RESEARCH COMMUNICATION

Colorectal Cancer Screening and Surveillance: a Survey among Thai General Surgeons

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Abstract

Purpose: A significant reduction in colorectal cancer (CRC) mortality is attributed to CRC screening and surveillance. However, there is no national consensus on CRC screening and surveillance in Thailand. The aim of this study was to assess current practice in CRC screening and surveillance among Thai general surgeons. Methods: Between July and November 2008, a questionnaire was randomly sent to general surgeons nationwide, mainly to those who worked in the General Province Hospital or University Hospital. Their responses were analyzed. Results: One hundred and twelve general surgeons completed questionnaires (56% response rate); about 39% of them were colorectal surgeons. Ninety-four surgeons (84%) routinely offered CRC screening to an asymptomatic, average-risk population. Most surgeons started CRC screening in an average-risk patient at the age of 50 years and did no screening in populations with age above 80 years. Colonoscopy is the most popular investigation used in CRC screening, followed by fecal occult blood testing and double contrast barium enema. When the surgeons themselves were subjected to CRC screening, colonoscopy was also the favorite investigation used. About 3-18% of surgeons showed interest in CRC screening with computed tomographic colonography. After curative CRC resection, most surgeons set up a surveillance program with examinations every 3 months in the first 2 years and performed post-CRC resection surveillance by colonoscopy at 1 year. Conclusions: There is a wide variation in CRC screening and surveillance among Thai surgeons. These results highlight the need to establish evidence-based and cost-effective CRC screening and surveillance in Thailand.

Key Words: Colorectal cancer - screening - surveillance - survey - Thai surgeons

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Introduction

In Thailand, colorectal cancer (CRC) is one of the most common malignancies in both sexes, and the incidence tends to increase especially in the urban region (Khuhaprema and Srivatanakul, 2008). Primary and secondary prevention of CRC are of great importance to reduce both incidence rate and cancer-related death. Convincingly, CRC screening has been shown to decrease CRC incidence by 20% and mortality by 33% (Mandel et al., 1993). Meanwhile, CRC surveillance increased the rate of tumor recurrence amenable to curative-intent surgery and improved the survival rate (Castells et al., 1998). In 2003, the American Gastroenterological Association (AGA) provided well-acclaimed guidelines for CRC screening and surveillance (Winawer et al., 2003). This guideline recommended several investigation tools including fecal occult blood test (FOBT), double contrast barium enema (DCBE), sigmoidoscopy, and colonoscopy. During the last decade, newer screening tests, such as computed tomographic colonography (CTC) and tests for altered DNA in stool, have been introduced into clinical practice with encouraging outcomes (Hoppe et al., 2004).

As the national consensus for CRC screening and surveillance is not yet established in Thailand, physicians and patients have chosen their own preferences based on patient's condition, available investigation tools, financial resources, and physician's competency. We have therefore conducted a questionnaire survey of general surgeons to assess their current practice in CRC screening and surveillance in Thailand.

Materials and Methods

Between July and November 2008, 200 questionnaires were randomly sent to Thai general surgeons nationwide, mainly to those who worked in the General Province Hospital or University Hospital. The reasons of making a survey in this group of surgeons are; they work in a secondary or tertiary hospital where several investigation tools are available, and they are responsible for performing CRC screening and surveillance in their population. The questionnaire asked about their current practice in CRC screening and surveillance.

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Results

Subjects

One hundred and twelve general surgeons completed questionnaires (56% response rate). Most of them (91%) were male and 44 responding surgeons (39%) practiced as a colorectal surgeon. The average surgical practice was 10 years (range 1-35), and forty surgeons (36%) worked in university hospitals.

CRC screening

Ninety-four surgeons (84%) routinely offered CRC screening to an asymptomatic, average-risk population. Most surgeons started screening at individual age of 50 years and stopped screening at age of 80 years. Time for commencing and discontinuing CRC screening are shown in Figures 1 and 2, respectively. Colonoscopy is the most popular investigation used in CRC screening, followed by FOBT and DCBE. When the surgeons themselves are subjected to CRC screening, colonoscopy is also the most favorite investigation used, followed by FOBT and CTC (Figure 3).

