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AUDITORY IMPLANTS

The impact of changing the parameters of the "Sonnet 2" speech processor in the cochlear implantation system in children

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Abstract

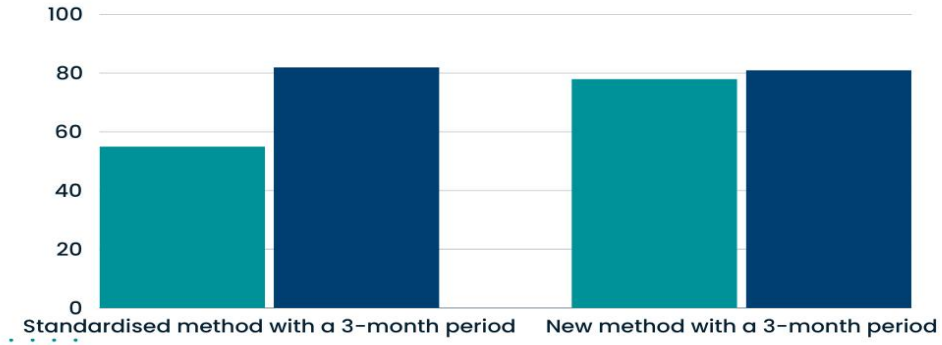
An investigation of the impact of rehabilitation effectiveness in children after cochlear implantation (CI). A total of 194 patients aged 1 to 5 years participated in the study. The patients underwent SP connection according to two different protocols. 87 patients were connected according to the standard protocol, where the threshold level charge (THR) was 8% and the initial stimulation threshold for maximum comfort volume (MCV) was set at 8-9 [qu]. The remaining 87 patients had a THR charge set at 10% and the initial stimulation threshold for MCU was determined based on a 30% reduction in the intraoperative AutoART data value.

Objectifs

To improve the effectiveness of rehabilitation in children after cochlear implantation (CI). To achieve this goal, we analysed the effect of changing the parameters of the speech processor (SP) of SONNET 2 cochlear implants at the first connection on the rehabilitation process in children.

Méthodes et Matériels

The study involved 194 patients aged from 1 to 5 years, the average age of whom was 2.5±1.4 years, of whom 89 (46%) were boys and 105 (54%) were girls. Cochlear implantation was performed only in patients with normal cochlear anatomy and complete insertion of the standard electrode array. For all patients were used implants of MED-EL Electronics (Austria) model - SONATA 2 Mi 1260 series, standard type electrode with electrode lead length of 110.7 mm.



Résultats

Connection of the speech processor (SP) was performed on day 30 after surgical intervention. Patients underwent SP connection according to two different protocols. 87 patients were connected according to the standard protocol, where the threshold level charge (THR) was 8% and the initial stimulation threshold for maximum comfort level (MCL) was set at 8-9 [qu]. In the remaining 87 patients, the THR charge was set at 10% and the initial stimulation threshold for MCL was determined based on a 30% reduction in the intraoperative AutoART data value. The results of the study were evaluated after 3 and 6 months on the basis of the LittlEARS questionnaire of sign language teachers.

Conclusion

The results of the study showed that patients with a THR charge of 10% and an initial stimulation threshold based on a 30% reduction in the AutoART data value were better integrated into the sound environment after 3 months and the development of conditioned motor responses in children was faster compared to the standard connection protocol. However, after 6 months, the result was almost the same as with the standard protocol connection. Our observations indicate that the non-standard variant of speech processor connection may be more effective and requires further study. This opens new perspectives in the rehabilitation of patients with hearing impairment.