### BRITISH MEDICAL JOURNAL VOLUME 290 29 JUNE 1985

minimum. The general practitioner could use part of the consultation time to take a more detailed drinking history in those with positive responses to the questionnaire, in intervening where appropriate with advice to reduce consumption. Evaluation of the effectiveness of such intervenion should now be carried out, preferably by means of a randomized controlled trial.

A FIRMODINAGE CONTROLLED THAIL

WE thank the X prijest Thorn Charitable Truss and the Royal College of
General Practitioners for the award of the Research Fellowship in General
Practice, our collegues Dr. Bowman, Gielert, and Teutine for their kind
cooperation, Angela Booorff, Dr Richard Budgert, Eva Goldenberg, Danuta
Loorday, Paula Morgan, and Janed Storefo for help in carrying out the study.
Berenan, and Douglas Jones for help with the data analysis, Jane Wedowech
and Judah Damond of undertaking statistical analyses; Dr High Marhouse
for helpful comments, Professor T Whatchead for undertaking beochemical
analyses; and the Department of Hearninology, Northwick Park Hospital
for the measurements of mean corpus, ular volume. We gratefully acknowledge financial support for the visule by the Prever's Society.

Collect Mealth Economics (Modof) rishs ang the harm: Lution: Whate Crescent, 1981.

# Study of middle ear disease using tympanometry in general practice

RANDALL REVES, RICHARD BUDGETT, DAVID MILLER, JANE WADSWORTH, ANDREW HAINES

Abstract
Tympanometry was used to provide evidence of middle ear effusions in a prospective study of middle ear disease in 264 children aged 3 months to 6 years in general practice. Adequate measurements on both ears were obtained in 220 children, of whom 68 (31%) had evidence of middle ear effusion in one ear (27 children) or both ears (37 children) at entry to the study, In 23 (42%) of the 68 children persistence of the tympanometric early of the control of the con

Correspondence to: Dr Andrew Haines, Horace Joules Hall, Central Hospital, London NW10 7NS

Introduction

Middle ear effusion is a common cause of hearing impairment in children but may be undetected by otoscopic examination. "For epidemological purposes audiometry alone seems to be inadequate for the detection of middle ear dissess since a proportion of children with an effusion have no evidence of clinically relevant hearing loss." The use of tympanometry in addition to audiometry in screening programmes in schools has been proposed, with repeat testing programmes in schools has been proposed, with repeat testing programmes in schools has been proposed, with repeat testing shoormal tympanograms. There is concern that some children with chronic effusions but normal hearing may remain otherwise undetected until they present later in life with treversible middle ear disease and mastoid complications. The results of a recent study in London's uggest that 20% of 5 to 6 year old children may need referral because of persistently abnormal tympanograms. Even in those children in whom defineess is associated with effusion parents losses may lead to delay in speech and cognitive development."

Although a persistent effusion may follow an epitode of otitis media, many children with middle ear effusion have no such history. Community studies of children pounger than 5 years with tympanometry have been undertaken in other countries, such as Demark, but apparently out in the United Kingdon ma'vatence of programmenter." Bhormalities' in British children, to examine the factors associated with tympanometric evidence of middle ear

BRITISH MEDICAL, DOUBNAL. VOLUME, 290. 29 JUNE, 1985: effusion: 18 (23%) of 71 compared with 49 (38%) of 130 ( $\chi^2 = 49$ , p.=0.05). The percelance of a type B lympanogram in one or both cars was 17 (26%) in The percelance of a type B lympanogram in one or both cars was 17 (26%) in shilling had no history of orits media as recalled by their parents had type B compared with 29 (45%) of 64 (history whose shilling had no history of orits media as recalled by their parents had type B compared with 29 (45%) of 64 (history of interest whose shilling had a positive history of orits media as recalled by their parents had type B coupled by 19 (19 km) of 111 (hiddren without liness, 10 (20%) of 51 with cutarrh and cough or couplis alone, 19 (39%) of 48 with couple accompaned by (ver., anoretas, or wanning, and seven (70%) of 10 with earsche ( $\chi^2 = 12.1$ , 3 df, p = 0.007). There were no sugnificant associations of type B typenograms with a child as recalled by the parent, history of stopy (buy fever, asthma, or extrans), mother's smoking, breast feeding, supune bottle feeding, or contains a compared to the parent; records before entry into the uturly showed that A review of the patients' records before entry into the uturly showed that A review of the patients' records before entry into the uturly showed that A review of the patients' records before entry into the uturly showed that A review of the patients' records before entry into the uturly showed that A review of the patients' records before entry into the uturly showed that A review of the patients' records before entry into the uturly showed that A review of the patients' records before entry into the uturly showed that A review of the patients' records before entry into the uturly showed that A review of the patients' and A review of the patients' and