CRC surveillance

All surgeons agree with surveillance strategies after curative resection for CRC. After curative CRC resection, most surgeons (77.7%) set up surveillance follow-up program at every 3 months in the first 2 years. All except two respondents (98.2%) integrated periodic measurement of carcinoembryonic antigen (CEA) into their surveillance program, but 81.3% of them suggested routine liver imaging. For rectal cancer, only 26.8% suggested periodic postoperative pelvic scan. Most surgeons (81%) performed post-CRC resection surveillance by colonoscopy at 1 year (Table 1).

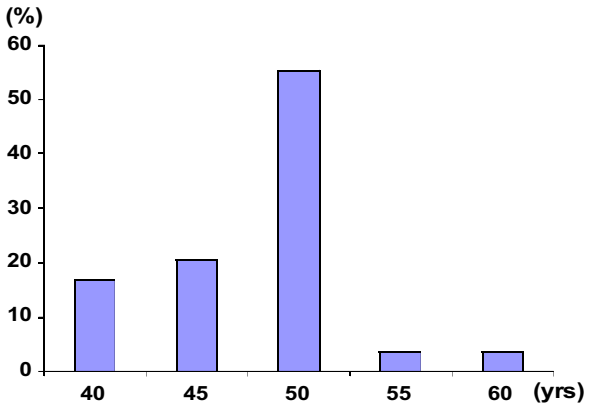

Figure 1. Patient Age at Which a Surgeon Starts Colorectal Cancer Screening

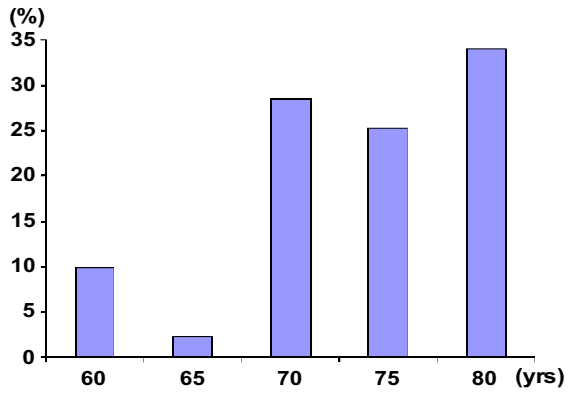

Figure 2. Patient Age at Which a Surgeon Discontinues Colorectal Cancer Screening

Table 1. Postoperative Surveillance for Colorectal Cancer

Postoperative surveillance	Number of responses (%)
Follow-up frequency in first 2 years	
every 2 months	12 (10.7)
every 3 months	87 (77.7)
every 4 months or more	13 (11.6)
Routine use of postoperative CEA	110 (98.2)
Routine use of postoperative liver scan	91 (81.3)
Routine use of postoperative pelvic scan	30 (26.8)
Next colonoscopy in asymptomatic patient	
at 1 year	91 (81.3)
at 2 year	14 (12.5)
at 3 year	7 (6.2)

Discussion

According to the present survey of Thai general surgeons, there are a substantial number who have introduced CRC screening into their daily practice. In addition, their screening strategies are generally in accordance with the AGA guideline in 2003 which recommends that CRC screening should be performed in asymptomatic, average-risk adults beginning at the age of 50 years (Winawer et al., 2003). However, there is no consensus on an optimal age to stop screening. Based on this survey, most surgeons preferred to discontinue CRC screening in patients after the age of 80 years, and this could partly be determined by the limited life expectancy of such advanced age population or their co-morbidities.

It is notable that the preferred choices of CRC screening modalities were different among the surgeons. Colonoscopy has become the most favorite screening test modality in this survey. One possible explanation of this finding is that colonoscopy gives the highest diagnostic yield to detect the tumor, and can provide biopsy or even

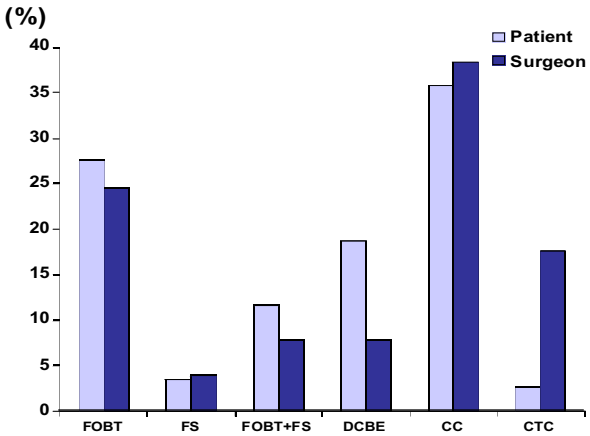

Figure 3. Preferential choices for colorectal cancer screening. FOBT = fecal occult blood testing, FS = flexible sigmoidoscopy, DCBE = double contrast barium enema, CC = conventional colonoscopy, CTC = computed tomographic colonography

