

One hundred earaches

Family practice case series

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abstract

OBJECTIVE To examine whether watchful waiting was an appropriate strategy for patients with earache, when there was no clear indication to prescribe antibiotics at the first visit.

DESIGN Case series of consecutive patients with unilateral earache.

SETTING Rural family practice clinic and walk-in centre.

PARTICIPANTS One hundred patients with unilateral earache.

INTERVENTIONS Patients who clearly needed antibiotic treatment were given it; others were advised about symptom relief and were followed up as necessary.

MAIN OUTCOME MEASURES Whether patients returned to the clinic, and whether antibiotics were subsequently prescribed.

RESULTS Two patients were prescribed antibiotics at the first visit. Of the remaining 98 people, only four returned to the clinic because of earache, and two of these were prescribed antibiotics. Thus, of 100 people with earache, four received antibiotic prescriptions.

CONCLUSIONS Most people who present to primary care physicians with earache do not need antibiotics for what appears to be a mostly self-limiting condition. Both physicians and patients should be educated about this.

résumé

OBJECTIF Examiner si une attente vigilante se révèle une stratégie appropriée chez les patients souffrant d'un mal d'oreille, lorsqu'il n'y a pas, à la première visite, de signes évidents que des antibiotiques sont indiqués.

CONCEPTION Une série de cas consécutifs de patients souffrant d'un mal d'oreille unilatéral.

CONTEXTE Une clinique de pratique familiale et un centre sans rendez-vous en milieu rural.

PARTICIPANTS Cent patients souffrant d'un mal d'oreille unilatéral.

INTERVENTIONS Les patients chez qui l'indication d'une antibiothérapie était évidente s'en sont fait prescrire; les autres ont reçu des conseils pour soulager les symptômes et ont été suivis au besoin.

PRINCIPALES MESURES DES RÉSULTATS Les visites subséquentes des patients à la clinique et la prescription d'antibiotiques, le cas échéant, lors de cette consultation ultérieure.

RÉSULTATS Deux patients ont reçu des antibiotiques lors de la première visite. Des 98 autres personnes, seulement quatre sont revenues à la clinique pour leur mal d'oreille et deux d'entre elles ont reçu des antibiotiques. Ainsi, sur 100 personnes souffrant d'un mal d'oreille, quatre ont reçu une prescription d'antibiotiques.

CONCLUSIONS La majorité des personnes qui se présentent souffrant d'un mal d'oreille chez les médecins de première ligne n'ont pas besoin d'antibiotiques pour ce qui semble être un état qui se résorbe tout seul. Les médecins et les patients devraient être éduqués à ce propos.

This article has been peer reviewed.

Cet article a fait l'objet d'une évaluation externe.

Can Fam Physician 2000;46:1081-1084.

RESEARCH

One hundred earaches

Earache is one of the most frequently encountered symptoms in primary care, and acute otitis media is the most common childhood diagnosis in office practice.^{1,2} A recent Canadian family practice study found that 54% of antibiotics prescribed for children were for acute otitis media,³ and the estimated annual cost of otitis media to the Canadian health care system is \$600 million.⁴

Earache and otitis media are predominantly treated by primary care physicians, and the natural history of acute otitis media is that 80% of cases remit within 24 hours of onset.^{5,6} Management of otitis media, the main cause of earache, varies remarkably from country to country. In the Netherlands and Iceland, patients are rarely prescribed antibiotics at onset.^{5,7} Yet in North America, patients with earache or ear infections often receive antibiotics.⁸ Figures from Newfoundland in 1995 show a correspondingly high rate of antibiotic prescriptions for respiratory tract and ear infections.⁹ This rate of prescribing cannot be justified by the known rates of bacterial infection in primary care populations.^{10,11}

In light of the considerable variation in treatment practice for earache and of concerns about antibiotic resistance, I decided to restrict antibiotic prescription only to those of my patients who clearly needed it.

METHOD

During the fall and winter of 1998-1999, I collected data on consecutive patients who presented with earache. The setting was a rural community health centre that provides family practice clinics by appointment and sees walk-in patients in a small emergency room, which is open 24 hours a day. Two other physicians provide office services at sites within 30 minutes' drive, but out-of-hours the nearest hospital emergency rooms are about 1 hour's drive away.

