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Screening for Colorectal Cancer in Defunctioned Colons

Aims: Population-based colorectal (bowel) cancer (CRC) screening using faecal occult blood tests (FOBT) leads to a reduction in cause-specific mortality. However in patients where the colon is defunctioned, the use of standard FOBT is not appropriate. The aim of this study was to examine the current trends of clinical practice for colorectal cancer screening in people with defunctioned colons.

Methods: An online survey was performed using SurveyMonkey. All members of Association of Coloproctology of Great Britain and Ireland (ACPGBI) were invited by email to participate. Further reminders were sent to non responders and partial responders till six weeks. All responses were included in our analysis.

Results: There were 206 (34.59%) questionnaires completed with all questions answered in 110 (55.8%). 94 (85.4%) responders were colorectal consultant surgeons. 72% of responders had worked in their current capacity for more than 5 years. 105 (50.9 %) of the responders had encountered CRC in defunctioned colons during their career. 72.2% of responders stated that a screening test for colorectal cancer in patients with defunctioned colons is currently not offered or they do not know if it is offered or not in their area.

Conclusions: Bowel screening in the UK is currently not offered to 72.2% of age appropriate population with defunctioned colons. 50% of responding colorectal surgeons have encountered CRC in such patients. There is considerable variability in clinical practice with regards to the optimal age for onset of screening, time interval and the optimal modality to offer for screening in such cases.

Introduction

Colorectal cancer is the fourth most common cause of cancer related death in world¹⁻⁵. with around 41,000 new cases a year in the United Kingdom⁴⁻⁵. It is well established that early colorectal cancer is associated with improved survival and randomised trials have demonstrated that colorectal cancer screening can reduce disease specific mortality in the population offered screening⁶⁻⁸.

A range of screening modalities have been investigated with varying acceptability and cost effectiveness. Currently in the UK, bowel cancer screening is performed with the guaiac Faecal Occult blood Test (gFOBT) and and recently, a change to Faecal Immunochemical Testing for haemoglobin (FIT) as the primary test has been agreed by the UK NHS Bowel Cancer Screening Programmes.

However, both FIT and gFOBT based screening requires faecal samples and in those patients where a reasonable length of colon has been defunctioned i.e with a defunctioning ileostomy or colostomy this screening test is not appropriate.

Non-specific inflammation of the colon is a well described phenomenon following diversion of faecal stream in the segment of colon downstream. The histological changes of diversion colitis include diffuse inflammation, crypt architectural distortion, crypt abscesses or atrophy, and lymphoid follicular hyperplasia⁹⁻¹¹. The incidence of defunctioning colitis is reported to be approximately 70-100%. However to date there is no evidence that faecal diversion without any coexisting predisposing factor for colorectal cancer increases the risk for development of colorectal cancer in the segment of colon downstream. The incidence of colorectal cancer in defunctioned colons is poorly reported in the literature.

Patients may be left with a defunctioned colon for several reasons. The most common reason would be rectal cancer surgery. A recent Dutch study has reported that 70 % of patients undergoing low anterior resection undergo temporary ileostomies¹². A contemporary retrospective study has reported that one in four temporary ileostomies performed during anterior resections were never be closed

due various reasons such as anastomotic leak, rectovaginal fistula and disease progression.¹³ Another important group of the patients include people with functional bowel disorders with long term ileostomy or colostomy. The prevalence of patients with defunctioned colons is not well known but it is likely that most health care professionals will encounter this clinical situation. The practice of offering screening for colorectal cancer in these people is variable and to date there are no guidelines which can help in decision making process.

The aim of this study was to examine the current trends of clinical practice for colorectal cancer screening in asymptomatic people with defunctioned colons.

Methods

A ten question survey assessing the current awareness and practice of colorectal surgeons about the screening for colorectal cancer in people with defunctioned colons was generated (Table 1). All questions of questionnaire consisted of multiple choice questions with an option for additional information if the participants wished so. The questionnaire also examined the region of their clinical practice and duration of their experience in the relevant capacity.

