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The average hearing loss due to bilateral OME was small for all algorithms (range 6–12 dB). The use of different algorithms however resulted in large differences in prevalence rates of bilateral OME (range 11–39%). The implications for studies on epidemiology and sequelae of OME are discussed.

Ventilation tube insertion in The Netherlands: incidence in children from birth to 12 years of age

J.A.M. ENGEL, L.J.C. ANTEUNIS & J.J.T. HENDRIKS
(Nijmegen, Maastricht)

The treatment of otitis media with ventilation tubes is a frequently performed procedure, but the exact incidence is not known in The Netherlands. In order to get better insight into the incidence of the insertion of ventilation tubes in children (age: 0–12 years), data from 1990 to 1994 were studied. Figures from the National Medical Register information system of SIG Health Care Information were combined with demographic data from the National Department of Statistics. The analysed data showed that yearly on average 47 000 children (incidence 2%) were treated with ventilation tubes. Whereas from 1990 to 1992 the incidence rapidly increased in the range of 8 to 20%, the rates slowly decreased in 1993 (1.3%) and 1994 (4.5%).

The incidence is strongly related with age. Incidence peaks were found at the age of 16 months and 5 years, i.e. on average 6000 infants between the age of 12 and 24 months (incidence 3.3%) and 16 000 in 4- to 5-year-old children (incidence 4.4%). The peaks correspond in time with hearing screening at the baby-clinic and at the start of regular schooling, as it is usually performed in the Netherlands.

In conclusion, the incidence of treatment with ventilation tubes is age dependent and appears to be more influenced by hearing-screening than by the incidence of otitis media, as reported in the literature.

Wedge resection of the external auditory canal—the technique of Feldmann

P.G.B. MIRCK (Amsterdam Academic Medical Center)

For the surgical treatment of cholesteatoma the otologist may perform an ‘open’ or ‘closed’ operation. Wedge resection of the external auditory canal is an improvement of Feldmann’s technique in which the advantages of open and closed technique are combined. An open cavity is created temporarily, as the wedge will be replaced after the matrix has been removed meticulously under optimal direct vision. At a second operation ossicular chain reconstruction will be possible.

In 31 patients 34 ears have been operated upon. From 31 ears the data after the second look are available.

From these 31 ears 28 (90%) were free from cholesteatoma and had ossicular chain reconstruction. In three (10%) cases radical mastoidectomy was performed because of residual cholesteatoma.

Until now, from 23 ears with middle ear reconstruction a postoperative audiogram was done: 17 (74%) have a Fletcher Index less than 30 dB.

The complication rate is low: in two cases we noted a temporary facial paresis. One case ended in a deaf ear by luxation of the incus–stapes. After this event we decided to remove the incus anyway before starting the wedge resection.

It is concluded that wedge resection of the external auditory canal needs more attention and especially in children it is a worthwhile operative technique to prevent a radical cavity.

Conditioned orientation response audiometry: both useful and feasible in very young infants

R.N.P.M. RINKEL, L.J.C. ANTEUNIS, J.A.M. ENGEL, J.J.T. HENDRIKS & E.H.M.A. MARRES (Maastricht)

The maturation of the minimum response level (MRL) to narrow-band noises (NBN) during the first years of life was assessed within the framework of a larger prospective longitudinal study of early otitis media. It was found that at the age of 20–30 weeks, using behavioural observation audiometry (BOA), that the fifth and 95th percentile points of the average response levels in normal hearing full-term newborns were 62 dB and 77 dBHL. When conditioned orientation response (COR) was used, in other infants of the same age, these points were 22 dB and 39 dBHL.

For further evaluation and comparison of the MRLs for both methods, a group of 50 consecutive infants (age 20–30 weeks) was tested, both with BOA and COR within the same session. When BOA was performed first, the COR-thresholds were ±25 dB lower. When COR was performed first, the obtained BOA-thresholds obtained afterwards were better due to the sustained effect of the conditioning.

These results indicate that even in infants of 20–30 weeks, COR can be used as an audiological instrument in a clinical setting. The obtained thresholds in COR are better estimates of the true hearing threshold.

Speech perception and speech production results in prelingually deaf children with a cochlear implant

C.P.L. GELEEN, A.M. VERMEULEN, P. VAN DEN BROEK, J.P.L. BROKK & A.F.M. SNIK (University Hospital Nijmegen, Institute for the Deaf, St. Michielsgestel)

A cochlear implant in adults helps restore hearing. Moreover, in children it facilitates the learning of speech and spoken language.

Twenty prelingually deafened children with a cochlear
The common method of hearing aid fitting in The Netherlands

J.v.Kr.SCIIUURK, W.A.I) R

"'I 1997 Blackwell Science Ltd, (Rotterdam, Amsterdam Academic Medical Centre)

approach.

strated in the different intervention strategies. Early diagnosis

and treatment is

general development retardation.

language impairment was part of a more

language acquisition disorders in young children are demon­

and early intervention. The heterogeneity and complexity of

children were referred for ENT treatment and two were seen

in 10% of the children revealed the psychological tests, all children underwent one or more audiological

otological history (OME mainly) with 50% .surgical treat­

formed. In this retrospective study the following data of this

in 1992 and 1993 about 120 children younger than

children were referred for speech and language development. Besides the speech-patho­

language disorder (UAO) and the Picture

arrangement.

