

Urgent referral for suspected cancer in Scotland

Cancer is a common problem, but an individual GP may only see about seven to eight new cases of cancer per annum (although they will see many more patients with symptoms that are associated with cancer but are actually due to a non-malignant cause). In an audit in NHS Greater Glasgow and Clyde, only 19.2% of referrals with suspected cancer actually had a diagnosis of malignancy. With a backdrop of National Cancer Targets, can healthcare professionals develop more astute diagnostic and referral practices? Greater involvement of primary care will be critical to this process.

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Cancer is a common problem. In 2006, approximately 27,000 new cases of cancer (excluding non-melanomatous skin cancers) were diagnosed. There were about 15,000 cancer deaths in 2007, and the number of cancer cases in Scotland is projected to rise to nearly 35,000 per annum from 2016 to 2020.¹

An individual GP is likely to see about seven to eight new cases of cancer per annum (based on a list size of 1500 per GP). The challenge for the GP is to differentiate between patients whose symptoms may be due to cancer and the much larger number of patients with similar symptoms that arise from non-malignant causes.²

A paper in the *BMJ* highlighted this issue in 2007.³ The researchers analysed the first occurrence of haematuria, haemoptysis, dysphagia and rectal bleeding between 1994 and 2000 among 762,325 patients aged over 15 years in 128 general practices

using the General Practice Research Database. They then reviewed case notes to determine outcomes with regard to a positive cancer diagnosis (Table 1).

The study did not, however, characterise the symptoms (eg. the type and duration of rectal bleeding, and its association with a change in bowel habit). There is some evidence that, by doing so, the positive predictive value can be increased to about 10%. This analysis highlighted the

fact that about 82% of men with haemoptysis aged 75–84 will not have a diagnosis of malignancy after completing diagnostic investigations.

Guidance

To help GPs decide whether or not to refer a patient, the Scottish Referral Guidelines for Suspected Cancer were published in 2002 and updated in 2007.² They were sent to

Table 1: Positive predictive value for a diagnosis of neoplasia

<i>Symptom</i>	<i>Male</i>	<i>Female</i>
Haematuria	7.4%	3.4%
Haemoptysis	7.5%	4.3%
Rectal bleeding	2.4%	2.0%
Dysphagia	5.7%	2.4%
<i>The predictive values increased with age</i>		
Men with dysphagia	65–74 years	9.0%
Men with haemoptysis	75–84 years	17.1%

Box 1: Questions about the Scottish Referral Guidelines for Suspected Cancer

- Do GPs find the guideline useful?
- How frequently do GPs adhere to the guidelines when making an urgent referral?
- Which combinations of factors, including age, symptoms and signs, yield the highest and lowest diagnostic ratios among urgently referred cases?
- What are the characteristics of patients with cancer who present as non-urgent cases?

all Scottish GPs.

The guidelines should help GPs identify those patients who are most likely to have a cancer and who therefore require urgent assessment by a specialist. Equally, the guidelines will hopefully also help GPs to identify which patients are unlikely to have cancer and who may be more appropriately managed in primary care or who may require a non-urgent referral to a non-cancer specialist.²

The limitations of the guidelines in their present form are noted, but careful monitoring of the guidelines in practice should generate a valuable amount of new information. This information should then be used to revise the guidelines in the future (Box 1).

A study⁴ reviewed retrospectively all requests for chest X-rays (CXR) over a two-year period in an inner-city general practice in Scotland, and it noted that about 30% were not indicated and that there was poor compliance with guidelines from the Royal College of Radiology. The authors commented that guidelines need to reflect actual practice and that local adaptation of the guidelines in collaboration may improve adherence.

Targets

Within Scotland, as indeed elsewhere in the UK, Health Boards have increasingly been monitored with performance targets with respect to diagnosis and treatment of cancers. These are based on the premise that reducing diagnostic delays may increase the proportion of cancers treated at an early stage and improve survival. In Scotland, two new targets have to be implemented and achieved by late 2011 (Box 2).

Audit

Within the Greater Glasgow and Clyde (GG&C) Health Board, 149 general practices, covering a

population of 819,647 patients, collected data on all urgent suspected cancer referrals for the six months between 1st January and 30th June 2008. The data collected included: gender, suspected cancer, whether cancer was diagnosed, whether the referral complied with the guidelines, and whether communication from the acute hospital was delayed.

A template and instructions were sent to the participating practices to optimise the quality of data. Data were excluded from the analysis where no "cancer suspected" had been recorded, where the recorded tumour was a basal cell cancer or squamous cell cancer of skin and all cases from practices where the overall rate for cancers diagnosed was 100% (as data was probably incomplete).

Results

In total, data from 16 practices were excluded from the final analysis. There were 5692 urgent referrals, and the overall referral rate was 6.9 per 1000 population. The results are shown in Table 2a.

The figures varied significantly between individual practices, but the numbers involved were small

Box 2: Targets for the Scottish Health Boards to be implemented and achieved by late 2011

Target 1: 62 days to treatment from date of receipt of referral for all patients referred urgently with a suspicion of cancer (who are positively diagnosed) and for all patients referred via the national screening programme (eg, FOB+ve)

Target 2: 31 days from decision to treat to first treatment for all patients diagnosed with cancer, irrespective of their route of referral.

and meaningful conclusions could not be drawn. The proportion of urgent referrals where the same cancer was diagnosed varied by cancer type.

