

COCHLEAR PASSAGE IN CHILDREN WITH SENSORINEURAL DEAFNESS

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Introduction. Sensorineural hearing loss occurs in 0.1% of cases in newborns and young children. Cochlear implantation is the most promising area of rehabilitation for persons suffering from deafness. The cochlear passage is 2 mm, it varies, practically does not change with age.

Purpose. To study the relationship between the functional state of the hearing and the diameter of cochlear passage in children of different ages with severe hearing loss.

Material and methods. Medical records were studied in 36 patients (ASSR and CT of the inner ear). The average age of the patients was 3.5 ± 2.3 (from 0.9 to 12.4) years.

Results. The threshold of sound perception was 90 dB in 2 (6%) patients, 100 dB in 14 (39%), 110 dB in 16 (44%), 120 dB and more in 4 (11%). The diameter of the cochlear passage was different at varying levels of increase in the threshold of sound perception: at a level of 90 dB the diameter of the right and left cochlea passage was 1.8 ± 0.39 mm; 100 dB – right 1.69 ± 0.33 mm, left 1.74 ± 0.28 mm; 110 dB – right 1.61 ± 0.14 mm, left 1.63 ± 0.18 mm; 120 dB – on both sides 1.5 ± 0.2 mm. There was no significant difference ($p > 0.05$). The diameter of the cochlear passage at the age of 1 to 2.5 years was: the right – 1.58 ± 0.25 mm, the left – 1.68 ± 0.23 mm; over 2.5 years: right – 1.78 ± 0.13 mm; left – 1.68 ± 0.18 mm. There is no age dependence of the diameter of the cochlear passage of the right and left cochlea. The diameter of the right cochlear

passage is larger at the age of over 2.5 years compared with the age group from 1 to 2.5 years, but not significant.

The size of the inner part of the cochlear implant is (according to Neurelec): electrode length 25 mm; base diameter 1.05 mm, top diameter 0.5 mm. Cochlear implant cannot be installed if the cochlea is smaller than the diameter of its inner part and in cases of bone growth into the cochlea.

Conclusions. 1. The threshold of sound perception has not significant difference from the diameter of the cochlear passage.

2. The diameter of the cochlear passage is individual for each person.

3. The CT of the cochlea is necessary to determine contraindications to cochlear implantation.