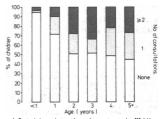


TABLE IV.—Association of previous history of otitis media and tymp torth subsequent consultation for otitis media during follow up period

Lympucyman	Previous consultations for states media			
trust stee	Nonct	*1	Total	
AA	255-4	6.28 (21)	\$/\$3 ( HO)	
AvC	2 39 . 5	11 30:37:	13:60(19:	
в•	4 36 11	13.32:41:	17:68:25)	
Total	8 (30 · 6 ·	30 90 : 33 :	38 229:17:	

† Proportion and percentage who consuled no southerful media is the follow up period Effect of transparagram shaulds traver  $\chi^2 = 44$ , NS Lifect of preprints consultation  $\chi^2 = 25$  6, p. 0.001 Resolut  $\chi^2 = 0.5$ 1.

previous history; 33% of those with a positive history subsequently consulted for acute outsin media. This was pronounced among children aged over 3 years; all but one of the 12 consultations for ottis media during follow up were with children who had had a previous diagnosted episode.

At least one reject injuspangeram was obtained on 181 (42%) of the 220 (42%

Initial tympanogram type		No. S.	No mean) of visits after	Final tympenogram type : N		
(worst car)	No	followed up	metal examination	В	AsC.	٨
8	- 14	64:94:	186 (2:9)	35 - 55 )	19 (30)	10 (16)
As/C	69	57 (83)	131 (2:3)	11.19	23 (40)	23 :40
Α	23	60 (72)	91 (1.5)	#:13:	14 (23)	38 (65)
Total	220	181:82)	40x · 2 3:	54 . 301	56 (31)	71:39:

Discussion

The prevalence of middle ear effusion as shown by tympanometry in a prospective community study in Denmark was approximately 20% of 3 year of children, the effusion persisting for three months in only 6% of the whole population. "In our study, over a broader age range," in the control of the control of the property of th

varying degrees of estataman tude dystanction or resolving muid, or both the study of middle and disease is complicated because there seem to be several diagnostic entities—scute oritis media, recurrent oritis media, and persistent oritis media with or without super-imposed acute oritis media." The ability to detect middle ear effusion is a critical determinant in any study of the incidence, prevalence, natural history, and response to treatment of these conditions. The differences in age specific incidence that were described in studies in Finland and Demmark, in which the highest incidence was in children under 2, and the 1957 Medical Research

## 1954

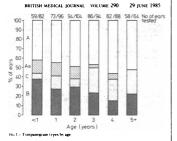
Methods

The could was carried out in a general practice at a health centre in north west London that its situated on a council bouring estate and serves a deprived population. Using the age-sex regaster, we destrifted all 295 children aged 3 months to 6 wars on 31 October 1983 and sem letters to the presents explaining the could and requesting attendance at the health the study. In a brief standard interview questions were asked on presons house of outside model and presents without a study. In a brief standard interview questions were asked on presons house of outside model in the partner specified by the study. In a brief standard interview questions were asked on presons house of outside present sensitions, and a history of stopy hosp fever, of the council of the study of the present sensition of the present sensition. One, one was the presumation occopic. This allows the observer to determine the mobility of the cardium during alteration in pressure in the external and office are produced by the other sensition. The other sensition of the observer is the presentation of the observer is the presentation of the observer is the presentation of the presentation of the observer of the observer of about 100 cm. The observer is the presentation of the observer is the presentation of the observer of the observer is the presentation of the observer is the presentation of the observer is the observer in the legent classification. Middle ear pressure was considered in normal at 0.0 and to a down the legent classification. In Middle ear pressure was considered in normal at 0.0 and to a down the legent classification.

Type	3 vmpenegraphs findings	Pathological associations (11)
٨	Normal pressure, normal compliance (peak at normal pressure)	Very small propurties - PS: have effected
A٠	Normal pressure, low compliance small peak at nermal pressure.	Variable proportion #-75%:

s compliance and middle car pressure 100 mm H-O vi indecerminate available that open before 100 mm H-O; pative pressure, memal compliance peak at 16-33% associated with officion

A total of 452 ears in 232 children were successfully tested by tympanometry in 12 children only one ear was successfully tested). In children under 2 ears in 4% of ears were successfully tested by tympanometry compared with 91% in those over 2 years 17% of graph 1 whose the proportion of tympanogram types by age for the 452 ears. Type 8 tympanograms were



ottocopy were compared with tympamometry for the 86c ears that had bad complete ottocopy examinations and tympamometry. This comparison excluded the ears without adequate visualisation of the tympamic membrane (n=63) and the surf for which mobility was not terred by pneumatic membrane (n=64) and the surf for which mobility was not terred by pneumatic surface and the surface of t

