Saturday 6 August 2005

BMJ

Delayed prescribing of antibiotics for upper respiratory tract infection

With clear guidance to patients and parents it seems to be safe

Primary care p 328

The use of antibiotics by children with upper respiratory tract infection halved in the last decade in the United Kingdom, according to a paper in this week's *BMJ* (p 328).[1] Sharland and colleagues attribute this decline to an initially sharp reduction in prescribing by general practitioners and, since 1997, to a reduction in the proportion of prescriptions taken by parents to a pharmacist. Widespread adoption of delayed prescribing, a strategy tested in a randomised controlled trial published in 1997, may well explain this pattern.[1 2]

Whether patients fill prescriptions depends, however, on the method of delayed prescribing. Retrospective data and historical comparisons—albeit limited scientifically—suggest that giving a prescription and asking the patient or parent to redeem it only if symptoms persist is more likely to result in antibiotic use than is asking the patient to return to the doctor for a prescription. This is the policy we used in our trials and, when patients were given clear guidance and were asked to return to collect prescriptions, only a few ended up taking antibiotics.[2 3]

Should doctors completely avoid prescribing antibiotics for patients with uncomplicated upper respiratory tract infections? The answer is no. Firstly, we do not yet know who is at risk of subsequently developing rare but important complications of infection, and delayed prescribing can provide a safety net. Secondly, some patients want and expect antibiotics, and a delayed prescription if symptoms persist offers them a compromise.

Advantages of delayed prescribing

Other potential advantages of delayed prescribing include reducing overall use of antibiotics, changing consulting patterns, avoiding medicalisation of minor illness, and allowing adequate control of symptoms. On overall reductions in prescribing rates for antibiotics, the study by Sharland and colleagues provides evidence from everyday practice which corresponds to evidence from trials in a systematic review.[4] Delayed prescribing can change beliefs about antibiotics as effectively as withheld prescribing, and provides similarly high levels of satisfaction among patients—although when patients are not given good alternatives to antibiotics they may feel less enabled.[3 5 6] From two trials to date, evidence suggests that delayed prescribing of antibiotics has the same or lower rates of reattendance for the same illness than not prescribing at all[3 5]: thus delayed prescribing potentially helps avoid the medicalisation of self limiting illness. Although a recent review argued that we may not have enough information yet about acceptable symptom control,[7] recent trials reporting the severity of symptoms suggest that symptoms (pain for otitis media and the average of six symptoms of lower respiratory tract infection) were adequately controlled by delayed prescribing in comparison to immediate prescription of antibiotics.[3 8] What are the disadvantages of such delayed prescribing in upper respiratory tract infection? One is the possibility of giving mixed messages about the purpose and benefits of antibiotics, but clear guidance to patients about when to use these drugs should lessen this risk.[3 8] The key question is whether delayed prescribing increases the risk of complications of infection. The study by Sharland and colleagues shows that there were no increases during the study period in rates of admission to hospital for rheumatic fever or for quinsy, the most serious suppurative complication of sore throat.[1] Mastoiditis, the main complication of otitis media, may have increased, but between 2500 and 5000 children would have to be treated with antibiotics to prevent each case.

Other conditions

General practitioners and parents may have extrapolated the evidence on delayed prescribing for sore throat to another condition, otitis media. The clinical course of sore throat and otitis media differs importantly. For children with otitis media, parents should be advised to watch and wait for no longer than 72 hours after the first consultation when significant fever or otalgia persists, or for no longer than 10 days in the case of ear discharge.[8 9] In otitis media, such delays are unlikely to lead to complications. In one study only one case of mastoiditis occurred in a cohort of 5000 patients, and this patient had waited nearly a week after seeing the general practitioner.[9] For sore throat the delay can be five days,[2] and for acute lower respiratory infection 10-14 days.[3] But for unwell patients, those with high fever or other systemic symptoms, or those in vulnerable groups such as the very young and old, all of these waiting times should probably be halved.[10] For unwell immunocompromised patients, antibiotics should probably be prescribed immediately.

Given these questions about the safety of giving prescriptions and advising patients to redeem then

BMJ 2005;331:301–2

only if symptoms persist, are other strategies safer? These might include policies to always or never prescribe antibiotics in upper respiratory infection, to ask patients to return to the doctor for further assessment if they feel worse, and to prescribe only for patients at high risk of complications. Universal prescribing would be unsafe in the long term, given the clear relation between antibiotic prescribing and resistance[11] and the fact that, in the short term, antibiotics can occasionally have severe side effects.[12] Not prescribing antibiotics at all is likely to have even higher rates of complications.[9 13]

When to return

Advising patients to return if they are getting worse may be an acceptable alternative, and one that provides the prescriber with more (arguably spurious) control. But evidence suggests this strategy would result in higher reconsultation rates for the acute illness,[3] and it is not clearly preferable to delayed prescribing with clear instructions. Nevertheless, doctors should advise patients clearly about returning for antibiotics and further assessment if there are signs of complications developing in any upper respiratory tract infection, such as inability to swallow, worsening shortness of breath, and worsening systemic features such as fever or vomiting. Reserving antibiotics for patients at higher risk of complications might be a sensible strategy, but it depends more on clinical opinion than on evidence: there are few good prospective clinical studies in upper respiratory tract infection to confirm who is at risk of severe or prolonged symptoms or of complications.[14]

On current evidence, as long as patients have clear and specific information about when to use antibiotics and when to return for reassessment, delayed prescribing of antibiotics for upper respiratory tract infection is probably as safe or safer than other strategies and is acceptable to patients.

