

Table 7

The structure of newly diagnosed neoplasms

| Localization | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 |
|--------------------------|------|------|------|------|------|------|------|------|------|------|
| Leukemia | 9 | 9 | 12 | 5 | 15 | 4 | 11 | 9 | 8 | 12 |
| Tumors of the CNS | 6 | 6 | 12 | 6 | 7 | 5 | 11 | 4 | 3 | 9 |
| Neuroblastoma | 1 | 1 | 2 | 4 | 2 | 1 | 3 | 1 | 1 | 2 |
| Kidney formation | 1 | 1 | 2 | 3 | 1 | 2 | - | 2 | 1 | 2 |
| Soft tissue tumor | 3 | 3 | - | - | 1 | 1 | - | 3 | 1 | 2 |
| Lymphoma | - | 2 | - | 1 | 1 | 1 | 2 | 2 | 2 | 2 |
| Osteosarcoma | 2 | 1 | 1 | 2 | 1 | - | - | 2 | 1 | 1 |
| Retinoblastoma | - | - | 1 | - | - | 1 | 1 | 3 | 2 | 2 |
| Hepatoblastoma | 1 | 1 | - | 1 | 1 | - | 2 | 1 | 2 | |
| Tumor of germic etiology | 1 | 1 | 1 | 1 | - | - | - | 2 | 1 | 1 |
| Thyroid gland swelling | - | - | - | - | - | 2 | - | 1 | 1 | - |
| Tumors of the pancreas | 2 | - | - | 1 | - | 1 | - | - | - | - |
| Swelling of the ovary | 1 | - | - | - | - | 2 | - | - | - | - |
| Ewing's sarcoma | - | - | - | - | 1 | - | - | 1 | - | - |
| Total | 27 | 25 | 31 | 24 | 30 | 20 | 30 | 31 | 23 | 33 |

In our opinion, the real picture of oncological morbidity extent in the Sakha Republic (Yakutia) can be given by a single register of cancer patients created by using information technologies, which will take into account the personal data of patients with a mandatory indication of residence place, ethnicity, age, sex and other characteristics of the child.

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RESULTS OF COCHLEAR IMPLANTATION IN THE REPUBLIC OF SAKHA (YAKUTIA)

ABSTRACT

The article discusses the priorities of cochlear implantation (CI) in the RS (Ya). The results of the CI in Yakutsk to 11 children are presented. All patients in the preoperative period underwent general clinical examination, examination of ENT organs, earmicroscopy, acoustic impedance measurement, a study of otoacoustic emission and short-latency auditory evoked potentials research. A computed tomography of temporal bones with a 2 mm cut thickness was also performed. All patients were examined by a speech therapist and the faculty for the purpose of determining the level of general development, auditory and speech perception and development of speech.

All patients were operated using Neurelec implants (France).

The need for further introduction of high-tech care for children to improve the quality of life was noted.

Keywords: cochlear implantation, sensorineural hearing loss, inner ear.

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Introduction.

Officially, in the world implantation of multichannel cochlear implants began to be carried out to children since 1990. In Russia, CI has been implemented since 1997 [2].

The urgency of cochlear implantation in the territory of the Republic of Sakha (Yakutia) is determined by the high percentage of births of deaf children. On average, 106 children with hearing impairment are diagnosed in the Surdological Center every year, of which about 30 children are sent to primary hearing disability by hearing (Figure 1). Through the audiological screening test since 2008 [1], an early diagnosis of hearing loss is performed, where small patients are selected for CI. In Yakutia there are 170 children with CI.

The relevance of conducting CI in the republic is conditioned by the presence of needy patients, and it is also economically feasible to perform surgery and rehabilitation in the region.

In Yakutia there is a surdologic service that meets high standards, specialists are working, who have been carrying out rehabilitation of children after CI performed in central cities for several years. The need is to train surgeons to perform surgery and purchase expensive implants. In 2017 in Yakutsk conducted 11 CI. What can be considered the beginning of the CI in our region.

The **purpose** of the study is to increase the effectiveness of CI in Yakutia.

Materials and methods

In "RH №1-NCM" in June 5 CI operations were performed, in December - 6. The age of implanted children was from 1 to 6 years. Table 1 shows that the main contingent is children from one year to 2 years - this is considered a good indicator of early detection of hearing loss in children and timely rehabilitation.

Table 2 lists the factors that contribute to the development of hearing loss. Of the 11 patients, three children had acquired hearing loss after suffering meningitis and taking ototoxic drugs. One of them lost his hearing at the age of 3 and had a lean vocabulary. Of all 11 children, the hereditary nature of hearing loss was found in 2. 2 patients were born at week 28, one of whom was somatically severe with bronchopulmonary dysplasia and post-indubation stenosis of the larynx, was the carrier of the tracheostomy [4].

