

Deafness after otitis media in general practice

P. W. BARRITT, MB, MRCP

General Practitioner, Shrewsbury

P. J. DARBYSHIRE, MB, MRCP

Leukaemia Research Fund Clinical Fellow, Bristol Royal Hospital for Sick Children

SUMMARY. Forty-one children between the ages of four and 10 years who presented with acute otitis media were offered routine audiometry six weeks after the attack. Fifteen of the 39 children who attended audiometry failed the test at six weeks, and eight children had a persistent hearing loss of 30 decibels (dB) or greater at three months and so were referred to an ENT specialist. In all these eight children an abnormal tympanic membrane had been detected before audiograms were seen. The mother's opinion of the child's hearing and the assessment by the doctor using tuning fork and whisper test were much less accurate. A total of 17 children had abnormal auroscopic appearances and 11 of these failed their first audiogram, eight failed the second and they were therefore referred.

It is suggested that general practitioners should examine the ears of children six weeks after an attack of otitis media. Those children with abnormal tympanic membranes should undergo audiometry at three months, and those whose audiograms fail should then be referred.

Introduction

IT HAS been demonstrated repeatedly that acute otitis media in children predisposes to secretory otitis media, with consequent loss of hearing.¹⁻⁴ This hearing loss has been shown to be detrimental to learning.^{5,6} It can, however, be alleviated by myringotomy, with or without insertion of grommets.⁷

The detection of hearing loss can be difficult. Most cases of otitis are treated by the general practitioner, who seldom has access to tympanometry or to an audiologist prepared to examine children under the age of four years. Enthusiasm is required from doctors, parents and children for routine audiometry to be performed on every child after an attack of otitis media, but on a national scale the cost would clearly be prohibitive.

In this study the available screening methods for detecting loss of hearing were compared.

Method

For a period of six months, all cases of earache in a four-man semirural practice were seen by the group's trainee general practitioner. Only children under the age of 10 years were included, and a total of 77 children were studied.

Otitis media was diagnosed when earache was associated with a red or perforated eardrum; in younger children, a red eardrum combined with constitutional upset were acceptable criteria.

Treatment was started either by the trainee or by the patient's own doctor, using a specified range of antibiotics (penicillin, amoxycillin, erythromycin or cotrimoxazole) and a minimum course of five days. The use of decongestants was optional. The trainee saw each patient within 24 hours of presentation, and again at one week to assess the response to treatment. At six weeks, the trainee noted the mother's opinion about any hearing loss, examined the child and tried to assess hearing using tuning fork and whisper tests. Afterwards, pure-tone audiometry was performed by a tester who was unaware of the doctor's findings. Audiograms indicating loss of hearing to the extent of 30 dB or greater at any frequency from 250 to 8,000 hertz (Hz) were retaken at three months. Children with a persistent hearing loss of 30 dB or greater were then referred to an ear, nose and throat (ENT) surgeon.

Results

In the period September 1980 to February 1981, 77 children suffered a total of 94 attacks of otitis media. One child suffered five separate attacks in that time, and 11 children (14 per cent) had recurrent infection. The otitis was bilateral in 27 cases (29 per cent), right-sided in 32 cases (34 per cent) and left-sided in 35 cases (37 per cent). Perforation of the eardrum occurred in four cases (5 per cent).

Children and parents were questioned about symptoms on first presentation. Pain in the ear was the only symptom in 9 per cent of the cases. Of the remainder, the majority of children complained of earache combined with symptoms indicating upper respiratory tract infection (85 per cent); other symptoms were also mentioned (Table 1).

Treatment, within the stated guidelines, was left to the discretion of the individual partner. For children under the age of five years amoxycillin was prescribed in 85 per cent of the cases, cotrimoxazole in 11 per cent of cases and penicillin V in 4 per cent. Of the children over

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five years of age, 55 per cent received amoxycillin, 35 per cent received penicillin V, 8 per cent received erythromycin and 2 per cent received cotrimoxazole. Eight children required a further course of a different antibiotic, because of either drug sensitivity or an inadequate response to treatment; three of these patients were initially on penicillin V, the remaining five were on amoxycillin. In addition, decongestants were given in 44 per cent of cases.

Impedance tympanometry was not available at the health centre, nor was the audiologist qualified to test children under the age of four years. Thirty-six children were therefore too young to be tested. A further two children failed to attend despite repeated communication and a visit from the trainee. A total of 39 children attended for audiometry: 24 children passed the first test; seven children who failed the first test passed the second one at three months; eight children had persistent deafness at three months and so were referred to an ENT surgeon.

Of the 24 children who passed the audiometric test first time, six had eardrums that appeared abnormal and two children were thought by their mothers to be deaf; the whisper test suggested deafness in three cases and the Weber test was localized in six children; the use of the Rinnie test was abandoned as it seemed to confuse the children, particularly the younger ones. Four of the 15 children who failed the audiometric test at six weeks were considered by their mothers to be deaf; the whisper test detected deafness in seven cases and the Weber test was correctly localized in six cases;

11 of these patients had an abnormal appearance to the tympanic membrane. At three months, only eight children still had deafness and all of these children had had auroscopic abnormalities at six weeks; the Weber test was abnormal in four children and the whisper test in three; only two of the children were thought by their parents to be deaf. The four children with healthy tympanic membranes who failed with their first audiogram subsequently passed with the second.