Given the number of actual cancer diagnoses — 1092 (19.2% of 5692 urgent referrals) from a population base of 819,647 — this would equate to 6886 cancer diagnoses annually within Scotland (based on a Scottish population of 5,168,500 in 2008).

While this is a crude calculation, it does suggest that significant numbers of cancer diagnoses do not arrive through the “urgent referral” route. It is of concern that guidelines may simply identify the most obvious cancers that GPs would have identified and referred anyway, and which may be so advanced that the diagnosis is of limited value.

Concerns have also been raised that GPs’ compliance with the guidelines may be less than perfect and that they may use the guidelines as a mechanism to get their patient referred quickly.⁵

Discussion

Few studies have reported clinical outcomes of patients diagnosed through an urgent suspected cancer referral compared with patients diagnosed through other routes.

Urgent referral for colorectal cancer has been shown to reduce delays between referral and diagnosis, although the effect on survival in this study was inconclusive.⁶

Delays

Delays can occur in any part of the cancer diagnostic journey, but the vast majority of delays

occur before patients are seen in secondary care.⁷ Two-thirds of pre-hospital delays are patient delays (time from onset of symptoms to presentation) and one-third are primary care delays. It is probable that primary care delays are more amenable to intervention to reduce delays and potentially improve outcomes.

A paper in 2007 aimed to compare outcomes of cancer patients referred through the “urgent referral guidance” in England with those who were not, with respect to stage at diagnosis, survival and delays in diagnosis for lung, colorectal, prostate and ovarian cancer.⁸

For lung cancer, urgent referral was associated with more advanced disease, in terms of tumour, node and metastasis (TNM) and poorer survival than diagnosis through other routes ($P=0.035$ and $P=0.020$, respectively). Stage at diagnosis and survival, for the other cancers, did not differ significantly between patients urgently referred and those referred through other routes. The guidance at that time for lung cancer included:

- Chest X-ray suggestive of lung cancer
- Persistent haemoptysis in smokers/ex-smokers over 40 years of age
- Signs of superior vena cava obstruction
- Stridor
- History of asbestos exposure and unexplained symptoms or suspicious X-ray.

The authors surmised that aggressive tumours may lead to rapid progression of symptoms leading to earlier presentation

and fulfilment of urgent referral criteria; such patients are also less likely to have disease that is less amenable to treatment.

Current guidance

Most guidance at present reflects the evidence that has accumulated about the importance of symptoms and combinations of symptoms for various cancers. Sophisticated risk scoring algorithms, such as those found for cardiovascular disease, do not currently exist.

In England, the National Awareness and Early Diagnosis Initiative highlighted the vital importance of diagnosing cancer early. As part of their work streams, the initiative team commissioned an analysis of Significant Event Audits (SEA) for the diagnosis of lung cancer and cancers in teenagers and young adults.⁹ Learning points around presentation and diagnosis of lung cancer centred on the complexity related to atypical symptoms, the need for vigilance even when symptoms might seem straightforward, and the usefulness and limitations of CXR as a diagnostic tool. Some detailed learning points identified by practitioners were:

- Co-existing disease can mask symptoms of malignancy
- The possibility of a serious diagnosis should be considered in patients with a known diagnosis, either those with an existing respiratory condition (asthma, chronic obstructive pulmonary disease: COPD) or other concurrent illness
- Have a heightened suspicion

Tables 2a and 2b**2a: Urgent referral for suspected cancer, audit results from NHS GG&C**

Proportion of referrals where a cancer diagnosed was same as that suspected	16.5%
Proportion of referrals where a cancer was diagnosed (same or different to that suspected)	19.2%
Proportion of referrals that complied with the Scottish Referral Guidelines	88.7%
Proportion of referrals with any delay in communication	7.5%

2b: The proportion of referrals that identified cancer according to tumour type

<i>Tumour type</i>	<i>No. diagnosed</i>	<i>No. referrals</i>	<i>% result</i>
Breast	165	958	17.2
Colorectal	100	836	12.0
Lung	125	379	33.0
Urological (including prostate)	145	440	33.0
Prostate	84	163	51.5
Gynaecological	49	389	12.6
Oesophageal (gastric)	44	609	7.2
Hepato-pancreato-biliary	17	55	30.9
Melanoma	60	536	11.2
Laryngeal	13	189	6.9
Leukaemia	12	22	54.5
Lymphoma	12	66	18.2
Testicular	5	76	6.6

of malignancy in patients with worsening COPD or new or persistent COPD symptoms

- Musculoskeletal-sounding pain (neck or shoulder) can be a presenting symptom for lung cancer and should have a low threshold for CXR request.

Conclusion

The data raise a number of issues for GPs faced with an individual patient anxious about symptoms. Given that only 19.2% of the referrals we were concerned about yielded a cancer diagnosis, what are the implications for patients referred through the non-urgent route who ultimately have a cancer diagnosis? Are we able to develop more astute diagnostic and referral practices in the future that will heighten risk prediction? Within NHS GG&C, the data from the referral audit have been shared with all practices, and the Health Board hopes to continue to feed referral data back to practices. It is only by continuing to analyse and develop referral guidance that we can create a local construct for referral that can provide reassurance to referring doctors. Other areas that we need to explore are: the characteristics of patients presenting late to A&E departments with undiagnosed cancer and those diagnosed through the non-urgent referral route.

Ultimately, there will always be a question of how much science we can apply to the “art of medicine?”

Conflict of interest: none

declared

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