The questionnaire was distributed to the members of Association of Coloproctology of Great Britain and Ireland (ACPGBI) whose email addresses were listed on the website of the ACPGBI. The survey was then distributed via SurveyMonkey (www.surveymonkey.com). Further email reminders were sent to partial and non responders until six weeks had elapsed. Respondent data were deidentified, and all responses were collected anonymously. Descriptive statistical analysis was performed using software within the SurveyMonkey analytics and using Microsoft Excel (Redmond, WA). Institutional review board approval was not obtained for this study but was performed based on the guidelines set forth in the Declaration of Helsinki. All responses were included in analysis.

Results

596 ACPGBl members were invited to participate in the survey study. 206 of those invited responded (34.5%). Complete responses to all parts of the questionnaire were received in 110 participants. These participants answered all the relevant questions from the questionnaire.

80.0% of the respondents were working in England, 9.1% in Scotland, 4.5% in Wales and 3.6% were working in Ireland. 2.7% of responders were working in rest of the world.

85.5% of respondents were consultants, 6.3% were speciality doctors and staff grades whereas 8% were other members of ACPGBl. 72% of the respondents had worked in their current capacity for more than 5 years.

Experience of colorectal cancer in patients with defunctioned colon was reported by 105 participants.

Screening incidence

31 (28.2%) participants stated that a screening test for colorectal cancer was offered to people within the screening age range with defunctioned colons. 42 (38.8%) responders offered no screening. 37 (33.6%) did not know if it was offered in their area of clinical practice.

Screening test recommended

54 (49.1%) responders did not know at what age to offer a screening test. 15 (13%) stated that they would recommend a test in participants aged 50-54 and 14 (12.7%) would offer the screening at 60-64 years of age. 64 (58.2%) would offer colonoscopy while 24 (22%) would consider flexible sigmoidoscopy. CT colonography was the test of choice in 19.1% (n=21).

Screening Interval

41 (37%) of responders did not know how often they should offer screening. 34 (30%) stated that they would offer a screening every 5 years.

Discussion

This study demonstrates that colorectal cancer screening in people with a defunctioned colon is not performed in majority of the cases in UK.

Defunctioning stomas (i.e. defunctioning ileostomy or transverse loop colostomy) are used for a variety of purposes in the management of benign and neoplastic colorectal diseases. Colorectal surgeons and, to a lesser extent general practitioners will come across patients with a long term defunctioning stoma with an appreciable length of colon which is not in functional continuity with the gastrointestinal tract not infrequently. There is however, no evidence base on which to base a decision on whether or not to offer screening, and what test to advise.

To our knowledge, this is the first study to describe the attitudes and clinical practice of colorectal surgeons to bowel cancer screening in a population with defunctioned colons. Most respondents were of the opinion that colorectal cancer screening in people with defunctioned colon is either not offered or they do not know if it is offered in their area of clinical practice.

The incidence of colorectal cancer in defunctioned colon is poorly reported. In this study 105 respondents reported that they had seen a total of 115 cases of colorectal cancer in the defunctioned segment of colon but on literature review the authors have not found a single case report in the literature. To date, there is no evidence to dispute that there is a need for CRC screening in these patients. If one assumes that the risk of colorectal cancer is the same as normal healthy population then these patients should be offered colorectal cancer screening. The conventional FOBT or FIT test is clearly inappropriate in these people, colonoscopy, flexible sigmoidoscopy or CT colonography are the only currently available options. Our data suggest that the opinion is variable in United Kingdom with the majority recommending colonoscopy and equal numbers suggesting flexible sigmoidoscopy and CT colonography.

Modelling studies have suggested that, where the resource is available, colonoscopy is the most effective screening strategy with the highest life years gained and CRCs prevented and the lowest total costs^{14, 15}. As the number of people

with defunctioned colons is not very large it may be reasonable to suggest that colonoscopy is the most appropriate screening test in such cases.

As far as the age of onset for screening in this group is concerned, about half of the respondents were not sure; There is variation in the screening age range among the bowel screening programmes in the four countries of UK and this may account for some of difference of opinion about the age of onset of screening.