	Normal	Reduced or absent mobiles	Total
Normal appearance	20 264 (8)	IB:40:45:	33-304 (13)
Abnormal appearance	2.7:29	45-55(82)	47/62   76:
Total	22 271 (8)	. 63/95/66/	85 366 (23)

TABLE III—Comparison of the appearance of the tympanic membrane alone tutch the appearance plus mobility in identifying ears with type B

	Appearance alone*	Appearance and mobility†
Sensitivity	47-85 (55)	65 85 (76)
Specificatyt	266 281 95	244-281 (87)
False positives	15/62 (24)	37 102 36:
False negatives	38/904 (12)	20(264 (8)

Council study in the United Kingdom in which the peak annual incidence was around 6 years of age may reflect differing diagnostic moderness of the peak annual incidence was around 6 years of age may reflect differing diagnostic children with recent respiratory infections or outlage may pick up some persistent effusions, but many will remain undetected as they are present in children without such a history.

The use of the tympanometer is acceptable to patients and easy to learn, but a comprehensive community screening programme does not seem to be indicated until further information is available, practices and its effect on child development and the probability of developing irreversible middle ear disease. Tympanometry can never replace audiometry as a screening instrument because it will not detect neurosensory deafness. Until the role of tympanometry in eneral practice is clarified it seems resonable for general practicus outs is clarified it seems resonable for general practicus outs of scalent in developing middle ear effusion.

We thank jaksie Bennett, Janet Striste, and Shela Forman for clerical

# BRITISH MEDICAL JOURNAL VOLUME 290 29 JUNE 1985

Med J (Clin Res Ed): first published as 10.1136/bmj.290.6486.1953 on 29 June 1985. Downloaded from http://www.bmj.com/ on 23 April 2024 by guest. Protected by copyright

References

- Blacusine CD, Derro (M.) Persion JL. Audiomitris and intropasations in related to refluence in children. Lempos on 197-183 194-604.

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or propriit Change and 642 217-22 among offen finds a descriptor other title Among organization of the control of the control

### 100 YEARS AGO

The conference between the Subcommittee for Medicine of the Executive Committee of the Association for promoting a teaching University for London, and representatives of the Medical Schools on London, was commenced on Monday list; at the rosens of the Society of Arts. An outline control of Monday list; at the rosens of the Society of Arts. An outline control of the Monday list, at the rosens of the Society of Arts. An outline control than one cocasion, provided that the University should be founded on facilities a constituent bodies, with Board of studies appointed by the property of the Control of Society of Arts. An outline control than one cocasion, provided that the University should be founded on facilities as continuents to a continuent proposed that the Faculty of Medicine thould consust of the teachers, naturally assented, further, it was thought that only the senior teachers should be admirted, and that the younger men he assistant produces, the demonstration of the theory of the control of the student by the control of Souder which they control the production of the future University, should be racluded. This very select body, miscaled as Faculty of Medicine, would deet at Board of Studies which would regulate the curriculum, the examinations, and all other nativer relating to degree in medicancy subset to the final details of Studies which would regulate the curriculum, the examinations, and all other nativer relating to degree in medicancy subset to the final details of Studies which would regulate the curriculum, the examinations, and all other nativer relating to degree in medicancy subset to the final details of Studies which the cannot constitute by which it would be elected would have merely an indirect electric to the final details of the proving an indirect electric military to the subset of the proving and the University with a stuff of professors, laboratories for research, and all the University with a stuff of professors, laboratories for research, and all the monday or understand the sub

Acker—This fruit is a delicesy in Jamaica and is used in "bush tea." The ripe fruit can be eaten after a meal without ill effects, but if it is unique it may be positioned. It is used to the contract of the contract of the position of the hypoglycan B. This may result in womining (Jamaican womining sections), comma, and even disadd not in severe delivitation. Three quarters of the West offer my boson contract of the West offer my boson con holidary and bring timed ackee back with them, which may contain suring feature.

Ginger heasors—Perserved ginger root is a popular Chinese stack and, if it is not chewed properly or is eaten an a hurry, can cause small bowel obstruction at the ideoxecal junction. The ginger root consists of cellulose, which is resistant to gastric junces, absorbs water, and swells up during transit-through the gui. An delerly Chinese dult patient or a child may complain of pain in the right late foots. This must be considered in the differential diagnoses of acute abdomen.