Hydrops of the endolymphatic system in the inner ear is considered as the histopathological substrate of Meniere's disease. As a result of the disturbance of the endolymph homoeostasis an increase in volume and pressure arises in the endolymphatic compartment leading to inner ear dysfunction. The patho­

physiological mechanism however remains unclear.

To obtain more insight into the volume and pressure reg­

mechanisms of the inner ear fluids an experimental animal model was developed.

Perilymphatic pressure was measured in 23 normal guinea­

pigs. The distribution of these pressure values had a maximum

implant were evaluated for a period of 1–3 years. Six children

are congenitally deaf, the remainder are deaf due to menin­

gitis. Four children have a partial insertion of the electrode

array.

Speech perception was evaluated with the Gestel–Nijmegen

Speech perception test. Speech production was evaluated with the Utrechts Articulatie Onderzoek (UAO) and the Picture SPeech INtelligibility Evaluation (SPINE). There was consid­
erable improvement in speech perception and production. Six months after implantation, 50% of the children were still unintelligible or made 15 errors or more on the UAO. Before implantation this was 80%. Two years after implantation each child, irrespective of age, made five errors or fewer. Almost half of the number of children made no errors at all.

Early diagnosis and early intervention of speech language disorders in toddlers

B.B. Buzkers & J.j.T. Ieendrieks (Maastricht)

In the last decade, children younger than 3 years of age have often been referred to our clinic for speech and language disorders. In 1992 and 1993 about 120 children younger than 3 years of age were referred to our clinic for evaluation of speech and language development. Besides the speech-patho­

tical tests, all children underwent one or more audiological

Examination that the language impairment was part of a more

language acquisition disorders, 38% had only expressive

speech and language development. Besides the speech-patho­

logical tests, all children underwent one or more audiological

test. If indicated also a psychological investigation was per­

formed. In this retrospective study the following data of this

group were analysed: the mean age was 28 months (sd = 4);

78% were boys; nearly 70% was referred by ENT; 84% had

otological history (OME mainly) with 50% surgical treat­

ment; the results of the first audiological examination show

that 64 children have a normal hearing in at least one ear; 40
children were referred for ENT treatment and two were seen

for further diagnosis and hearing aid fitting; in speech-lang­

guage examination we found 45% children with receptive

and expressive language disorders, 38% had only expressive

language disorders; in 10% of the children revealed the psychological examination that the language impairment was part of a more

general development retardation.

The results of this trial offer the prospects of early diagnosis

cally and early intervention. The heterogeneity and complexity of

language acquisition disorders in young children are demon­

strated in the different intervention strategies. Early diagnosis

treatment is possible but involves multidisciplinary

approach.

Fitting procedures of hearing aids

J. Verschuure, W.a. Drischler, M. Miltelaar, M. B. Brocaar & E.e. Van De Engel-Brinkhof

(Rotterdam, Amsterdam Academic Medical Centre)

The common method of hearing aid fitting in The Netherlands is based on both the pure-tone and speech audiogram. The aim

of the method is the optimization of the speech intelligibility

score and the verification of this goal.

In many countries, the procedures used are based on only

the pure-tone audiogram (NAL-r, POGO, Articulation

Index). The methods are often not based on a measured speech

score but on theoretical assumptions, wearing comfort and

subjective speech intelligibility.

In a retrospective pilot study on 102 standard fitted patients

(41 binaural fits) the Dutch and the NAL-r method were

compared on the targets of the methods (Dutch: speech score; NAL: 'target gain') and the relationship between the speech

score and the quality of fit was studied.

We found a poor fit for 14% of the sensorineural patents

(n = 98) and for 35% of the mixed losses (n = 45). The quality

of fit correlated significantly with the maximum speech dis­

crimination as routinely determined in speech audiometry (full

performance curve). It showed a poor fit only in 5% of the

ears with the good speech discrimination score and in 32% of

the ears with a maximum speech discrimination score of less

than 90%. The use of the NAL method with its possible gain

in efficiency, could be considered as long as the standard

method is used for patients with mixed losses and with a

maximum speech discrimination score of less than 90%. The

relationship between speech and insertion gain will be further

studied.

Perilymphatic pressure measurement in the guinea­
pig inner ear

F.H.H.J. Schroder, H. P. Wit, F.W.J. Albers,
J. Verheul & J.M. Segenhout (Gröningen)

Hydrops of the endolymphatic system in the inner ear is considered as the histopathological substrate of Meniere's disease. As a result of the disturbance of the endolymph homoeostasis an increase in volume and pressure arises in the endolymphatic compartment leading to inner ear dysfunction. The patho­

physiological mechanism however remains unclear.

To obtain more insight into the volume and pressure reg­

ulating mechanisms of the inner ear fluids an experimental animal model was developed.

Perilymphatic pressure was measured in 23 normal guinea­
pig inner ears by means of the 900A Micropressure System

(World Precision Instruments, Inc.). This system uses the

dependence of the electrical resistance upon pressure of the
tip of a microelectrode, filled with a salt solution. This tip

is pierced through the round window of the guinea-pig. To

facilitate penetration, the tip was bevelled.

Using this method, perilymphatic pressure values were

obtained between 0.5 and 3.1 mmHg in 23 normal guinea­
pigs. The distribution of these pressure values had a maximum