What influences doctors' prescribing? Sore throats revisited

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SUMMARY. An audit of two practices in 1987 revealed a wide range of antibiotic prescribing for acute sore throat among the general practitioners. The data were presented at a postgraduate meeting and recommendations were made for a practice policy on antibiotic prescribing. The results of studies that looked at the objectives of treatment were included at that meeting. This paper presents a re-evaluation of the same doctors' antibiotic prescribing one-year later. Changes had occurred in the range and costs of drugs chosen, but individual doctors' prescribing rates remained broadly similar, in other words it was easier to influence what, but not whether, a doctor prescribes for this clinical condition. The existence of a prescribing 'threshold' within the individual doctor is supported.

Introduction

ACUTE sore throat is a common condition in general practice (incidence 75 per 1000 patients per annum)[1] and its management differs widely between doctors. Opinions vary about when to use antibiotic treatment, and policies for the use of such drugs may be based on a wide variety of factors such as the appearance of the throat, the age of the patient or the fact of a previous prescription.

There is a general consensus that only one-third of sore throats are bacterial in origin, being caused by the group A streptococcus, and that the remainder are not therefore amenable to antibiotic treatment. Many studies have demonstrated that clinical assessment cannot identify reliably the causative organism, yet this often forms the basis of the decision to treat. A placebo-controlled study using penicillin showed that the speed of recovery was not influenced by antibiotics.[2] Other work has shown that antibiotic treatment does not affect the occurrence of immunologically-mediated complications such as rheumatic fever[3] and acute nephritis.[4]

Background to the study

In January/February 1987, a study was carried out to look at the different ways that doctors in two training practices managed the sore throat.[5] The main points revealed were:

- An 'anatomical' label of tonsillitis was more likely to attract treatment with an antibiotic than pharyngitis or general terms such as 'URTI' or 'sore throat', as shown previously.[6]
- The proportion of patients prescribed antibiotics varied widely between doctors (from 5% to 80% of patients seen).
- A wide range of antibiotics was chosen, with a 15-fold variation in cost.
- The practice with higher prescribing rates had double the percentage of reattending patients than the practice with lower rates but the rates of reattendance were similar whether or not the patient had received antibiotics. None of the returning patients had evidence of worsening bacterial infection or immunological complications such as rheumatic fever or acute glomerulonephritis.

In May 1987 the participating doctors attended a postgraduate meeting at Hythe medical centre where evidence on the role of antibiotic treatment in the sore throat was reviewed and presented together with the results of the above audit. At the meeting a prescribing policy was suggested that antibiotic treatment should be given only for patients considered to be 'toxic', or with evidence of peritonsillar abscess (quinsy), and then, in view of the known sensitivities of group A streptococci, only penicillin or erythromycin. It was suggested that such a policy would reduce prescribing costs and eventually influence workload.

The prescribing data of the individual doctors were presented privately after the meeting, and during the following year, further information was circularized to the doctors, including an item describing the successful claim for damages against a doctor who prescribed amoxycillin to a teenager who subsequently was shown to have infectious mononucleosis after the development of the well-known rash.[7]

A follow-up audit one year later was carried out to determine what influence this feedback and information had had on the participating doctors.

Method

The 17 doctors involved were members of two training practices of similar size, with a total list size of 26 800, 14 principals, and three trainees. Since the first audit two doctors had replaced retiring partners and there was one new additional partner. The repeat prospective study was carried out over a six-week period in January/February 1988, using the same method as before.[5] Briefly, all the patients presenting with acute sore throat were recorded and followed up by means of a record card, containing the name, address, date of birth and diagnosis of the patient. These details were entered by the doctor at the time of consultation. Three weeks later, the medical record was identified and further details of initial treatment, re-attendance, if any, and the reason for this, were recorded.

