Paper

Is the “red flag” referral pathway effective in diagnosing colorectal carcinoma?

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ABSTRACT

Introduction: In 2000-2004 there were, on average, 938 new cases of colorectal cancer (CRC) diagnosed per annum in Northern Ireland, accounting for 13.9% of all cancers. The two week “red flag” referral system aims to detect 90% of patients with CRC for prompt treatment. The aim of this study is to examine the impact of the “red flag” referral system on identification of patients with CRC, time to treatment and stage of disease.

Methods: A random sample of 200 patients referred via the “red flag” system was identified from the local cancer patient tracker database. Data pertaining to demographics, time to hospital appointment, appropriateness of referral and diagnosis were collected. For patients identified with CRC, the stage of disease and time to first definitive treatment were also documented.

Results: Of the 200 patients, 56% were female. The age range was 27 – 93 years. Eighty three percent were seen within 14 days of referral. Referrals adhered to the guidelines in 45% of cases. There were 4 pancreatic cancers, 1 endometrial cancer, 1 ovarian cancer and 1 myelodysplasia diagnosed. Three patients were diagnosed with CRC (1.5%). Of these, 1 was palliative and the remaining 2 commenced definitive management within 6 days of decision to treat.

Conclusion: The “red flag” referral system does not appear to be effective in identifying patients with CRC but did identify patients with other types of cancer. Less than half of the referrals adhered to the guidelines. A review of this system should be undertaken.

Key words: Colorectal cancer; Referral criteria; Diagnosis; Guidelines

INTRODUCTION

Colorectal carcinoma is the second commonest malignancy in women and third commonest malignancy in men in the United Kingdom1,2. In 2000-2004 there were 938 new cases of colorectal cancer diagnosed per annum in Northern Ireland, accounting for 13.9% of all cancers. The overall 5 year survival rate is 53.7%3.

The two week “red flag” referral service arose from the NHS Cancer Plan in 2000 and the intention was to detect 90% of patients with colorectal cancer for prompt treatment1,4-7. This referral system was introduced in Northern Ireland in May 2007. To facilitate these referrals, guidelines have been established detailing high risk criteria for patients with suspected colorectal cancer6-9. (See Table 1). Previous studies have shown that when the guidelines are adhered to, the diagnostic yield for colorectal cancer is greater6,8-11.

Patients referred via the “red flag” pathway must be seen by a hospital specialist within 14 days of referral and 95% of these patients who are identified as having colorectal cancer should begin their definitive treatment within 62 days of referral6.

The aim of this study is to examine the impact of the “red flag” referral pathway on identification of patients with colorectal cancer, time to treatment and stage of disease.

METHODS

All consecutive adult patients with suspected colorectal cancer referred via the “red flag” referral pathway to a single unit over a one year period (1 April 2009 – 31 March 2010) were identified retrospectively from the local cancer patient tracker database. A total of 522 “red flag” referrals were identified. A random sample of 200 patients was selected by the audit department for analysis. Information was collected retrospectively from the medical notes. Time to be seen by a hospital specialist was calculated from the date of the GP referral letter to the date of first specialist outpatient appointment. Data was collected from the referral letters and compared with referral guidelines (Table 1) to establish if the “red flag” referral was appropriate. For those patients diagnosed with colorectal cancer, the stage of disease and time to first definitive treatment were also analysed.

A literature search was performed using Medline (key words “two week rule” and “colorectal cancer”) and backward chaining from articles obtained.
RESULTS

Of the 200 patients included in the study, 112 (56%) were female and 88 (44%) were male. The age range was 27 - 93 years with a median age of 68 years. Eighty percent of patients were seen within 14 days of referral with a median time to appointment of 7 days. Referrals were consistent with the guidelines in only 45% of cases. Fourteen patients (7%) had normal investigations. One hundred and ninety patients (95%) had a benign diagnosis, the most common of which was diverticular disease (26.5%). The most common benign diagnoses are detailed in Table 1. Four patients had colorectal carcinoma, 1 patient had endometrial carcinoma, 1 had ovarian carcinoma and a further patient was diagnosed with myelodysplasia. Three patients were diagnosed with colorectal carcinoma (1.5%). Two of these patients had a left sided malignancy (Duke’s C & Duke’s D). The remaining patient had a tumour in the right colon (Duke’s B). Of these, 1 patient was palliative and the remaining 2 patients started treatment within 6 days of the decision to treat.

