

General practitioner prescribing of antibiotics for asthma

MARJAN KLJAKOVIC

GIRI MAHADEVAN

SUMMARY

Although asthma management guidelines in New Zealand do not advise prescribing antibiotics, almost a quarter of asthma consultations result in a prescription for antibiotics. This study, as part of a repeat audit of asthma care at an after-hours medical centre, describes general practitioners' perspectives on prescribing antibiotics to patients presenting with asthma. The results show that GPs have tended to overestimate the risk of bacterial infection in such patients.

Keywords: asthma; antibiotic prescribing; general practice

Introduction

Asthma management guidelines in New Zealand do not advise prescribing antibiotics in the management of asthma,¹ yet 23% of general practice asthma consultations result in an antibiotic prescription.² This study describes general practitioners' (GPs') perspectives on prescribing antibiotics for patients presenting with asthma.

Method

An audit

This study was part of a repeat audit of asthma care at an after-hours medical centre (AMC).³ There were 6184 patient encounters between November 1, 1996 and December 31, 1996, among which 2155 encounters were for any respiratory conditions (35%) and 366 encounters were for asthma (17%). The characteristics and outcomes of patients with asthma are listed in Table 1. There were 99 GPs working during the study period (83% of all GPs in Wellington City).

There were 118 patients who did not have the diagnosis of asthma written in the clinical record but who may have had asthma given all the written information. There were another 13 patients who had a written diagnosis of asthma but the consultation was only for a repeat prescription of asthma medication. Among the remaining 235 patients, the types of antibiotic prescribed included penicillins (27%), macrolides (6%), cephalosporins (2%), tetracyclines (2%), and co-trimoxazole (1%).

The proportion of patients receiving an antibiotic prescription was categorized in three ways:

- 79% of 1784 patients presenting with any respiratory condition excluding asthma,
- 38% of 235 patients who had asthma as one of their respiratory diagnoses, and
- 13% of 112 patients who had asthma as their only diagnosis.

M Kljakovic, FRNZCGP, senior lecturer, Department of General Practice; and G Mahadevan, medical student, Wellington School of Medicine. Submitted: 24 October 1997; accepted: 26 May 1998.

© British Journal of General Practice, 1998, 48, 1773-1774.

Results

Among the 112 patients who had asthma as their only diagnosis, significantly more older patients were prescribed an antibiotic than not prescribed an antibiotic (mean age = 33 [standard error = 6.95] years versus 18 [standard error = 1.7] years; $P = 0.0038$, Student t -test). Furthermore, significantly more patients with purulent sputum were prescribed an antibiotic than not prescribed an antibiotic (33% versus 12%; OR = 4.32; 95% CI = 1.05-17.45; $P = 0.0404$).

Qualitative study

A content analysis of in-depth interviews on asthma with 24 Wellington GPs revealed a divergence of opinion about prescribing antibiotics. Some GPs rarely prescribed antibiotics:

'I would very seldom give antibiotics, as I feel more confident treating wheeziness with anti-wheeze medication.'

Whereas, many thought prescribing antibiotics was a reasonable action:

'In a lot of cases, and especially in children, so often it is an acute infection which triggers the asthma...so why not use antibiotics?'

General practitioners stated five motives that influenced their decision to prescribe antibiotics:

1. A response to patient demand:

'They come in with bronchitis demanding an antibiotic and you shout at them, "Well no I don't think it's bronchitis, I think that's asthma." And the patient recoils and obviously doesn't believe you. And (the patient) is going to be back in next morning for the usual antibiotic anyway.'

2. A way of ending a consultation:

'It is much easier to write a prescription for (amoxicillin) and get the patient out of the room than to spend some time explaining about respiratory airways disease to a mother that is rather reluctant to accept the diagnosis anyway.'

3. A response to feelings triggered within the GP, including a lack of confidence:

'I over-treat asthmatic attacks with antibiotics because often people are trying to believe they have got bronchitis...and maybe I am not quite confident in myself that I can treat someone that does have a cold with anti-wheeze medication and not antibiotic as well.'

or as a result of a fear of the consequences when the GP could not watch the patient closely after choosing not to prescribe an antibiotic, which is unlike the hospital context:

'General practice is very different from hospital practice (because) in the hospital you are much safer...you can keep an eye on them 24-hours a day and so you can afford to give less antibiotics in hospital.'