Similarly, as far the time interval between the screening tests is concerned majority of the practitioners were not sure about the time interval. A biennial time interval was used for gFOBT based colorectal cancer screening in the randomised trials that demonstrated efficacy⁶⁻⁸. but in the UK Flexible Sigmoidoscopy trial, a single flexible sigmoidoscopy offered between 55-64 years resulted in a decrease in colorectal cancer mortality of 31%.¹⁶ However, 30.9% respondents of our study felt that a 5 yearly interval is reasonable.

In conclusion, this study demonstrates that a screening test for colorectal cancer is currently not offered to the majority of people with defunctioned colons. However, 50% of responders have encountered CRC in such patients. There is a considerable variability in opinion regarding the optimal age to commence screening, the time interval between screening episodes and the optimal modality to offer for screening in such cases. There is an urgent need to clearly define the extent of this important clinical problem and provide guidance for how these patients should be managed.

References:

1. Siegel R, Desantis C, Jemal A. Colorectal cancer statistics, 2014. *CA Cancer J Clin.* 2014;64:104–117.
2. Arjona-Sánchez A, Medina-Fernández FJ, Muñoz-Casares FC, Casado-Adam A, Sánchez-Hidalgo JM, Rufián-Peña S. Peritoneal metastases of colorectal origin treated by cytoreduction and HIPEC: An overview. *World J Gastrointest Oncol.* 2014;6:407–412.
3. Lemoine L1, Sugarbaker P1, Van der Speeten K1. Pathophysiology of colorectal peritoneal carcinomatosis: Role of the peritoneum. *World J Gastroenterol.* 2016 Sep 14;22(34):7692–707. doi: 10.3748/wjg.v22.i34.7692.
4. <http://www.cancerresearchuk.org/health-professional/cancer-statistics/statistics-by-cancer-type/bowel-cancer/incidence> (access date 12-02-2017)
5. <http://www.cancerresearchuk.org/health-professional/cancer-statistics/statistics-by-cancer-type/bowel-cancer/incidence#heading-Zero> (access date 12-02-2017)
6. Hardcastle, Jack D et al. Randomised controlled trial of faecal-occult-blood screening for colorectal cancer. *The Lancet* , Volume 348 , Issue 9040 , 1472 – 1477
7. Mandel JS, Bond JH, Church TR, *et al* . Reducing mortality from colorectal cancer by screening for fecal occult blood. Minnesota Colon Cancer Control Study. *N Engl J Med* 1993;**328**:1365–71
8. Kronborg O, Fenger C, Olsen J, *et al* . Randomised study of screening for colorectal cancer with faecal-occult-blood test. *Lancet* 1996;**348**:1467–71
9. Warren B.F., and Shepherd N.A.: Diversion Proctocolitis. *Histopathology* 1992; 21: pp. 91-93
10. Geraghty J.M., and Talbot I.C.: Diversion Colitis: Histological Features in the Colon and Rectum after Defunctioning Colostomy. *Gut* 1991; 32: pp. 1020-1023
11. Komorowski R.A.: Histologic Spectrum of Diversion Colitis. *Am. J. Surg. Pathol.* 1990; 14: pp. 548-554
12. Snijders, H.S. et al. An increasing use of defunctioning stomas after low anterior resection for rectal cancer. Is this the way to go? *European Journal of Surgical Oncology* , Volume 39 , Issue 7 , 715 – 720
13. Waterland, P., Goonetilleke, k., Naumann, D., Sutcliff, M., Soliman, F. Defunctioning Ileostomy Reversal Rates and Reasons for Delayed Reversal: Does Delay Impact on Complications of Ileostomy Reversal? A Study of 170 Defunctioning Ileostomies. *Journal of Clinical Medicine Research, North America* , 7, jul. 2015. Available at: <<http://www.jocmr.org/index.php/JOCMR/article/view/2150>>. Date accessed: 20 Mar. 2017.
14. Barzi A1, Lenz HJ1, Quinn DI1, Sadeghi S1. Comparative effectiveness of screening strategies for colorectal cancer. *Cancer.* 2017 Jan 24. doi: 10.1002/cncr.30518.