therapeutic treatment in the same setting. However, colonoscopic examination may be associated with some complications either from a preparation for the procedure such as hypotension and electrolyte imbalance following mechanical bowel preparation, or directly related to the endoscopic procedures such as colonic perforation (Lohsiriwat et al., 2008). Recently, several authors have reported a substantial increase in the number and proportion of colonoscopies performed for screening (Chen et al., 2008; Gross et al., 2006). However, a recent review of screening colonoscopy showed that the number of persons required to undergo screening colonoscopy on average is approximately 23 to detect one case of advanced adenoma, 20 for advanced neoplasia, and 143 for cancer (Kahi et al., 2008). The need to identify high risk persons is therefore required so that screening colonoscopy will be more efficiently targeted to those with advanced neoplasia.

FOBT was the second commonest screening tool used. It is simple, inexpensive, and suitable for mass screening. However, it has low sensitivity and specificity for cancer (Mandel et al., 1993), and need for periodic testing. Meanwhile, patient with positive FOBT required subsequent colonoscopy. Unlike conventional guaiac-based FOBT, the newer immunochemical FOBT (iFOBT) is based on immunoreactivity between antibody and goblin of human hemoglobin which could improve sensitivity and reduce false-positive test of guaiac-based FOBT (Lohsiriwat et al., 2007). Morikawa and colleagues (2005) compared single-time iFOBT with screening colonoscopy in 21,805 asymptomatic adults and found that iFOBT detected 65.8% of all cancers and 27% of all advanced neoplasia, with specificities of about 95%. A randomized comparative study in Australia offering one of five CRC screening strategies (FOBT, FOBT plus sigmoidoscopy, DCBE, colonoscopy and CTC) to average-risk population revealed that a choice of screening test did not significantly improve participation rate, but participation by FOBT was higher than by other tests (The Multicentre Australian Colorectal-neoplasia Screening Group, 2006).

CTC, sometimes known as virtual colonoscopy, is a minimally invasive imaging examination of the entire colon and rectum. Based on the present survey, CTC was a preferential method of patient's CRC screening in 2.7% of the respondents. Interestingly, it increased to 17.7% if surgeons themselves were subjected to CRC screening. This finding could be partly explained by the fact that CTC is safer than conventional colonoscopy and has a reasonable sensitivity and specificity for detecting large polyps although it is less accurate than conventional colonoscopy for small lesions (Levin et al., 2008; Rosman and Korsten, 2007). In Thailand, there is a limited availability of CTC and it is quite expensive. In 2007, a meta-analysis reviewed the cumulative published CTC performance data representing 30 studies (Rosman and Korsten, 2007). It showed that the accuracy of CTC depended on lesion size and there was no significant difference in the diagnostic characteristics of 2-dimensional versus 3-dimensional CTC. Although the American Cancer Society (ACS) did not previously recommend CTC as a screening tool for average-risk individuals (Levin et al., 2003), the latest ACS guideline has included CTC as an acceptable option for CRC screening (Levin et al., 2008).

Postoperative surveillance program was quite uniformed among the respondents. Most programs consisted of serum CEA measurement every 3 months in the first 2 years, with or without routine liver imaging, and colonoscopy at 1 year postoperatively. This program could be classified as an intensive follow-up in several studies, and there has been evidence that intensive follow-up after curative resection of colorectal cancer improved overall survival and re-resection rate for recurrent disease (Tjandra and Chan, 2007). A national survey among Dutch surgeons in 2007 showed that over 90% of surgeons such an intensive follow-up protocol; serum CEA measurements every 3 months in the first year and six-monthly thereafter, and ultrasound examination of the liver every 6 months. Additionally, the most important factors determining the follow-up protocol were age and physical condition prohibiting metastasectomy or re-operation for recurrent disease (Grossmann et al., 2007). In Thailand, the surveillance system could be affected by patient's condition, physician's preference, and socioeconomic factors.

In conclusions, there is wide variation in CRC screening and surveillance among Thai surgeons. These results highlight the need to establish evidence-based and cost-effective CRC screening and surveillance in Thailand.

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