though it might be justified if the test was available on an ad hoc basis for the few patients in whom a previous decision has been made that prescribing would be based solely on the outcome of the test. This would result in little use and be uneconomical for the average group practice because of quantity and shelf life.

In the treatment of uncomplicated sore throat our priorities must include reducing overall prescribing rates and avoiding indiscriminate use of broad spectrum antibiotics. Despite recent reports of isolated outbreaks of complicated streptococcal infections from the United States^{27 28} there is good evidence from studies in the United Kingdom that antibiotics have a limited role in preventing glomerulonephritis and rheumatic fever.^{29 30}

While improvements in the sensitivity of rapid antigen tests would be valuable to doctors who seek diagnostic precision, clinical assessment based on a combination of symptoms and signs remains an acceptable alternative.

We thank the participating general practitioners and practice nurses; Mr Ian Rogers of Abbott Diagnostics Ltd; and the Wessex Regional Health Authority for financial support.

References

- Royal College of General Practitioners and Office of Population Censuses and Surveys. *Morbidity statistics from general practice. Third national morbidity survey 1981-1982*. London: HMSO, 1986.
- Shanson DC. *Microbiology in clinical practice*. Bristol: Wright, 1982.
- Breese BB, Hall CB. Beta hemolytic streptococcal diseases. Boston: Houghton Mifflin, 1978.
- Ross PW. Antibiotic treatment of sore throat in Edinburgh children. *Practitioner* 1972;209:47-52.
- Howie JGR. A new look at respiratory illness in general practice. *J R Coll Gen Pract* 1973;23:895-904.
- Howie JGR. Clinical judgment and antibiotic use in general practice. *Br Med J* 1976;ii:1061-4.
- Howie JGR, Bigg AR. Family trends in psychotropic and antibiotic prescribing in general practice. *Br Med J* 1980;280:836-8.
- Kaplan EL, Bisno AL, Derrick W, et al. AHA committee report: prevention of rheumatic fever. *Circulation* 1977;55 (suppl):1-4.
- Komaroff AL. A management strategy for sore throat. *JAMA* 1978;239:1429-32.
- Anonymous. Rapid detection of beta-haemolytic streptococci. *Lancet* 1986;ii:247-8.
- De Neef P. The expanding role of the office laboratory. *J Family Pract* 1986;22:215-6.
- De Neef P. Comparison of tests for streptococcal pharyngitis. *J Family Pract* 1986;23:551-5.
- Gerber MA, Spadaccini LJ, Wright LL, et al. Latex agglutination tests for rapid identification of group A streptococci. *J Pediatr* 1984;105:702-5.
- Kellogg JA, Manzella JP. Detection of group A streptococci in the laboratory or physician's office. *JAMA* 1986;255:2638-42.
- True BL, Carter BL, Driscoll CE, House JD. Effect of a rapid diagnostic method on prescribing patterns and ordering of throat cultures for streptococcal pharyngitis. *J Fam Pract* 1986;23:215-9.
- Wolinsky E, Adams W. Diagnosis of streptococcal pharyngitis by rapid antigen detection from the throat swab. *J Fam Pract* 1986;22:277-8, 280.
- Otero JR, Reyes S, Noriega AR. Rapid diagnosis of group A streptococcal antigen extracted directly from swabs by an enzymatic procedure and used to detect pharyngitis. *J Clin Microbiol* 1983;18:318-20.
- Berkowitz CD, Anthony BF, Kaplan EL, Wolinsky E, Bisno AL. Co-operative study of latex agglutination to identify group A streptococcal antigen on throat swabs in patients with acute pharyngitis. *J Pediatr* 1985;107:89-92.
- Chang MJ, Mohla C. Ten-minute detection of group A streptococci in pediatric throat swabs. *J Clin Microbiol* 1985;21:258-9.
- Fisher P, Mentrup PL. Comparison of throat culture and latex agglutination test for streptococcal pharyngitis. *J Fam Pract* 1986;22:245-8.
- Hjortdahl P, Laerum E, Gaustad P. How reliable and useful is the latex agglutination test in diagnosing streptococcal throat infections in general practice? *Scand J Prim Health Care* 1987;5:151-4.
- Schwabe LD, Small MT, Randall E. Comparison of testpack strep A test kit with culture technique for detection of group A streptococci. *J Clin Microbiol* 1987;25:309-11.
- Makela M. Rapid throat-culture as diagnostic aid: ineffective in decreasing antibiotic prescriptions. *Scand J Prim Health Care* 1987;5:145-50.
- Platts P, Manson PGC, Finch R. Acute pharyngitis: a symptom scorecard and microbiological diagnosis. *Br Med J* 1982;284:387-8.
- Centor RM, Witherspoon JM, Dalton HP, Brody CE, Link K. The diagnosis of strep throat in adults in the emergency room. *Med Decis Making* 1981;1:239-46.
- Breese BB. A simple scorecard for the tentative diagnosis of streptococcal pharyngitis. *Am J Dis Child* 1977;131:514-7.
- Anonymous. Bacterial pharyngitis. *Lancet* 1987;ii:1241-2.
- Veasy GL, Wiedmeier SE, Orsmond GS, et al. Resurgence of acute rheumatic fever in the intermountain area of the United States. *N Engl J Med* 1987;316:421-7.
- Taylor JL, Howie JGR. Antibiotics, sore throats and acute nephritis. *J R Coll Gen Pract* 1983;33:783-6.
- Howie JGR, Fogg BA. Antibiotics, sore throats, and rheumatic fever. *J R Coll Gen Pract* 1985;35:223-4.