All patients were seen within 30 minutes of presentation at the health centre. A careful examination of ear, nose, and throat was done, history was taken, and the patient's medical record was consulted. If there was definite evidence of otitis media according to the diagnostic criteria in the guidelines produced by the Agency for Health Care Policy and Research (Table 1),¹² or if the patient was constitutionally ill with another bacterial infection, appropriate antibiotics

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Table 1. **Diagnostic criteria in guidelines produced by the Agency for Health Care Policy and Research: Tympanometry is unnecessary if symptoms and signs are present.**

SYMPTOMS
Ear pain
Decreased hearing
Ear drainage
Fever
PHYSICAL SIGNS
Inflamed tympanic membrane
Desquamated epithelium on membrane
Bulging tympanic membrane
Evidence of middle ear effusion

Data from Agency for Health Care Policy and Research.¹²

were prescribed. If antibiotics were not prescribed, patients were advised about symptom treatment and asked to return within the next 2 days if their condition did not improve.

One hundred consecutive patients were seen. Date of presentation, time of day, type of visit (office or emergency), age and sex of patients, duration of earache, appearance of eardrum, presence of fever, and constitutional symptoms were recorded. Later, medical records were inspected, to see whether patients had returned for further treatment within 2 weeks of the initial visit and whether antibiotics had been prescribed.

RESULTS

One hundred patients with unilateral earache were seen over 6.5 months (Table 2). Forty-two patients were seen during office hours, 53 in the evening or on weekends, and five between midnight and 9:00 AM. Patients ranged from 3 months to 88 years (39 were younger than 5 years; 29 were 5 to 16 years; 22 were 17 to 64 years, and 10 were 65 years or older). There were 56 female and 44 male patients. The earache had been present for 6 hours or less in 51 patients, between 7 and 24 hours in 36 patients, and longer than 24 hours in 13 patients. Fever was present in 20 patients. I recorded the appearance of the eardrum as abnormal in 23 patients.

One patient, a man of 43 years, had a perforated eardrum with copious pus coming through the hole. A boy of 4 years had severe pain, a red bulging eardrum through which pus could be seen, and a fever of 39.4°C; he was constitutionally unwell. These two patients were prescribed antibiotics and were seen again the next day. Both recovered uneventfully.

Of the remaining 98 patients, six returned to the health centre within the next 2 weeks. One fell and broke her wrist; another came for a repeat prescription of diabetes medications, and four returned because of continued earache. Of these, one had developed otitis externa, another had symptoms of trigeminal neuralgia, and two were judged to have otitis media and given antibiotic prescriptions. Both recovered uneventfully. Thus, of 100 patients, a definite cause for the earache was found in only six.

DISCUSSION

Once patients with clear evidence of otitis media had been detected and treated, few of the 100 patients with earache returned for further treatment. Of 100 patients with earache, only four are recorded as taking antibiotic treatment. Most patients (94 cases) had no diagnosed cause for the earache.

It is possible that some patients subsequently visited other family doctors or attended hospital emergency

Key points

- One hundred consecutive cases of earache were studied in a rural Newfoundland community clinic.
- Of the 100 patients, only four received antibiotics. In 94 cases, no definite cause of the earache was found.
- This case series illustrates that most cases of earache are not caused by acute bacterial otitis media and can be managed well without antibiotic therapy.

Points de repère

- Cent cas consécutifs de patients souffrant d'un mal d'oreille ont fait l'objet d'une étude dans une clinique communautaire rurale à Terre-Neuve.
- Des 100 patients, seulement quatre ont reçu des antibiotiques. Dans 94 cas, on n'a trouvé aucune cause précise au mal d'oreille.
- Cette série de cas démontre que la majorité des maux d'oreille ne sont pas causés par une otite bactérienne aiguë et peuvent être bien pris en charge sans antibiothérapie.

departments. It is impossible to be certain, but in our area doctors in office practice tend to have a waiting list of a day or two, and the emergency departments are an

Table 2. **Age of patients, duration of earache, and time of visit:**
Newfoundland case series 1998-1999.

