Operation Eardrop: 12½ years: does the effort involved also achieve a qualitative result?

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Operation Eardrop is a non-profit making organization whose aim is to provide surgical and rehabilitative help to underprivileged Kenyan children and young adults with hearing disabilities by:

1. Surgical procedures in children with chronic otitis.
2. Education in aural surgery, including temporal bone courses and assistance during operative procedures performed by Kenyan ENT-surgeons in training.
3. Material and educational support for those with perceptive hearing disorders and for their teachers at assessment centres and schools for the deaf.

Take, for example, the work carried out in 1994. Preoperative selection (audiometry etc.) and postoperative care were provided by the ENT department at Kenyatta National Hospital. The operations were performed by three teams. One hundred and twenty-one patients underwent operative surgery on 171 ears (71 unilateral and 50 bilateral). The average age was 15 years; there were 71 males and 50 females.

The following operations were carried out: (1) tympanoplasty (135); (2) radical mastoidectomy (24, conservative or radical proper); (3) stapedectomy (two); (4) meatoplasty (two); and (5) grommet insertion (eight).

The results obtained were: (1) tympanoplasty–closure of tympanic membrane; (2) radical mastoidectomy–dry; (3) stapedectomy–closure of air bone gap; and (4) meatoplasty–readily passable auditory canal.

Follow-up at 2 to 2½ years showed the following success rates: (1) tympanoplasty (74.8%); (2) radical mastoidectomy (50%); (3) stapedectomy (100%); and (4) meatoplasty (100%). Eleven patients who failed to turn up were not included.

The results achieved will have to be investigated audiometrically, but, taking all circumstances into account, the question posed above receives a reply in the affirmative.

Tympanostomy tube insertion: antero-superior quadrant or antero-inferior quadrant?

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The purpose of this prospective randomized study was to examine the effects of the insertion of tympanostomy tubes in the antero-superior quadrant versus the antero-inferior quadrant, especially regarding the retention time of the tubes, but also regarding the residual perforation rate and the recurrence of otitis media with effusion (OME).

In 1991 and 1992 one hundred and two children with OME were selected for the study. Randomization was performed by means of an even or uneven birth-day. LENS tympanostomy tubes were used. Twenty-three (22.6%) of the children were omitted from the study because they did not meet the study-protocol criteria, so 79 (77.4%) children remained for study.

The average retention time of the 91 tympanostomy tubes in the antero-superior quadrant was 358 days and in the antero-inferior quadrant 494 days. Residual perforations in the ear drum were found in three children, all antero-inferior. Recurrence of OME appeared in 30.5% of the ears with the antero-inferior tubes and in 34.1% of the ears with the antero-superior tubes.

Conclusion: there is no advantage of the insertion in the antero-superior quadrant, so that the preferential insertion place remains the antero-inferior quadrant.

A comparative trial of BEL-AIR and LENS tympanostomy tubes

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The efficacy of tympanostomy tubes in the treatment of OME may be reduced by blockage of tubes.

The purpose of this study was to compare treatment results of two slightly different tympanostomy tubes in a prospective randomized study in which each patient, being treated with two different tympanostomy tubes, served as his own control.

One hundred and four children up to 9 years with bilateral OME were studied.

The retention time of the BEL-AIR tubes was somewhat shorter but the LENS tubes were more often blocked, this resulted in a relatively small difference in effective retention time, which was reflected in an almost equal recurrence rate of OME. No important differences in the incidence of otorrhoea and residual perforations were established.

BEL-AIR and LENS tubes gave equal treatment results with regard to recurrence of OME and complications. The lower incidence in long-term blockage may be caused by a more favourable shape of the BEL-AIR tubes.

Diagnosis and treatment after screening for hearing impairment

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All children in the Netherlands are screened for hearing impairment when they are 9 months old. Screening is only effective when early detection is followed by referral and treatment.

