EDITORIAL

Colon Cancer Screening

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Colorectal cancer (CRC) is a common clinical problem which is increasing in Jamaica. It is the second highest cause of cancer mortality in most developed countries (1). In Jamaica, CRC is the third commonest cancer in both males and females (2). Colorectal cancer is preventable. The majority of such cancers arise from benign adenomatous polyps and in most cases it takes about ten years for a small adenomatous polyp to progress and transform to advanced CRC. Evidence indicates that significant reduction in CRC mortality can be achieved by screening (3, 4).

The objective of screening is to detect and treat precursor lesions and early stage cancer. However, the strategy and recommendations as to the best method of screening has been debated over the past decade. In general, screening can only be recommended if the following criteria are fulfilled. Firstly, the disease has to be a common problem with public health implications. Secondly, there must be widely available and effective therapy for the disease, and detection and treatment of precursor lesions and early disease must significantly decrease the prevalence and mortality of the disease. Thirdly, there should be an effective, non-invasive and relatively cheap screening method available which is acceptable to all. The first two criteria are fulfilled with regards to CRC. The major problem is to decide on which of the various options available should be used and the best strategy for screening for CRC. There are several tests available. These include faecal occult blood testing (FOBT), flexible sigmoidoscopy (F/S), barium enema and colonoscopy. Recently, computed tomography colonography (CTC) has been introduced but, at present, the position of this technique in screening for CRC remains unclear (3, 5–8).

Screening for CRC is divided into two risk categories: high risk and average risk. Patients at high risk include those with a personal history of adenomatous polyps and CRC. Individuals with a first degree relative with CRC, especially if the tumour developed below age 60 years, are at increased risk. Those with a family history of familial polyposis coli and non-polyposis colon cancer are at high risk for CRC. Patients with colitis due to inflammatory bowel disease are also at increased risk. Patients at high risk should be followed and have evaluation of the colon, preferably colonoscopy, at intervals. Individuals without any of the above risk factors are at average risk. In these individuals, the risk for developing CRC increases with age and increases significantly after age 50 years.

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High Risk for Colorectal Cancer

High risk patients constitute about 25% of all new cases of CRC. Patients with a personal history of CRC should have colonoscopy 6–12 months after therapy and repeated at three years and then at five-year intervals thereafter, if negative. Patients who have had either a large adenomatous polyp (> 1 cm) or multiple polyps should have a repeat colonoscopy at one year and then at five years, if negative. Patients who have had a small adenomatous polyp resected should have colonoscopy at 3–5 years and then at 10 years (3).

Individuals with a first degree family member with CRC are at increased risk. The risk increases if CRC occurs at a young age in the affected family member. Family members should have evaluation of the colon starting at age 40 years (9). Individuals with a first degree family member with adenomatous polyps are also at increased risk for polyps and CRC and surveillance may start at 40 years of age.

Individuals with a family history of familial adenomatous polyposis, which is inherited as an autosomal dominant trait, should have flexible sigmoidoscopy starting at puberty and yearly thereafter. If polyposis is found then colectomy is recommended.

Hereditary non-polyposis colon cancer (HNPCC) is an autosomal dominant disorder diagnosed when CRC occurs in (a) three or more first degree relatives, (b) two generations of family members and (c) one relative below age 50 years (10). Polyps and CRC in HNPCC tend to occur proximal to the splenic flexure and the risk of CRC increases after age 21 years. Family members should have colonoscopy performed at age 20 to 25 years and every two years thereafter.

Patients with ulcerative colitis are at increased risk of developing CRC. The risk is dependent on the extent and duration of disease. Patients with pan-colitis should have surveillance colonoscopy after seven years. Those with left-sided colitis should begin surveillance at 15 years. Colonoscopy should be repeated every two years if histology of the colonic mucosa is normal or reveals mild dysplasia.

Individuals without any of the above risk factors are at average risk for CRC. The risk of developing CRC increases with age and becomes significant after age 50 years. In fact, 75% of CRC occurs in average risk patients. It has been

shown conclusively that screening for CRC in average risk individuals significantly decreases mortality for CRC. The main debate has been the best strategy for screening.

