Process and Outcome

Medical audit in practice

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Summary

A stage by stage approach was adopted to solve some of the problems of diagnosing and managing acute abdominal pain. Audit started in hospital and was extended, with the help of a community physician, to cover the practice of a group of general practitioners. Referrals to the accident and emergency department for acute abdominal pain were analysed, and the diagnostic accuracy of general practitioners, accident department staff, and ward staff was assessed. The accuracy of hospital staff was improved by issuing guidelines and checklists to help in diagnosis. The general practitioners' problems were defined and discussed with the surgeons. The audit continues with the aim of improving the general practitioners' diagnostic accuracy.

Introduction

The difficulties of conducting medical audit in the National Health Service fall into two categories: threats to clinical freedom and practical difficulties over measuring the quality of care.[1-8] Audit is not a threat if it is self-imposed and aims at achieving a measurable improvement in the quality of care through education. Busy clinicians are more likely to be deterred by the practical difficulties of medical audit. The need for an objective and systematic approach with "carefully defined essential criteria that are explicit and stated in terms of both process and outcome"[2] is indeed daunting. Nevertheless, difficulties are minimised if a single problem is identified and tackled in stages. Solving problems that arise at one stage enables subsequent stages to be carried out more easily.

Objective criteria must be devised, standardised and structured records designed,[2] and data analysed and presented; but few clinicians have either the time or the expert knowledge to do this. The Gilloran Report[9] suggests that this should be the contribution of the specialist in community medicine.

We report here our experience of auditing the management of acute abdominal pain. The audit was performed by surgeons, a community physician, and general practitioners. It began in hospital and was extended to general practice, embracing that much discussed but little-studied and sensitive area of medical care, the meeting point between the two.

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Audit

The audit, which is being carried out in nine stages, began in Bangour General Hospital and was extended to include the general practitioners in Armadale group practice. The first six stages, which have been completed, were planned and introduced separately, one after the other, but the last three stages were planned together.

HOSPITAL AUDIT

The surgical units of Bangour General Hospital serve a population of 132 636, 97% of whom live within 10 miles.[10 11]

Stage 1—All patients referred urgently for general surgical problems are seen first in the accident and emergency department by a registrar or senior house officer. A six-month survey showed that 10% of all new patients presented with acute abdominal pain. This was equivalent to an annual rate of six cases per 1000 of the hospital catchment population.[12]

Stage 2—The management of these 407 patients was analysed. Two hundred and forty-four (60%) were admitted to surgical units and a further 31 (8%) to other units. Only 134 (33%) underwent operation: a diagnosis was established for the first time in nine and nothing abnormal was found in 13.[12 13] General practitioners had made a diagnosis in 328 (81%) of the 407 cases, and this agreed with the final diagnosis in 128 cases. Staff in the accident department made a correct diagnosis in 234 (57%) of the patients referred while the ward medical staff did so in 188 (68%) of the patients admitted. These problems in diagnosis are not confined to West Lothian. De Dombal[14] reported similar findings in Leeds, where the admitting staff were correct in 45% of cases, and the most senior clinicians, who saw the patients later, achieved an accuracy of 80%.

Stage 3—Changes designed to improve diagnostic accuracy were introduced and subsequently evaluated. The object was to increase the proportion of correct diagnoses made by the junior accident and emergency staff from 57% to 80%—the standard of the senior consultants in the Leeds study.[14] A structured one-page record form was introduced to the accident and emergency department. The form acted as a check list, ensuring that the medical staff recorded all the clinical features necessary for diagnosing acute abdominal pain and enabling them to see at a glance this information set out systematically. One copy was retained in the clinical record, one was sent to the general practitioner as the accident and emergency department report, and one was kept for the final diagnosis and analysis. The medical staff were told the results of the analysis of each group of 100 consecutive forms. Diagnostic accuracy rose from 55% to 71%; the proportion of patients admitted fell from 81% to 75%; and the proportion who had unnecessary laparotomies fell from 20% to 7%.

Stage 4—Diagnostic guidelines on the more common causes of acute abdominal pain were issued to the accident and emergency staff. Diagnostic accuracy rose further to 77% and admissions fell to 66%. This aspect of the audit continues.

GENERAL PRACTICE AUDIT

The audit was then extended to include the six general practitioners in Armadale group practice, with the aim of reducing "unnecessary" referrals. This practice serves 11 000 people, and 97% of the patients referred to hospital for surgical reasons go to Bangour Hospital. The Armadale general practitioners wanted to participate because they were aware that they had problems in managing patients presenting with abdominal pain. Up to this stage the hospital surgical staff had analysed all the records, but a specialist in community medicine was invited to take part, and from then on the audit became a joint venture among surgeons, general practitioners, and a community physician.

Stage 5—Hospital data indicated that referrals from the Armadale practice differed from others in the area in only one respect. A diagnosis was suggested in fewer cases (70% compared to 81%) but it agreed with the final hospital diagnosis more often (53% compared with 39%). In the 30% where no diagnosis was suggested clinical features were described in some detail in the referral letter.

