Gastrointestinal Cancers: Screening and Early Detection

Joyce P. Griffin-Sobel

Objective: *To present an overview of current practices in the screening and early detection of gastrointestinal cancers.*

Data Sources: *Literature reviews.*

Conclusion: *Screening for gastrointestinal cancers is less than desirable, particularly in underserved populations. There are inadequate methods of screening for early detection of esophageal and gastric cancers.*

Implications for Nursing Practice: *Education of patients is needed to reinforce the importance of screening for gastrointestinal cancers.*

Key Words: *colorectal, screening, cancer, prevention.*

Gastrointestinal (GI) cancers, those of the esophagus, stomach, and colon/rectum, are among the most common cancers worldwide. There are more than 4 million new cases each year, greater than breast and lung cancers combined.[1] Risk factors, incidence, prevalence, and prognosis vary for each site. While great advances have been made in diagnosis and treatment, especially in colorectal cancers (CRCs), late diagnosis and lack of sophisticated screening tools result in a high death rate in some malignancies.

Joyce P. Griffin-Sobel, PhD, RN, ANEF, FAAN: *Dean and Professor, College of Nursing, Washington State University, Spokane, WA.*

Address correspondence to Joyce P. Griffin-Sobel, PhD, RN, ANEF, FAAN, College of Nursing, Washington State University, PO Box 1495, Spokane, WA 99210. e-mail: Joyce.griffin-sobel@wsu.edu

0749-2081
http://dx.doi.org/10.1016/j.soncn.2017.02.004

Demographics and Incidence of GI Cancers

CRCs

There are more than 1.4 million men and women living in the United States (US) with a previous CRC diagnosis, and an additional 135,430 cases will be diagnosed in 2017.[2] The median age for diagnosis of CRC is 66 years for men and 70 years for women. Patients with rectal cancer tend to be younger at diagnosis than those with colon cancer, with a median age of 63. Colon and rectal cancers are the third most prevalent cancer in men and the third in women.[2] Alaska native people have one of the world's highest incidence rates of CRC.[3]

For African Americans, CRC is the third most common cancer diagnosed for both men and women, and the third leading cause of cancer death in both sexes. Incidence rates for CRC are 27%

higher in African American men and 22% higher in African American women compared with white men and women. This may be attributable to higher rates of obesity and higher rates of physical inactivity, which are known risk factors.[4] Survival rates at 5 years for CRC among African American has improved from 45% to 59% in the last 20 years but the improvement remains less than that in whites (50% to 67%) because of later stage at diagnosis. Racial disparities in CRC survival largely reflect differences in treatment, socioeconomic status, and comorbidities.[1]

The overall 5-year survival for CRC is 65%. However, when detected at an early localized stage, survival is 90%. CRC death rates have declined by 47% since the 1970s because of population screening and improvements in treatment,[5] but the annual death rate remains at 50,000.[6]

Esophageal and Gastric Cancer

In the US, upper GI cancers kill twice as many people as does CRC, but unlike CRC, rates for cancers of the esophagus are increasing. Currently, most upper GI cancers present symptomatically at a late stage and are among the most lethal cancers.[7] Esophageal cancer, the sixth leading cause of cancer mortality worldwide,[5] is of two primary types: squamous cell and adenocarcinoma. Squamous cell cancers are the most frequent worldwide, but have been decreasing in the US. Adenocarcinomas comprise more than 75% of esophageal tumors in the US, and have increased seven-fold in the last 50 years.[8] More common in men than women, adenocarcinomas are associated with Barrett's esophagus, chronic gastric reflux disease, and obesity. Esophageal cancer is five times more common in whites than African Americans. It is highly lethal when presenting symptomatically, but readily curable when detected before symptoms appear.[7] At present, the estimated likelihood of 5-year survival for American patients with esophageal cancer is 19%.[8]

Gastric cancer is the third most common cancer killer worldwide, and the fifth most common malignancy in the world, but is less common in the US and other Western Countries. In non-Hispanic white Americans, the incidence is 4.0 per 100,000 individuals. It is endemic in Japan, Korea, Eastern Europe, and South America.[9] The incidence rate of gastric cancer in Korean Americans is over five times higher than in white Americans. The risk for gastric cancer is greater among lower socioeconomic populations and those with infections with *Helicobacter pylori*. *H. pylori* infection is considered a contributory factor, as is smoking, alcohol in excess, obesity, and a history of gastritis.[9] It is often curable with early stage detection but remains unscreened in most regions of the world.[8] With treatment, 5-year survival of gastric cancer has increased to 29%.[2]

Etiology and Prevention

CRCs, and to some extent esophageal cancer, are preventable with lifestyle changes and avoidance of risk behaviors that include dietary factors, excess alcohol use, obesity, and smoking.

Lifestyle. Primary prevention of cancer through the adoption of healthy lifestyles and appropriate implementation of secondary cancer prevention measures could potentially reduce the morbidity and mortality associated with malignancy.[10] Results from the National Institutes of Health– AARP Diet and Health Study suggest that behaviors (diet, physical activity, and smoking) and body mass index explain more than a third (36%) of the increased risk for CRC associated with low socioeconomic status, for which African American are disproportionately represented.[11]

Diet. A high consumption of red meat and processed meat, such as luncheon meats or bacon, has been associated with increased incidence of colon, stomach, and pancreatic cancers.[12,13] Foods high in fiber, particularly cruciferous vegetables, have been associated with a decreased risk of colorectal and gastric cancers.[11] Some large studies have found no association between fruit and vegetable intake and CRC, nor has dietary fiber intake been demonstrated to influence the incidence of CRC.[14] This may be attributable to the difficulty with correlational studies depending on diet recall. When a Mediterranean diet is adopted, which includes fish, nuts, poultry,and legumes, along with other healthy lifestyle changes, approximately 70% of colon cancers can be avoided.[11]

Alcohol. Excess alcohol intake has been linked to an increased risk of several cancers, including cancer of the colon and esophagus; whereas light to moderate drinking is not associated with cancer risk and may be beneficial for cardiovascular disease.[15] Cancer risk increases linearly with alcohol use and is synergistic with tobacco use.[15] Even light to moderate drinking (defined as 1 drink per day for women and 2 for men) is associated with a small increased risk of cancer in both genders.