(Accepted 22 March 1988)

Survey of general practitioners' treatment of the discharging ear

R C BICKERTON, C ROBERTS, J T LITTLE

Abstract

The prescribing habits of all (401) general practitioners in the North Staffordshire health district for the treatment of otorrhoea was ascertained by questionnaire; 301 (75%) responded. Of those, 198 (66%) would not give topical treatment when the tympanic membrane was perforated. Only 41 (14%) would give topical treatment in cases of discharging grommets. Although there is a theoretical risk of ototoxicity to aminoglycosides in topical preparations, this is the most effective medical treatment and is the standard teaching advocated in specialist textbooks and practised by otolaryngologists.

The results of the survey suggest that there is undue concern about possible ototoxicity and a degree of confusion in the management of this common clinical condition.

North Staffordshire Royal Infirmary, Stoke-on-Trent ST4 7LN

R C BICKERTON, FRCS, senior registrar

C ROBERTS, FRCS, registrar

J T LITTLE, FRCS, consultant otolaryngologist

Correspondence to: Mr R G Bickerton, Birmingham Ear, Nose and Throat Hospital, Birmingham B3 3HH.

Introduction

Both the general practitioner and the otolaryngologist commonly see and treat patients with a discharging ear. This condition occurs in, for example, otitis externa, active chronic suppurative otitis media with a perforated tympanic membrane, and cases of infected grommets.

The standard medical treatment recommended by all recognised textbooks of otolaryngology is adequate aural toilet and periodically instilling a topical preparation containing an antibiotic and steroid solution.^{1,2} The use of systemic antibiotics is invariably ineffective as chronic infection results in fibrosis, so preventing adequate concentrations of antibiotic reaching the site of disease.³

The otolaryngologist who is confronted with a case of otorrhoea secondary to a tympanic membrane defect and infection will follow the guidelines laid down in the standard textbooks. The treatment includes instilling a topical preparation, despite the theoretical risks to the inner ear from the use of potentially ototoxic aminoglycosides in the solution.⁴

The number of requests that we have received from general practitioners asking for advice about the most effective method of treating otorrhoea suggested there was some confusion about the correct management.

We therefore decided to find out how a population of general practitioners treated the discharging ear and what were the attitudes that influenced treatment.

Methods and results

Questionnaires were posted to all general practitioners (n=401) in the North Staffordshire health district; 301 (75%) replied. Questions included the type of treatment given, whether topical, systemic, or a combination of both, and the specific preparation prescribed. General practitioners were asked if they would use a topical preparation in patients who also had a perforation or infected grommets.

Of the 301 doctors who responded, 214 (71%) said they would treat the condition with a combination of systemic antibiotics and topical preparations. Topical preparations were used by 29 (10%) and systemic antibiotics alone by 57 (19%). Amoxycillin (150) and ampicillin (31) were the most commonly prescribed antibiotics, cotrimoxazole (24) being the next popular. The topical preparation containing polymyxin, neomycin and hydrocortisone was prescribed by 175 of doctors followed in frequency by triamcinolone, neomycin, and benzocaine by 41.

A total of 198 (66%) general practitioners would not prescribe topical treatment when there was a perforation, and 101 (33%) would. In cases of infected grommets 256 (85%) would not give topical treatment compared with 41 (14%) who would; 226 (75%) were concerned by the possibility of ototoxicity of topical treatment when there was a perforation.

Discussion

A large proportion—three fourths—of general practitioners participated in the survey, and there is nothing to suggest that the results are not representative of most practices throughout Britain. It seems that the management of the discharging ear in general practice is very different from the treatment advocated by the standard textbooks on the subject.

Only a third of the doctors were prepared to use ear drops when there was also a perforation and even fewer (14%) in cases of a discharge due to an infected ear with a grommet in situ. Of the 191 who would not prescribe topical treatment when there was a perforation, 154 (80%) were concerned about ototoxicity. And of the 250 who did not treat cases of discharging grommets with topical preparations, 204 (82%) were concerned about ototoxicity.