TIMING	AGE OF PATIENTS				TOTAL
	0-4	5-16	17-64	65+	
DURATION OF EARACHE (HOURS)					
<6	23*†	14†	10	4	51
6-24	14	10	8	4	36
>24	2	5	4*	2	13
TOTAL	39	29	22	10	100
TIME OF VISIT					
Office	19	13	7	3	42
Evening	18	13	15	7	53
Night	2	3	0	0	5
TOTAL	39	29	22	10	100

* One of these patients was given antibiotics at the first visit.

† One of these patients was given antibiotics at the second visit.

hour's drive away; it would be easier for patients to return and see me. Even if a few patients did subsequently seek medical care elsewhere, however, it seems likely that most people with earache can be treated conservatively and expectantly.

Both patients and physicians need education. Patients need to be aware that earache is not an emergency condition and that most earaches will resolve within 24 hours; the 91 patients in this series who had experienced the earache for less than a day clearly thought that urgent treatment from a doctor was needed. Physicians need to be aware of the low rate of acute bacterial otitis media in primary care and of strong evidence from primary care studies that they can safely reduce their antibiotic prescribing.¹³ If public perception of the need for urgent care for earache has been influenced by the way doctors act and prescribe, perhaps doctors would be helped by decision rules similar to those developed for use of antibiotics for patients with sore throats.¹⁴

CONCLUSION

A case series can present only relatively weak evidence,¹⁵ but this study suggested to me that most of our patients with earache can be managed well without antibiotic therapy. This differs from the practice of many family physicians at present. ❀

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References

- Nyquist A, Gonzales R, Steiner JF, Sande MA. Antibiotic prescribing for children with colds, upper respiratory tract infections and bronchitis. *JAMA* 1998;279:875-7.
- Teele DW, Klein JO, Rosner B, Ratton L, Fisch GR, Mathieu OR. Middle ear disease and the practice of pediatrics. *JAMA* 1983;249:1026-9.
- Pennie RA. Prospective study of antibiotic prescribing for children. *Can Fam Physician* 1998;44:1850-6.
- Elden LM, Coyte PC. Socioeconomic impact of otitis media in North America. *J Otolaryngol* 1988;27(Suppl 2):9-16.
- Van Buchem FL, Peeters MF, Van T'Hof MA. Acute otitis media: a new treatment strategy. *BMJ* 1985;290:1033-7.
- Rosenfeld RM, Vertrees RE, Carr J, Cipolle RJ, Uden GL, Giebink GS. Clinical efficacy of antimicrobial drugs for acute otitis media: meta-analysis of 5400 children from 33 randomized trials. *J Pediatr* 1994;124:355-67.
- Stephenson J. Icelandic researchers are showing the way to bring down rates of antibiotic-resistant bacteria. *JAMA* 1996;275:175.
- Gonzales R, Steiner JF, Sande MA. Antibiotic prescribing for adults with colds, upper respiratory tract infections, and bronchitis by ambulatory care physicians. *JAMA* 1997;278:901-4.
- Hutchinson JM, Foley RN. Method of physician remuneration and rates of antibiotic prescribing. *Can Med Assoc J* 1999; 160:1013-7.
- Swartz MN. Use of antimicrobial agents and drug resistance. *N Engl J Med* 1997; 337:491-2.
- Seppala H, Klaukka T, Vuopio J, Muotiala A, Helenius H, Lager K. The effects of changes in the consumption of macrolide antibiotics on erythromycin resistance in group A streptococci in Finland. *N Engl J Med* 1997;337:441-6.
- Agency for Health Care Policy and Research. *Guideline: otitis media with effusion in young children*. Rockville, Md: Agency for Health Care Policy and Research; July 1994; AHCPR Guideline Overview #12. Publication 94-0620.
- Froom J, Culpepper L, Jacobs M, Demelker RA, Green LA, van Buchem L, et al. Antimicrobials for acute otitis media? A review from the International Primary Care Network. *BMJ* 1997;315:98-102.
- McIsaac WJ, White D, Tannebaum D, Low DE. A clinical score to reduce unnecessary antibiotic use in patients with sore throat. *Can Med Assoc J* 1998;158:75-83.
- Fletcher RH, Fletcher S, Wagner EH. *Clinical epidemiology: the essentials*. 2nd ed. Baltimore, Md: Williams and Wilkins; 1992. p. 191-2.