A questionnaire was sent to all parents whose children failed at the screening in the province Gelderland in 1994. The response was 71%. Most parents (76%) visited their general practitioner followed the outcome of the screening test. Most
general practitioners did not reach a diagnosis and most children (60%) were referred to an otolaryngologist. Eighty per cent of the children who visited an otolaryngologist were diagnosed with otitis media with effusion. Fifty-three per cent of these children were treated with ventilation tubes.

Our results have shown that most children picked up by the screening had a conductive hearing loss (80%). In spite of doubt that has been cast on the appropriateness of surgical treatment of children with OME, 53% of the children were treated with ventilation tubes.

An important rationale for treatment is probably that children at this age are particularly at risk of impaired speech and language development resulting from hearing loss.

Early onset inherited hearing loss and late onset neurological complaints with maternal inheritance


A family with 69 maternally-related individuals was investigated for the maternal inheritance of hearing impairment. In some family members from the age of 40 years additional neurological complaints consisting of dysarthria, an ataxic gait and reduced strain tolerance had developed. Three family members suffered from an acute aminoglycoside induced deafness during their first week of treatment for TB. One family member died of an unclassified progressive neurological disease. A muscle biopsy revealed characteristically altered mitochondria. In the majority of all family members high frequency hearing impairment was the initial and sole manifestation of the disease.

Regression analysis of audiological data suggests a congenital component of high frequency (4-8 kHz) impairment. Low frequency impairment (0.25-2 kHz) has started from the age of 10 years onward. Vestibular hyperreactivity occurred in most family members.

The hearing impairment and additional neurological complaints were caused by a mutation at position 7472 of the mitochondrial genome. The mitochondrial genome is small (16659 basepairs) and exclusive maternally transmitted. Counselling and follow up in this rare pattern of inheritance is now only confined to all children of a hearing impaired mother.

Computerized hearing aid revalidation in ENT practice: a helpful tool?

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A group of 181 hearing impaired patients was divided into three subgroups.

In group 1 the hearing aid selection was carried out by the ENT specialist according to his best knowledge and at the same time a computer-assisted selection was offered to the patient. The patient was allowed to give his preference after trying both hearing aids. The result in this group was that 30% of the patients preferred a hearing aid selected by the ENT specialist, that 34% preferred a hearing aid selected by computer and 36% were satisfied with the choice of the hearing aid dispenser.

In group 2 the selection was made by computer and an alternative solution was left to the hearing aid dispenser. The result in this group was that 74% preferred the computer selection and 26% preferred the selection of the hearing aid dispenser.

In group 3 the selection was purely made by the ENT-specialist and an alternative choice was left to the hearing aid dispenser. The result in this group was that 42% of the patients preferred the ENT-specialist’s choice and 58% preferred the choice of the hearing aid dispenser.

Not only the subjective patients choice was evaluated, but also the 50% level of speech discrimination scores were analysed in the three groups. There were no significant differences between the three groups.

The general conclusion was that a prescription by the computer is better than a prescription by the ENT-specialist.

Galvanic stimulation of the vestibular system

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By means of retro auricular (active) and neck (reference) electrodes the left and right peripheral vestibular system can be galvanically (electrically) stimulated. Both mono aural (AD relative to the reference) or binaural (AD relative to AS) are possible. It is still unclear as to where and how electrostimulation affects this sensory system. According to the literature responses are nystagmus and increased body sway. The possibility of developing this method for clinical use is being investigated at Maastricht University. In a pilot study (in cooperation with M. Magnusson, Lund, Sweden) using the Maastricht video eyetracker no nystagmus was detected at stimuli between 0 to 3 mA and 0 to 10 Hz. Only contractions of the facial musculature around the eye and forehead were observed. Therefore the subsequent research focuses upon postural sway. Postural sway was quantified using a force platform (Toennies Tpost), before, during and after electrostimulation (1 Hz, 1 mA). Comparison was made between

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