Although there is a theoretical risk of ototoxicity when an aminoglycoside is used and there is a perforation, the cases that do occur excite enough interest for them to be reported separately.⁵ Prescribing information is available to general practitioners from various sources including the *British National Formulary* and the *Monthly Index of Medical Specialities*. At present each provides conflicting advice. The first states that, "Aminoglycosides and polymyxins are potentially ototoxic when used topically in the ear,

and are contra-indicated if the oval or round window membranes are known or suspected to be perforated."⁶ We suspected that many readers were confusing the reference to the oval and round window membrane, a perforation of which is rarely seen in general clinical practice, with the tympanic membrane. The Joint Formulary Committee accepted that this was misleading and the sentence would be revised (personal communication). The text, however, continues, "If the eardrum is not intact it is probably unwise to use an aminoglycoside in the ear."⁶ We also suggested that this too should be amended to concur with the advice given in *MIMS*, which states, "Topical aminoglycosides carry a slight risk of inducing hearing loss, but this should be weighed against potential hearing loss from chronic infection."⁷

We emphasise that before any topical preparation is applied the ear canal should be thoroughly cleaned of debris and discharge as it is useless to pour drops down the ear canal and expect them to come into contact with the inflamed middle ear mucosa. The trend among otologists is to use one of the many topical preparations containing an antibiotic, fungicide, and, of greatest importance, an anti-inflammatory steroid. These preparations have tended to replace iodine and boric acid powder, which has been in use for many years.

The findings of the survey highlight the confusion in the management of this common condition and suggest that a high proportion of doctors are unduly concerned about potential ototoxicity when the discharging ear also has a perforation and thus withhold topical treatment.

We thank all those medical practitioners in the North Staffordshire health district who participated in the survey.

References

- 1 Kerr AG, Groves J. *Scott-Brown's diseases of the ear, nose and throat*. 5th ed. London: Butterworths, 1987:215-37.
- 2 Cummings CW, Harker LA. *Otolaryngology—head and neck surgery*. Toronto: Mosby, 1986:2963-88.
- 3 Mawson SR, Ludman L. *Diseases of the ear*. London: Arnold, 1979:304-65.
- 4 Harada T, Iwamori M, Nagai Y, Nomura Y. Ototoxicity of neomycin and its penetration through the round window membrane into the perilymph. *Ann Otol Rhinol Laryngol* 1986;95:404-8.
- 5 Lind O, Kristiansen B. Deafness after treatment with ear drops containing neomycin, gramicidin and dexamethasone. *ORL* 1986;48:52-4.
- 6 BMA and Pharmaceutical Society of Great Britain. *British national formulary*. No 14. London: BMA and Pharmaceutical Society of Great Britain, 1987:12.
- 7 Duncan C. *Monthly index of medical specialities*. London: Medical Mailing Company, 1987.

(Accepted 14 March 1988)

ONE HUNDRED YEARS AGO

The proposal of the Chancellor of the Exchequer to impose new duties on horses and vehicles naturally provokes opposition. Taxes which increase the expense of locomotion are not only irksome to those who have to pay them, but they increase the cost of articles—especially heavy ones—which have to be moved from one locality to another. The answer to objections to the proposed new taxes is that the maintenance of roads necessarily involves expenses, which have to be defrayed from some source, and that it is fair that those who use and wear out the roads should contribute to some portion of the cost of their repair. Such an answer is weighty, and it seems impossible to deny that in principle the proposed taxes are fair enough, though their incidence, unless modified, seems likely to be unequal. Many different interests have made themselves heard, each with the object of showing that it is entitled to some relief or exemption, and at present the question as to what exemptions, if any, are to be allowed is still undetermined. We notice, however, with satisfaction that Mr. Goschen seems disposed to view favourably the claims of professional men; and that two classes, namely, country clergymen and doctors, on whom the proposed taxes would press heavily, seem to have a chance of obtaining relief.

It has been rightly urged on their behalf that they use horses not for pleasure, but as a part of the outfit necessary for carrying on their profession, and that a tax on such things is unfair. It is admitted on all hands that things necessarily used in a trade or business should, if possible, be exempt from taxation, and, as regards carts and horses, Mr. Goschen has from the first proposed that those used for farm purposes, though usually heavy, and therefore destructive to the roads, should be untaxed. The case for the

county doctor seems at least as strong. There his vehicle is used to convey not goods but himself, but he is required to travel for the benefit of other people, and his carriage, being light, does not cause very much wear and tear to the roads. Most practitioners, if they had their choice, would probably prefer to be visited by their patients in a consulting-room rather than to be obliged to drive long distances, often in bad weather, to see them at their own homes.

No one, as far as we are aware, has disputed, or can dispute, that carriages so used by professional men are not generally used for pleasure, and few would object to their claim to partial, if not total, exemption from the proposed taxes. We are glad to be able to point to a precedent which shows that such claims are legally recognised as valid. By the Income Tax Act of 1853, in assessing the duty chargeable in respect of any public office or employment, "the expenses of travelling in the performance of the duties thereof, and of keeping and maintaining a horse to enable" the person chargeable "to perform the same," are to be deducted before the income chargeable is ascertained. It is, therefore, clear that in some cases locomotion is considered by law as a matter of expense, to be deducted before a man's earnings are ascertained. In fact, and in the public estimation, a doctor's carriage is generally as much a part of his professional outfit as his instruments or his library. According to modern economical science, taxes should not be imposed on such things, and we venture to hope that Mr. Goschen will be able to carry out his half expressed intention, and to give to struggling professional men the exemption which they need, and which, on principle, they ought to have.

(*British Medical Journal* 1888;ii:711)