more likely to be effective and decrease the cellular changes that result in dysplasia.[3,4] Algorithms are available, depending on the degree of dysplasia, to determine the interval for endoscopy with biopsy. For those patients without dysplasia, endoscopy can be performed every 3 years. Those with low-grade dysplasia should have annual endoscopy until no dysplasia is detected for 2 years. Patients with high-grade dysplasia need aggressive and thorough surveillance every 3 months.

Patients diagnosed with BE require education on how to manage their disease. They need to be aware of the importance of regular endoscopic screening and follow-up. Patients should be informed to avoid foods and beverages that either irritate the esophageal mucosa or decrease lower esophageal sphincter pressure. These include tomato and citrus-based foods, spicy foods, onions, garlic, peppermint, chocolate, caffeine, and alcohol.[4]

Gastric Cancer

Gastric cancer is a significant problem and contributes to 600,000 deaths worldwide,[2,5] In the United States it accounts for 21,500 new cases and 10,880 deaths annually.[6] Risk for gastric cancer is increased in those with Helicobacter pylori (H pylori) infections, and those with certain genetic changes that predispose to developing gastric cancer. These include persons with a family history of gastric cancer as well as persons with a known or suspected mutation for hereditary nonpolyposis colorectal cancer (HNPCC).[5] Other persons at risk include those that consume diets high in salt, smoked, poorly preserved foods, nitrites, and nitrates.

Persons with a known mutation or suspected mutation in their family should be referred to a genetics professional for more detailed evaluation. Genetic testing is readily available for HNPCC, and testing for diffuse gastric cancer is available on a more limited basis. Identifying persons with a hereditary predisposition is important because this population may benefit from aggressive screening including gastroduodenoscopy.[2]

Colorectal Cancer

CRC continues to be a significant health problem in the United States. There is clear evidence that screening is the key to reducing the morbidity and mortality associated with this disease; when screening is performed consistently, correctly, and polyps are removed.[7] Polyps, especially the adenomatous ones, are considered to be precursors to CRC. Screening directly impacts how early a malignancy is detected and long-term survival. The estimated 5-year survival