Stage 6—To set these hospital findings in perspective a small study was undertaken to describe abdominal pain as it presents in the Armadale practice. For four weeks the general practitioners completed a small structured record for each patient consulting for abdominal pain. Ninety-six patients presented for a first consultation for abdominal pain. This is equivalent to an annual incidence of 90-137 cases per 1000 general practice population—about twenty times the accident and emergency referral rate. Pain was the sole presenting symptom in 25 patients. Although the duration of pain has some influence on patients' feelings of urgency, other features also play a part. Over 11% of those with urgent appointments had had the pain for over 24 hours and almost 13% of those with pain for less than 24 hours did not ask for an urgent consultation. Acute inflammatory conditions of the gastrointestinal tract accounted for most cases (30%). In the accident and emergency department acute appendicitis was the most common diagnosis, representing 21% of referrals, though a greater proportion of patients (29%) remained undiagnosed. Most of the conditions in general practice were self-limiting since 72% of patients were seen only once. Nevertheless, the general practitioners must select the small proportion requiring urgent hospital treatment from the many patients complaining of various types of abdominal pain. Although they considered hospital referral in 16% of patients only 5% were actually referred, 4% as emergencies. Detailed examination of the case histories of this group of patients confirmed that the general practitioners have problems in deciding whether to refer patients with abdominal pain. Improvements in this aspect of care would clearly be worth while, because about 200 patients in the practice are affected each year.

RECOGNISING EACH OTHER'S PROBLEMS

This small study also provided the stimulus for frank and friendly discussion between the surgeon and the general practitioners about this mutual problem. The surgeon was delighted at the interest and willingness of the general practitioners to co-operate in medical audit. He was surprised at the size of the problem in the community, the prominence of acute gastrointestinal upsets, and the manner in which patients with acute abdominal pain present to general practitioners. Having seen the form of records used in general practice he recognised that it would not be feasible to ask general practitioners to use detailed hospital records.

The general practitioners described the circumstances under which they make diagnoses. Consultations may be in patients' homes, where they have no investigative facilities. Patients are often seen very early in the illness, when signs are absent or poorly developed. There may be pressure from patients and their relatives or the doctors' other commitments. Although emergencies are admitted through the accident and emergency department because it is a convenient way of channelling patients to the appropriate unit, the general practitioners see this arrangement as a way of obtaining a quick second opinion. With some justification, they considered this a service to which both they and their patients are entitled. This probably largely explains why 21% of patients referred to hospital with acute abdominal pain did not require admission. The general practitioners also indicated that they would appreciate feedback as soon as diagnosis was established so that they could compare their own findings and diagnoses with those of the hospital. The discharge letter came too late to be of much educational value, and in many cases contained some implied criticism of their diagnosis and management. This was something that the surgical staff had been unaware of and had not intended.

COMBINED GENERAL PRACTICE AND HOSPITAL AUDIT

We have recently started the first of the next three stages, each lasting six months. The aim is to improve the management of acute abdominal pain in general practice in a manner similar to that already used in the hospital. Our target is to produce a statistically significant increase ($P \leq 0.05$) in: (*a*) the proportion of cases where the general practitioners are certain about diagnosis; (*b*) the proportion of those patients referred to hospital who are admitted; (*c*) the proportion of patients referred with a diagnosis or accurately recorded clinical features; and (*d*) the proportion of patients referred with a stated diagnosis which agrees with the final hospital diagnosis.

Stage 7—The hospital structured record form has been adapted for use in general practice. It is completed at each consultation when a patient complaining of abdominal pain is either referred urgently to hospital or the general practitioner is uncertain whether or not to do so. In all cases the general practitioner retains a copy and the specialist in community medicine uses another for audit. The third copy is used as the referral document for those patients referred to hospital. The corresponding form completed by the accident and emergency department staff is returned immediately for comparison. The effect of these arrangements is being measured over the first six months.

Stage 8—During the second six months diagnostic guidelines for the most common causes of acute abdominal pain, prepared by the surgeon, will be used and their effect estimated.

Stage 9—In the final six months analyses of their performance will be sent to the general practitioners and the effect evaluated.

Conclusion

This experiment in medical audit has not only put into practice the principles recommended by previous workers: it has also identified several other important principles. As we expected, difficulties were minimised by tackling one problem of medical care in stages, and much was learnt that could be applied to later stages and other problems. Each participant must be willing to recognise that there is room for improvement and be prepared to understand the point of view of the others. Another essential is that time and effort should be used economically by allocating tasks appropriate to different skills and experience. In particular, the contribution of the new specialty of community medicine in designing the study and analysing the data should be recognised. As a result of this arrangement, meetings need only be occasional and informal to discuss results and make decisions. It is an approach to medical audit that we have found both satisfying and effective.

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Requests for reprints should be addressed to RG. Copies of the record forms are available from AAG.

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