Screening Tests

The following screening tests are available for average risk individuals:

Faecal occult blood testing (FOBT)

Three studies have shown a decrease in CRC mortality ranging from 15 to 33% using FOBT screening (6). The test is performed by applying two samples from three consecutive stools to six test cards. Any positive card requires full evaluation of the colon. False positive tests may be caused by rare red meats, turnips and horse-radish and these should be stopped 48 hours prior to and during the test period. Aspirin should also be stopped. Vitamin C may cause false negative readings (4). Among those with a positive FOBT the probability of finding CRC or large adenoma ranges from 17 to 46% (11). Screening with FOBT leads to CRC being detected at an earlier pathological stage (3). Faecal occult blood testing is recommended yearly starting at age 50 years.

Flexible sigmoidoscopy

Studies have shown that sigmoidoscopy decreases mortality from rectosigmoid carcinoma by 60 to 80% (3). It is also estimated to decrease the risk of CRC by 44% over the following 6 years (12). The 60 cm flexible sigmoidoscope detects about 50% of colon polyps and CRC. Flexible sigmoidoscopy (FS) is considered to be cost effective and judged to be a more suitable tool for population screening than colonoscopy because it is safer, cheaper, and more convenient, and requires only the use of a Fleet enema for preparation and no sedation (5, 12). Below age 65 years, only 2% of the population will have advanced proximal colonic neoplasm (12). In screened patients without polyps in the left colon, there was a risk of advanced proximal neoplasm of 2.7%. Patients with distal adenomas of any size had a higher risk of proximal neoplasms than patients with no distal neoplasms (13, 14). However, with advancing age, the prevalence of lesions in the right colon increases, thus a strategy to prevent proximal CRC would be more cost effective if focussed on the older population. It is recommended that FS be performed every five years (4).

Double contrast barium enema

Barium enema images the entire colon and detects most CRC and large polyps but may miss small polyps. The sensitivity for both large and small polyps is significantly less than that obtained by colonoscopy (6, 7). False positive tests due to stools or prominent folds may occur. There are no studies evaluating double contrast barium enema in CRC screening or its effects in reducing CRC mortality (3, 6). Barium enema examination is recommended at intervals of five years.

Colonoscopy

Colonoscopy is the "gold standard" in the diagnosis of colonic diseases. It has the best sensitivity for both small and large polyps (7). It is also an integral part of trials of FOBT and FS in demonstrating significantly reduced mortality in CRC with screening(15). Colonoscopy has also been shown to decrease the incidence of CRC in patients with adenomatous polyps after removal (9). It has the added advantage of permitting biopsy of suspicious lesions and removal of polyps and some early carcinomas (3). Colonoscopy screening every ten years is a cost effective strategy (9). There are limitations with colonoscopy. A minority of examinations does not visualize the entire colon. Most patients require sedation as the procedure is uncomfortable and may be painful. There is also a risk of complications especially when polypectomy is performed.

Computed Tomography Colonography

This was introduced in the past decade as a method of colonic imaging. However, its position with regards to screening is uncertain and it has not been endorsed by any expert organization for CRC screening, but it shows promise for the future (8). It is significantly less sensitive than colonoscopy for detection of lesions of any size (7). The advantages of CTC are that it is non-invasive and requires no sedation. However, there is radiation exposure and colonoscopy will be required if an abnormality is found (8).

Screening for CRC will significantly decrease the number of people developing and dying from it. In fact, all screening strategies are more effective in saving lives than no screening. Screening for CRC in average risk individuals is comparable in cost effectiveness accepted for screening of other diseases (3). Despite the obvious benefits of screening, the present rates of screening are extremely low, with fewer than 30% of eligible persons having had a screening test in developed countries. This is compared to 71% of women over age 40 years who have had a mammogram and 80% who have had a Pap smear in the preceding two years (11).

There are several strategies available for CRC screening for average risk individuals starting at age 50 years: FOBT yearly, flexible sigmoidoscopy every five years, combination of FOBT and FS, colonoscopy every ten years and barium enema every five years. These give clinicians and patients several choices for screening and the clinician should emphasize the need for screening and explain the options available as well as the advantages and disadvantages for each strategy (11). The final decision requires consideration of many issues including the diagnostic value of each, availability and logistic requirements, cost and patient preference.

In the Caribbean, where resources are limited, tailoring screening for CRC may be appropriate. At age 50 years,

average risk individuals should have a physical examination and digital rectal examination. A reasonable strategy may be to recommend annual FOBT or flexible sigmoidoscopy every five years, or both. At age 60 years, evaluation of the entire colon, preferably with colonoscopy, should be considered in view of the increasing incidence of right-sided polyps and CRC with advancing age. Any options chosen for screening will significantly decrease CRC mortality and incidence.

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