DISCUSSION

The two week “red flag” referral service was implemented to try to detect patients with colorectal cancer for early treatment1,2,4-7 and guidelines were implemented to facilitate this8,9 (see Table 1). This study shows that a large proportion of referrals do not adhere to the guidelines and the diagnostic yield for colorectal carcinoma is low. This lack of adherence to the guidelines is reflected in other studies in this area with non-compliance rates varying from 37.9 - 49.6%6,10-12. There may be several reasons for this including lack of time in the primary care consultation, less familiarity with colorectal carcinoma, and the importance of digital rectal examination may increase by improving education in the primary care sector and the importance of not referring patients with transient symptoms or symptoms lasting longer than 18 months via this referral pathway6. Also, an increased awareness of the diagnostic value of rectal bleeding without anal symptoms8 and the importance of digital rectal examination may increase diagnostic yield. In a study carried out in North Middlesex University Hospital11, 45% of referrals had no documented evidence of clinical examination. Just over half (56.7%) had no documented digital rectal examination and, of these, one third were found to have a palpable rectal tumour at outpatient appointment. Also worryingly, 30.6% of those with a documented normal digital rectal examination had a palpable rectal tumour at clinic. Other methods to improve adherence to referral guidelines may include triage of the “red flag” referral letters by clinicians although this will add to an already heavy workload and may not screen out unnecessary referrals if the information provided is inaccurate. Specific referral letter for colorectal cancer could be introduced10 but this may only add to an already overwhelming amount of paperwork in the general practitioner’s workload.

In our study, 3.5% of patients were diagnosed with other malignancies, lending some support to the view that the guidelines do appear to be effective in identifying a malignant process in the patients referred11.

### Table 1:

| Red flag referral criteria |
|-----------------------------|
| Symptoms & signs for red flag referral |
| 1 | Persistent rectal bleeding for 6 weeks without anal symptoms (>60 yrs) |
| 2 | Change in bowel habit to looser stools/increased frequency for 6 weeks (>60 yrs) |
| 3 | Change in bowel habit to looser stools/increased frequency and rectal bleeding (>40 yrs) |
| 4 | Palpable right iliac fossa mass |
| 5 | Palpable rectal mass (intraluminal) |
| 6 | Unexplained iron deficiency anaemia (Hb<11g/dL men, <10g/dL non-menstruating women) |

### Table 2:

| Common diagnoses |
|------------------|
| Diagnosis | Number of patients (%) |
| Diverticular disease | 53 (26.5) |
| Haemorrhoids | 39 (19.5) |
| Colonic/rectal polyps | 17 (8.5) |
| Functional/IBS | 17 (8.5) |
| Constipation | 16 (8) |
| Normal investigations | 14 (7) |
| Outlet bleeding | 8 (4) |
| Inflammatory bowel disease | 7 (3.5) |
| Diverticular abscess | 1 (0.5) |
| Diverticular bleed | 1 (0.5) |
Eighty three percent of patients in this study were seen within 14 days of referral which is comparable with figures quoted elsewhere\(^1\). The age range of patients is similar to that seen elsewhere\(^6\) and again reflects a non-compliance with the referral guidelines.

**CONCLUSION**

The “red flag” referral system does not appear to be effective in identifying patients with colorectal carcinoma and had a greater yield for patients with other types of cancer. Less than half of the referrals adhered to the guidelines highlighting a need for improved education in the primary care sector with regards to the high risk criteria for colorectal cancer. Other solutions may include introducing a specific proforma for suspected colorectal cancer referrals or perhaps vetting of referrals by clinicians and the letter redirected with an explanation of why the patient does not meet the “red flag” criteria. A review of this system should be undertaken.

The authors have no conflict of interest.

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