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INNOVATIVE TECHNOLOGIES AND TRANSLATIONAL THERAPIES FOR DEAFNESS

Results of surgical treatment of unilateral and bilateral otosclerosis in children

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Abstract

The etiopathogenesis of otosclerosis is multifactorial and not fully understood. Genetic and environmental factors, as well as viral infections, particularly measles virus, have been implicated in the pathogenesis of the disease. If otosclerosis is suspected in children, a thorough preoperative diagnosis should be made. Exudative otitis media, ankylosis of the stirrup and other ossicles and congenital bone fragility (osteogenesis imperfecta) should be excluded. A CT scan of the temporal bones is useful to rule out congenital malformations of the inner and middle ear.

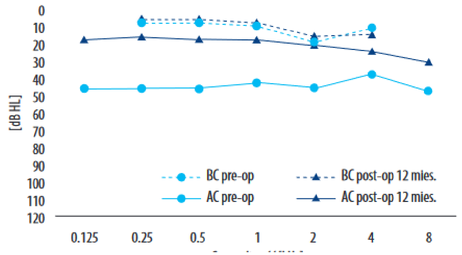

Fig 1. Mean air and bone conduction thresholds in children with unilateral before and 12 months after stapedotomy

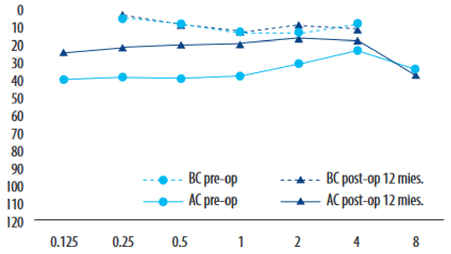

Fig 2. Mean air and bone conduction thresholds in children with bilateral before and 12 months after stapedotomy

Objectifs

The aim of our study was to evaluate the results of surgical treatment of unilateral and bilateral otosclerosis in children. Hearing thresholds and cochlear reserve were analysed.

Méthodes et Matériels

Patients under 18 years of age with diagnosed otosclerosis were included in the study. The study group consisted of nine patients with otosclerosis who underwent stapedotomy between 2010 and 2022. The material was divided into unilateral and bilateral otosclerosis. The children underwent a stapedotomy using a microdrill. Two kinds of prosthesis were used for the surgeries: Mikolow III BO and Skarzynski Piston Titanium. The Skarzynski Piston Titanium is made of pure titanium (ASTM F67). Then the audiometric results before and 2 and 12 months after the operation were compared.

Résultats

In the ears of children diagnosed with unilateral otosclerosis 12 months after surgery, the closure of the reserve (ABG down to −10 dB) was observed in all ears. On the other hand, in children diagnosed with bilateral otosclerosis 12 months after the operation, the closure of the reserve was found in 88.9% of ears.

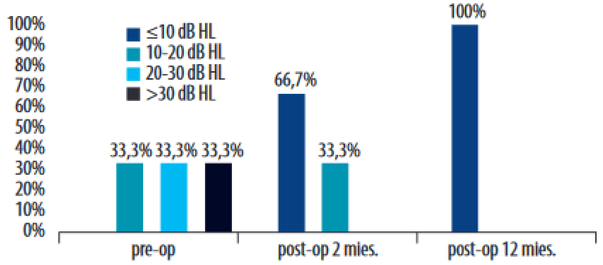

Fig 3. The size of cochlear reserve in children with unilateral before and 2 and 12 months after stapedotomy

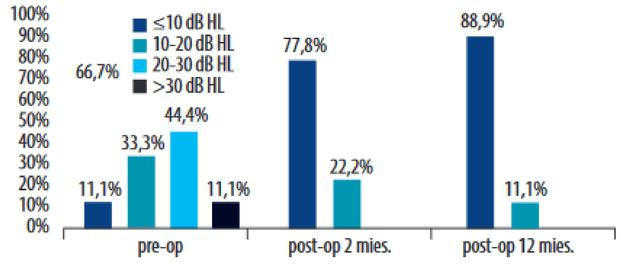

Fig 4. The size of cochlear reserve in children with bilaterall before and 2 and 12 months after stapedotomy

Conclusion

The results of our study, as well as reports from other investigators, suggest that stapedotomy for juvenile otosclerosis is a safe and effective surgical procedure that is feasible in children. Indications for surgery in children with otosclerosis include the presence of cochlear reserve and elevated bone conduction thresholds. The age of the patient should not be a contraindication to surgery. To increase the safety of surgical treatment, surgery should be performed by experienced otosurgeons in hospitals with a third level of referral with a third level of referral.

Références

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