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Colorectal Cancer Screening

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Colorectal Cancer Screening

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RATIONALE FOR SCREENING

EPIDEMIOLOGY OF COLORECTAL CANCER

Colorectal cancer is the third most common cancer in the United States, with an estimated 148,300 new cases diagnosed in 2002.¹ Colorectal cancer is also the third most common cause of cancer-related deaths in the United States, for men and women, with an expected 56,600 deaths in 2002.¹

The incidence of colorectal cancer varies widely worldwide, with the highest incidence rates in North America, Western Europe, Australia, New Zealand, and Japan, and the lowest rates in India and Northern Africa. Risk factors for developing colorectal cancer include environmental and genetic factors.² Dietary patterns are believed to account for most of the geographic variations in colorectal cancer incidence. A diet high in saturated fat and low in fiber is thought to increase the risk of colorectal cancer, whereas a high-fiber, low-fat diet may be protective. Additional risk factors include obesity, smoking, and physical inactivity, all of which have been associated with an increased incidence of colorectal cancer. Increasing age is one of the most important risk factors, with the risk of developing colorectal cancer increasing after age 40 years; more than 90% of cases occur in individuals older than age 50 years. In addition, a personal history of colorectal adenomas or of breast, ovarian, or uterine cancer, or a history of inflammatory bowel disease (ie, ulcerative colitis, Crohn's disease) places an individual at an increased risk for developing colorectal cancer. Finally, a family history of colorectal adenomas (polyps), cancer, or any of the inherited colorectal cancer syndromes (eg, familial adenomatous polyposis, hereditary nonpolyposis colorectal cancer syndrome, hamartomatous polyposis syndromes) confers an increased risk for colorectal cancer.

NATURAL HISTORY OF COLORECTAL CANCER

The natural history of colorectal cancer supports the concept that screening can be effective. Most colorectal cancers develop from adenomatous polyps over a period of many years.³ During this extended time frame, genetic mutations accumulate, with associated changes

in cell growth and differentiation, eventually leading to invasive carcinoma.^{4,5} This long period of time provides a window of opportunity for the detection of premalignant adenomas.

The detection and removal of adenomatous polyps with colonoscopy and polypectomy has been shown to decrease the incidence of colorectal cancer.⁶ Although the overall 5-year survival rate for colorectal cancer is 61%, there are marked survival differences depending on cancer stage at diagnosis. The 5-year survival rate ranges from 90% for localized colorectal cancer, to 64% for regional colorectal cancer, and to 8% for metastatic colorectal cancer.⁷ Currently in the United States, approximately 37% of colorectal cancer cases are diagnosed at a localized stage, 38% at a regional stage, and 20% at a metastatic stage.⁷ Available screening strategies, including fecal occult blood testing (FOBT) and flexible sigmoidoscopy, can detect early-stage colorectal cancer and premalignant polyps, thereby reducing colorectal cancer-related mortality.⁸⁻¹³ In summary, the screening strategies for colorectal cancer have the following two goals: (1) to detect early-stage colorectal cancer and thus improve colorectal cancer-related morbidity and mortality, and (2) to detect and remove premalignant adenomas, decreasing the incidence of colorectal cancer.

Despite the evidence supporting the effectiveness of colorectal cancer screening and the existing screening guidelines, fewer than 45% of eligible individuals in the United States have been screened.¹⁴ This screening rate is substantially lower than the screening rates for breast and cervical cancers, which vary from 70% to 80% among eligible women in the United States age 40 years or older.¹⁵

SCREENING STRATEGIES

CASE 1 PRESENTATION

Patient 1 is a 55-year-old woman who is referred by her primary care physician for colorectal cancer screening. The patient is asymptomatic. She has a history of mild hypertension and a past surgical history of appendectomy. Her family history is negative for colorectal cancer or polyps, as well as for other types of