15. Doubeni CA, Corley DA, Quinn VP, et al Effectiveness of screening colonoscopy in reducing the risk of death from right and left colon cancer: a large community-based study. *Gut* Published Online First: 12 October 2016. doi: 10.1136/gutjnl-2016-312712

16. Wendy S Atkin, Rob Edwards, Ines Kralj-Hans, Kate Wooldrage, Andrew R Hart, John M A Northover, D Max Parkin, Jane Wardle, Stephen W Duffy, Jack Cuzick, Once-only flexible sigmoidoscopy screening in prevention of colorectal cancer: a multicentre randomised controlled trial UK Flexible Sigmoidoscopy Trial Investigators. *Lancet* 2010; 375: 1624–33

Table 1

Colorectal Cancer Screening in People with Defunctioned Colons

Population-based colorectal (bowel) cancer (CRC) screening using faecal occult blood tests (FOBT) leads to a reduction in cause-specific mortality. Population-based CRC (bowel) screening programmes using FOBT have been introduced across the four countries of the UK. The programmes invite all men and women between the age of 60 and 74 years (50-74 in Scotland) to participate every two years. Following a positive test result, individuals are pre-assessed, and then referred for colonoscopy if appropriate. If colonoscopy was unsuccessful, then further bowel imaging by barium enema or, more recently, CT colonography are carried out. However in patients where the colon is defunctioned e.g. due to a pre-existing ileostomy or colostomy the use of FOBT is not appropriate. Patients may have a defunctioned colon as treatment for functional bowel disorders or due to previous colorectal resections with a defunctioning stoma where continuity has not been restored. The incidence of malignancy in defunctioned colons is poorly reported and these patients present a diagnostic dilemma. Patients are often asymptomatic and malignancy can often present at an advanced stage.

Please answer the following questions bearing in mind your own clinical practice or colorectal cancer screening practice in your area for the people with defunctioned colons of adequate length (i.e excluding the surveillance of a little rectal stump).

1. Have you encountered colorectal cancer in defunctioned colons?
 - a. Yes
 - b. No
 - c. Do not know

2. If you have seen or managed patients with colonic cancer in defunctioned colons,

how many such cases you think you have seen?

- a. 0
- b. 1-2
- c. 3-5
- d. 5-10

3. Do you think that a screening test for colorectal cancer in patients/people with

defunctioned colons at appropriate age for screening is done in your area or in your clinical practice?

- a) Yes
- b) No
- c) Do not know

4. What test is offered for colorectal cancer screening in patients/people with

defunctioned colons?

- a) Colonoscopy
- b) Flexible sigmoidoscopy
- c) CT colonography
- d) Barium enema

5. With regards to screening of colorectal cancer in the people with defunctioned

colons, what is the age when it is offered (provided there are no other genetic risk factors etc for early development of colorectal cancer and patient is fit for colonoscopy as well)?

- a) 50-54 years

- b) 55-59 years
- c) 60-64 years
- d) 65-69 years
- e) Do not know
- f) Other (please specify)

6. With a normal index investigation, how frequently the follow-up investigation is offered?

- a) Never
- b) 3 yearly
- c) 5 yearly
- d) 10 yearly
- e) Do not know
- f) Other (please specify)

7. If a colonoscopy is offered in such cases then how do you prepare the colon in these patients?

- a) Distal limb lavage if accessible
- b) Enema
- c) Colonoscopy and irrigation system
- d) Do not know
- e) Other (please specify)

8. Where are you working?

- a) England
- b) Scotland
- c) Wales
- d) Ireland
- e) Other (please specify)

9. Are you

- a) Consultant
- b) Consultant with special interest in functional bowel disorders
- c) Associate Specialist

- d) Staff grade or Speciality Doctor
- e) Other (please specify)

10. How long have you worked in this capacity?

- a) 0-5 years
- b) 5-10
- c) >10
- d) Other (please specify)