borne in mind as the primary physician considers the clinical conundrum of thyroid disease and when he or she is called upon to evaluate the patient with myasthenic symptoms.

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A Four-Year Experience with Hemoccult Testing Kits in a Family Medicine Center

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The importance of screening for colorectal cancer is widely accepted and has been reviewed in this journal.[1] The Hemoccult* slide test is perhaps the best screening method for colon cancer. It is also used to determine whether gastrointestinal blood loss is occurring in symptomatic patients. This report presents four years of experience using prepared kits given to patients in a family practice clinic.

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Methods

A standardized method of Hemoccult screening was introduced in the Family Medical Center at the University of Washington in June 1978. The population served at this residency training site (18 residents, 10 faculty) includes 7,100 patients, most of whom live in the surrounding university community of middle-class predominance. Thirty-two percent of the active registered patients are over the age of 35 years, with a female-to-male ratio of 1 to 6. Forty percent of total patient visits (1982) were from patients over the age of 35 years, with a female-to-male ratio of 2 to 1. The clinic screening protocol for adults over the age of 40 years includes Hemoccult testing every one to two years. Kits are prepared that contain three Hemoccult cards, applicators, instructions (including a recommended diet), and a return envelope. Attached

to each kit is a card for the initial recording of the patient's name. These kits are stored with a data book in the clinic laboratory. When the physician orders a Hemoccult test, the nurse records the patient's name and date on the removable card, files it, and gives the kit to the patient. The laboratory technician transcribes the information from the card into the data book.

As envelopes are returned, the laboratory technician records the appropriate information and notifies the physician of the result. From June 1978 through October 1982 a total of 1,207 kits were given to patients.

The clinic Hemoccult log was reviewed, and for every positive test the corresponding chart was reviewed according to availability (43 of 45 charts). Documentation of the positive test was confirmed and the subsequent evaluation, diagnostic findings, and treatment were tabulated for each case.

Results

Of the 1,207 kits distributed, 964 Hemoccult cards (80 percent) were returned, of which 51 (5.3 percent of total returned) contained at least one positive slide. These 51 positive slides came from a total of 45 patients, and the charts of 43 of the patients were reviewed. Although the intent had been to use these kits for screening for colorectal cancer, they were also used to evaluate symptoms and to document bleeding.

In patients under 40 years of age, Hemoccult cards were used to determine whether gastrointestinal blood loss was continuing after a history of bleeding was given (10 patients) as well as to evaluate symptoms in five patients. While physicians usually elected not to work up positive tests in this age group, of the 6 that were evaluated, 3 patients demonstrated hemorrhoids, and 3 patients remained undiagnosed.

Twenty-eight patients over 40 years of age had positive tests. Screening was the indication for Hemoccult testing in 15 patients. Three of these had no further workup. One had a sigmoidoscopy performed, which was negative, and no further

Continued on page 1024

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Continued from page 1022

testing. For seven patients the evaluation included a barium enema but not a colonoscopy; one of these patients had a carcinoma. Four patients had a workup including colonoscopy after a suspicious or positive barium enema; all of these patients had villoadenomatous polyps, which were removed.

Thirteen patients aged over 40 years had Hemoccult testing to evaluate symptoms. One patient was found to have cecal adenocarcinoma. Diverticulosis was found in two of those with abdominal pain. There were no new diagnoses made on the basis of a bowel evaluation in the remaining ten patients.

Thus, as a result of all Hemoccult testing and further evaluation in this clinic over a four-year period, carcinoma was diagnosed in two patients and villoadenomatous polyps in four patients. Table 1 displays the causes found for positive Hemoccult testing.

A random sample of 60 patients with negative tests was obtained to evaluate the possibility that those with positive Hemoccult tests were not representative of the total population tested. Screening was the indication for testing in 61 percent of those with negative tests, compared with 37 percent of those with positive tests. Seventeen percent of the sample with negative tests were younger than 40 years old, compared with 35 percent of all those with positive tests being younger than 40 years of age.

Table 1. Causes of Positive Hemoccult Tests

Etiology	Number of Patients
None found	10
Villoadenomatous polyp	4
Diverticulosis	4
Hemorrhoids	3
Presumed upper gastrointestinal bleeding	3
Colon adenocarcinoma	2
Anti-inflammatory agents	2
Not evaluated	15

Discussion

Frame and Kowulich[2] recently presented results following a five-year experience screening patients 40 years of age and older. Unlike that series from a solo practice setting, this report examines the results of introducing a standardized Hemoccult testing kit into a multiphysician training clinic where individual physicians elected to use the kit for screening and evaluating patients with selected histories.

In addition to reporting the four-year experience with Hemoccult at this clinic, this study presents two areas that should be considered for improvement. One is that Hemoccults were obtained even though the result was unlikely to influence subsequent evaluation and treatment. This was the case with most patients younger than 40 years. In those patients older than 40 years, if the decision was made not to evaluate a positive result because of complicating illnesses, one can argue that the test should not have been done in the first place. The other area of concern was inadequate evaluation of a positive result. A complete evaluation in those over 40 years old may include colonoscopy (Figure 1), and only four of 26 patients aged over 40 years (two patients had definitive surgery after a barium enema) with positive tests underwent colonoscopy.

Conclusions

In order to correct the problems noted, clinic physicians have been informed of the poor yield of significant disease and the minimal influence on subsequent evaluation and treatment that a positive result has on those less than 40 years of age. Physicians were encouraged not to order the test unless they had clearly considered how a positive result would change the patient's treatment. In addition, a protocol (Figure 1) similar to those presented elsewhere[3,4] has been adopted for those over 40 years of age. It has been re-emphasized that a single positive test is sufficient justification for further evaluation.

Continued on page 1026

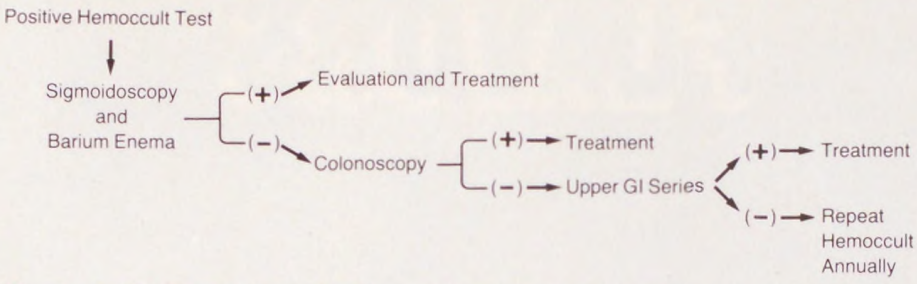

Figure 1. Suggested evaluation sequence for a positive Hemoccult test

The use of Hemoccult screening is valuable in detecting colorectal cancer. It is clear that in the clinic setting, the cost effectiveness of this screening approach can be improved if physicians use this test with more care both in terms of to whom it is given and in terms of more effort being given to appropriate follow-up.

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