Results

A total of 358 patients identified as suffering from a sore throat attended the principals and trainees in post at the two practices during the six-week study period. After the audit one year earlier, practice A reduced its prescribing for this group of patients from 28% of 145 patients seen in 1987 to 15% of 222 patients seen in 1988, and practice B from 42% of 163 patients to 31% of 136 patients. A narrowing of the range of drugs chosen was also demonstrated, with penicillin or erythromycin rising in practice A from 51% of 39 prescriptions issued in 1987 to 94% of 33 prescriptions in 1988, and in practice B from 40% of 65 prescriptions in 1987 to 79% of 42 prescriptions in 1988 (prescriptions for two patients in practice A and four in practice B were excluded from the analysis).

However, when the prescribing rates were compared for the 11 individual doctors for whom comparisons with the data from the previous year were possible, no consistent pattern of change was apparent (Table 1). Only five doctors decreased their

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prescribing, three increased it, and three remained level (two of these had very low levels of prescribing in 1987). The reduced overall prescribing was largely attributable to changes in personnel within both practices, with high-prescribing older doctors being replaced with more moderately-prescribing younger doctors (Table 1).

To consider the possibility that doctors altered their diagnostic criteria in the period of the two studies, thereby masking or creating an observable change in behaviour, the terms used to describe acute sore throat were noted. The overall frequency of usage of the term tonsillitis was little changed (Table 2).

Table 1. Percentage of patients with sore throat who were treated with antibiotics.

	1987		1988	
	No. of patients with sore throat	% treated with antibiotics	No. of patients with sore throat	% treated with antibiotics
Practice A				
Dr A	9	*89*	8	*100*
Dr B	22	*41*	13	*39*
Dr C	21	*5*	42	*18*
Dr D	18	*5*	33	*6*
Dr E	31	*19*	18	*11*
Dr F	16	*63*	–	–
Dr G	–	–	16	*0*
Dr H	–	–	47	*4*
Practice B				
Dr I	17	*76*	12	*60*
Dr J	20	*70*	24	*47*
Dr K	8	*25*	21	*33*
Dr L	16	*63*	19	*41*
Dr M	16	*44*	12	*33*
Dr N	17	*6*	38	*8*
Dr O	26	*62*	–	–
Dr P	–	–	5	*40*

Discussion

The audit reported here relies for its validity on the general practitioners remaining consistent in their identification and labelling of patients suffering from a sore throat. The lack of change in the percentage of patients labelled as suffering from tonsillitis suggests that the doctors were consistent.

In terms of antibiotic prescribing by doctors for patients suffering from sore throat, this study indicates a change in prescribing habits, with a move to a more consistently rational choice of penicillin or erythromycin. When compared with the price of the other antibiotics used, this change will mean a considerable reduction in prescribing costs. However, a wide range in the frequency of prescribing between doctors remained, in spite of feedback to the participating doctors about their own prescribing habits. Individual doctors' prescribing habits appeared resistant to change even when personal feedback was accompanied by evidence that prescribing antibiotics for sore throats is unnecessary. It appears to be easier to influence what, but not whether a doctor prescribes for this condition.

It is known that there is a wide variation in the performance of measurable activities within a population of doctors. Examples are prescribing, investigating, referring, admitting to hospital and night visiting.[8] During a study where general practitioners were given feedback about prescribing habits, together with the opportunity to discuss these with other general practitioners, fewer, cheaper prescriptions were issued.[9] Follow-up, carried out two years later, however, showed that the majority of the effects of the intervention had disappeared.[10] Other studies of prescribing habits have shown that prescribing is modified in the light of the information obtained.[11,12] Lower prescribing rates have been shown to be associated with an orientation towards holistic medicine and the possession of higher qualifications.[13]

Table 2. General practitioners' use of the diagnostic term tonsillitis.

	Percentage of patients diagnosed with tonsillitis	
	1987	1988
Practice A	*16* ($n = 145$)	*13* ($n = 222$)
Practice B	*23* ($n = 163$)	*19* ($n = 136$)

n = number of patients consulting with sore throat.

Referral rates by general practitioners to consultants have been shown to vary widely, and this is not explicable by variations in patient characteristics, or by characteristics of the doctors such as age, experience or the possession of higher qualifications.[14] The existence of a referral 'threshold' has been postulated,[15] and we believe that there is a prescribing 'threshold' too for doctors, which is related to the willingness of individual doctors to tolerate the uncertainty that exists in general practice diagnoses.

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