Paul Little *professor of primary care research*

Primary Medical Care, Community Clinical Sciences Division, Southampton University, Aldermoor Health Centre, Southampton SO16 5ST
(psl3@soton.ac.uk)

Competing interests: PL has received consultancy fees for two half day meetings about the complications of respiratory infections from Abbott Pharmaceuticals.

1 Sharland M, Kendall H, Yeates D, Randall A, Hughes G, Glasziou P, Mant D. Antibiotic prescribing in general practice and hospital admissions for peritonsillar abscess, mastoiditis, and rheumatic fever in children: time trend analysis. *BMJ* 2005;330:328-9.
2 Little PS, Williamson I, Warner G, Gould C, Gantley M, Kinmonth AL. An open randomised trial of prescribing strategies for sore throat. *BMJ* 1997;314:722-7.
3 Little P, Rumsby K, Kelly J, Watson L, Moore M, Warner G, et al. Information leaflet and antibiotic prescribing strategies for acute lower respiratory tract infection: a randomised controlled trial. *JAMA* 2005;:293:3029-35.
4 Arroll B, Kenealy T, Kerse N. Do delayed prescriptions reduce antibiotic use in respiratory tract infections? A systematic review. *Br J Gen Pract* 2003;53:871-7.
5 Little PS, Gould C, Williamson I , Warner G, Gantley M, Kinmonth AL. Reattendance and complications in a randomised trial of prescribing strategies for sore throat: the medicalising effect of prescribing antibiotics. *BMJ* 1997;315:350-2.
6 Dowell J, Pitkethly J, Bain J, Martin S. A randomised controlled trial of delayed antibiotic prescribing as a strategy for managing uncomplicated respiratory tract infection in primary care. *Br J Gen Pract* 2001;51: 200-5.
7 Spurling G, Del Mar C, Dooley L, Foxlee R. Delayed antibiotics for symptoms and complications of respiratory infections. *Cochrane Database Syst Rev* 2004 Oct 18;(4):CD004417.
8 Little P, Gould C, Williamson I, Moore M, Warner G, Dunleavey J. A pragmatic randomised controlled trial of two prescribing strategies for acute otitis media. *BMJ* 2001;322:336-42.
9 Van Buchem FL, Peeters MF, Van 't Hof MA. Acute otitis media: a new treatment strategy. *BMJ* 1985;290:1033-7.
10 Little P, Gould C, Moore M, Dunleavey J. Predictors of poor outcome and benefits from antibiotics in children with acute otitis media: pragmatic randomised trial. *BMJ* 2002;325:22.
11 Standing Medical Advisory Committee (SMAC) Sub-Group on Antimicrobial Resistance. *The path of least resistance. Occasional report.* 1998. www.advisorybodies.doh.gov.uk/SMAC/SMAC1.HTM (accessed 5 Jul 2005).
12 Little PS, Williamson I. Controversies in management. Are antibiotics appropriate for sore throats? Costs outweigh the benefits. *BMJ* 1994;309:1010-1.
13 Zwart S, Sachs A, Ruijs G, Hoes A, DeMelker R. Penicillin for acute sore throat: randomised double blind trial of seven days versus three days treatment or placebo in adults. *BMJ* 2000;320:150-4.
14 Kumar S, Little P, Britten N. Why do general practitioners prescribe antibiotics for sore throat? Grounded theory interview study. *BMJ* 2003;326:138.

The patient safety story

Has been told; now it is time to make practice safer

Investigating and improving patient safety in health care is now an international phenomenon. The establishment of the National Patient Safety Agency in the United Kingdom[1] and of the Center for Quality Improvement and Patient Safety in the United States[2] are prime examples of the prominence given to safety within the wider concept of healthcare quality. No longer can there be any doubt that the most fundamental ethical principle in medicine—first, do no harm—is being taken seriously by a wide constituency. The next step is to embed safe practice into everyday clinical behaviour.

Why is there so much interest in patient safety? Why now? Data have been available on error rates in medicine for at least a decade. Although there had been earlier work in the 1970s, the landmark Harvard Medical Practice study of hospital inpatients was published in 1991.[3] Additional studies followed from Australia and other contexts.[4] This research points to an adverse event rate in secondary care close to 10%. The error rate in primary care is less well studied.

What we know

The catalyst came from the United States. By 1998 some opinion leaders in health care were frustrated by the lack of attention given to addressing serious quality challenges. An extensive review of the literature on quality, conducted by RAND Health, documented shortcomings in both safety and effectiveness.[5] Expert panels, one convened by the Institute of Medicine and

This article was posted on bmj.com on 1 August 2005: http://bmj.com/cgi/doi/10.1136/bmj.38562.690104.43

BMJ 2005;331:302–4