4. A belief that antibiotic prescribing protected patients from being admitted to hospital or dying from asthma:

'The GP has seen a lot of cases go bad where the hospital has not used antibiotics. If GPs could not prescribe antibiotics, I think you will see a lot of dead kids and the hospital flooded with so much stuff, they couldn't handle it.'

Table 1. The characteristics and outcomes of patients attending a GP-run after-hours medical centre for asthma in the months of November and December 1996 (n = 366).

	Number	(%)
Characteristics of patients		
Male	176	47%
Mean age (years)	20.0	(1.2) ^a
Community Service Card holders ^b	91	25%
No nominated general practitioner	47	13%
Reside in Wellington City region	301	81%
Patient outcome		
Nebulized treatment	182	50%
Repeat prescription only	54	15%
No documented follow-up	100	27%
Referred to general practitioner	204	55%
Return to AMC	50	13%
Admit or refer to hospital	7	2%

^aStandard error; ^bpatients with card receive a government subsidy for their general practice care.

5. Worrying past experiences making it difficult to change prescribing behaviours:

'And one aspect I have never had the courage to pursue is that (a consultant) does not give any antibiotics even if the child comes in with a febrile illness. He would just give them a bronchodilator... I am gradually stopping giving antibiotics (but) I'm sure we'd all, just in case, fill them up with antibiotic as well. I'm just starting to stop it but it's very difficult to just supply bronchodilator... I've had bad experiences in the past...people die through inadequate bronchodilation.'

Discussion

This study found that 38% of patients were prescribed an antibiotic for asthma, which shows a considerable gap between clinical behaviour and guidelines. The main reason for this is that GPs have tended to overestimate the risk of bacterial infection.⁴ These overestimates are explained by studying GP prescribing behaviours in the context of certain clusters of respiratory signs and symptoms.⁵ In this study, antibiotic prescribing was less likely when asthma was the only diagnosis at a clinical encounter, and more likely in older patients with a history of purulent sputum.

There has been one case-controlled study⁶ and one open-label, before-after, treatment trial⁷ showing the benefit of macrolide antibiotic treatment of asthma triggered by chlamydial infection. There have been no controlled trials of other antibiotics treating asthma.

The gap between what guidelines advise and the actions taken by GPs will be best managed when the details of the circumstances surrounding asthma management are explained.⁸ In attitudinal terms, this study found that most GPs thought that prescribing antibiotics was a reasonable action. Some of the motivation for prescribing antibiotics arose from patient demand, but the main source of motivation arose from doctor-centred issues: a lack of confidence to not prescribe antibiotics when the patient had a fever with asthma, poor past experiences with asthma treatment, and difficulties in taking the risk of not prescribing when patients could not be observed closely. Guidelines need to address these motives, particularly if education is to be directed at influencing GP behaviour for asthma care.

References

1. Asher MI, Toop L, Mitchell EA. Asthma in children: consensus on preventive management in New Zealand. *N Z Med J* 1994; **107**: 108-110.
2. Simpson JB, Squires IHW. Asthma management within Northern Canterbury general practice. *N Z Med J* 1984; **97**: 724-727.
3. Kljakovic M, Stuart D. Out-of-hours attendance and outcomes for asthmatic patients at two primary care services. *N Z Med J* 1996; **109**: 254-257.
4. Jones K, Gruffydd-Jones K. Management of acute asthma attacks associated with respiratory tract infection: a postal survey of general practitioners in the UK. *Respir Med* 1996; **90**: 419-425.
5. Howie JGR. A new look at respiratory illness in general practice. *J R Coll Gen Pract* 1973; **23**: 895-904.
6. Emre U, Roblin PM, Gelling M, et al. The association of *Chlamydia pneumoniae* infection and reactive airway disease in children. *Arch Pediatr Adolesc Med* 1994; **148**: 727-732.
7. Hahn DL. Treatment of *Chlamydia pneumoniae* infection in adult asthma: a before-after trial. *Fam Pract* 1995; **41**: 345-351.
8. Kibbe DC, Kaluzny AD, McLaughlin CP. Integrating guidelines with continuous quality improvement: doing the right thing in the right way to achieve the right goals. *Jt Comm J Qual Improv* 1994; **20**: 181-191.

Acknowledgments

We would like to thank the AMC staff and doctors for allowing us to carry out this study. Funding from Glaxo Wellcome Foundation is also appreciated.

Address for correspondence

Dr M Kljakovic, Department of General Practice, Wellington School of Medicine, PO Box 7343, Wellington South, New Zealand.