The results were analysed to see if any aspects of the children's histories would define a high-risk group. The results are presented in Table 2. The number of episodes of otitis media previously suffered by the child were noted at first presentation. A positive history of allergy was taken when atopy was present either in the child or in the immediate family (parents or siblings).

Discussion

It would be foolish to draw wide-ranging conclusions from this small study. Nevertheless the results do suggest that for children with normal eardrums audiometry is unnecessary after otitis media. The appearance of the eardrum is a more accurate predictor of deafness than the opinion of either the doctor or the mother or any aspect elucidated in the history.

This trial was intended to demonstrate the practical difficulties in dealing with otitis media in general practice. Studies have conclusively shown that young children, particularly those under the age of two years, are most susceptible to effusions in the middle ear.⁴ Furthermore, the effect of hearing loss on learning skills is most marked in children who suffer from otitis media while under the age of two years.⁵ In our trial, 47 per cent of the children were not tested for deafness owing to the lack of appropriate facilities.

The exact nature of the auroscopic abnormalities was not specified. It was felt that most general practitioners could confidently tell normal from abnormal eardrums, but that the changes might be difficult to define. In this study the commonest abnormalities were loss of light reflex, dullness of the tympanic membrane and fluid levels. For the purpose of analysis, it was assumed that

Table 1. Symptoms in children with otitis media on first presentation, in addition to earache.

Symptom	Percentage of children
Upper respiratory tract infection	85
Fever	36
Anorexia	35
Vomiting	20
Abdominal pain	11
Deafness	7

Table 2. Results of audiometry in relation to the children's history.

Audiogram result	Number of cases	Previous number of episodes of otitis media			History of allergy (%)	Decongestants used (%)
		0 (%)	0-5 (%)	5+ (%)		
Passed first	24	21	54	25	50	42
Passed second	7	29	42	29	42	29
Failed second	8	12	38	50	50	63
Child too young	36	50	47	3	47	44
Child failed to attend	2	0	100	0	100	50
All cases	77	34	49	17	49	44

DOCTORS TALKING TO PATIENTS

Doctors talking to patients, by Professor P. S. Byrne, a distinguished past-President of the Royal College of General Practitioners, and Dr B. E. L. Long, an expert educationalist, was first published by HMSO in 1976.

This well known book has made a major contribution to the understanding of the consultation in general practice and illustrates the potential for using modern methods of recording for analysing the problems of doctor-patient communication.

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Doctors talking to patients can be obtained from the Publications Sales Office, Royal College of General Practitioners, 8 Queen Street, Edinburgh EH2 1JE, price £10.50, including postage. Payment should be made with order.

A HISTORY OF THE ROYAL COLLEGE OF GENERAL PRACTITIONERS The First 25 Years

This book records early attempts to form a College, the birth of the College itself, and the story of its growth through childhood to maturity. Edited by three distinguished founder members, John Fry, Lord Hunt of Fawley and R.J.F.H. Pinsent, it is a fascinating tribute to the enthusiasm, persistence and dedication of the men who made the College.

Written by those who were actually involved in its development, the chapters describe not only the story of the structure and organization of the College as a whole but of each of its component parts. Thus its involvement with medical education, standards, research and literature is described as well as relationships with other bodies at home and abroad—and a glimpse into the future.

Undoubtedly a success story, this account of the first 25 years of the College is recommended to those interested not only in the College but in the evolution of general practice itself. Copies can be obtained from the Publications Sales Department, Royal College of General Practitioners, 8 Queen Street, Edinburgh EH2 1JE, price £10 to members, £12 to non-members, including postage. Payment should be made with order.

the audiometric readings were correct, but factors such as background noise and observer error were unavoidable. Attempts to gain impedance tympanometry for the trial were unsuccessful.

Of the 39 children who attended for audiometry, eight required referral (21 per cent). Most of the children were given a seven-day course of antibiotic as it was felt that longer courses would lessen compliance. The use of decongestants did not appear to have any influence on the development of secretory otitis media. A history of allergy was common among the children with otitis media (49 per cent) but did not appear to be related to secretory otitis. Children who had had previous episodes of otitis media were more likely to develop deafness but the correlation was not strong. The incidence of allergy in children with recurrences during the study period was 37 per cent.

Conclusion

It is suggested that general practitioners should examine the ears of children six weeks after an attack of otitis media. Those with abnormal tympanic membranes should have audiometry performed at three months, and those who fail should then be referred to an ENT specialist.

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Address for correspondence

Dr P. W. Barritt, 1 Beeches Road, Bayston Hill, Shrewsbury SY3 0PF.

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