All patients in the preoperative period underwent general clinical examination, examination of ENT organs, earmicroscopy, acoustic impedance measurement, a study of otoacoustic emission and short-latency auditory evoked potentials

research. A computed tomography of temporal bones with a 2 mm cut thickness was also performed. All patients were examined by a speech therapist and the faculty for the purpose of determining the level of general development, auditory and speech perception and development of speech.

All patients were operated using Neurelec implants (France).

Results and discussion

The result of CI depends both on the timely operation, and on the technique of surgical intervention and postoperative auditory rehabilitation of young patients.

The world has accumulated sufficient experience in creating the most secure access to the cochlea, inserting electrodes to the required depth and ensuring a prolonged location of the implant in the temporal parietal region [3]. The procedure for performing the CI is as follows: a skin incision is made parallel to the transitional fold of the auricle. Skin-periosteal flaps are formed. Access to the tympanic cavity is performed through the mastoid process, then a posterior tympanotomy is performed in the area of the facial pocket. Drill removes the canopy above the window of the cochlea, the membrane of the snail's window is exposed. The Neurelec implant is installed in the parietal region, the proximal part of the active electrode is fixed by a drilled tunnel, then the electrodes are completely inserted into the cochlea through the mastoid cavity, posterior tympanostoma and the pre-opened membrane of the cochlear window. The telemetry of the nervous response of the implant is performed intraoperatively by obtaining stapedal reflexes. The behind-the-ear wound is sewn in layers. Tight bandage in the postoperative wound and implant bed.

Among the children operated on, two were found to have ossification of the cochlea 3 mm and 4 mm after the meningitis had been transferred [5], with telemetry of the nervous response, the stapedal reflexes were not obtained. However, with intraoperative radiography of CI, it is seen that the electrodes were in the cochlea (Fig. 2).

The postoperative period in 10 patients proceeded without any peculiarities. One child - had a postoperative hematoma in the implant area, which disappeared on the 7th day after 4 times aspirating the contents.

Results of auditory rehabilitation. Pa-

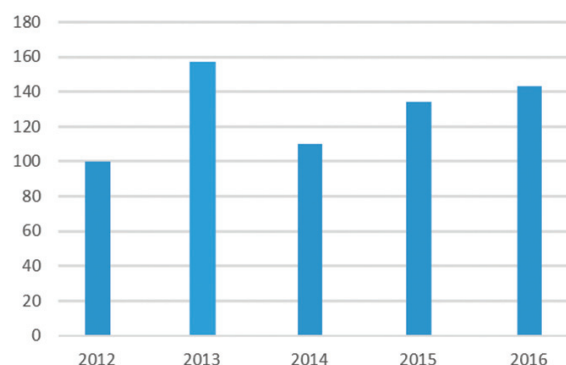


Fig. 2. Intraoperative radiography of CI. The arrow shows that the electrode is in the cochlea, repeating its shape.

Table 1

Age of CI patients

| Age group | Amount of children |
|-------------------------|--------------------|
| Up to 1 year | 0 |
| From 1 year to 2 years | 7 |
| From 2 years to 3 years | 2 |
| Older than 3 years | 2 |

Table 2

Factors contributing to the development of hearing loss in children.

| The main factors | Frequency of occurrence, n (%) |
|-------------------------|--------------------------------|
| Prematurity 28-30 weeks | 2 (18) |
| Hereditary weighting | 2 (18) |
| Meningitis in anamnesis | 3 (27) |

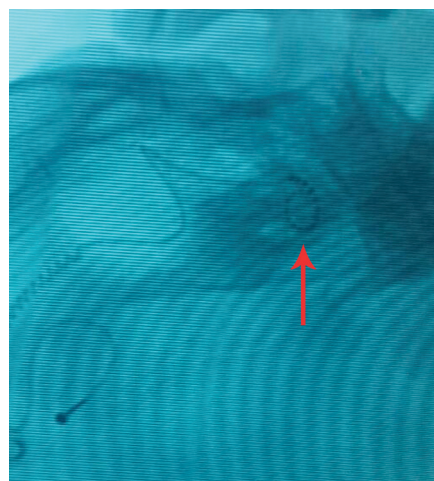


Fig. 2. Intraoperative radiography of CI. The arrow shows that the electrode is in the cochlea, repeating its shape.

tients who received CI in June 2017 had the following results: during the connection of speech processors, all children responded to loud sounds. The first training session was conducted 5 months after the operation. All children constantly wear a speech processor and switched to the fourth program. 3 people are asked

to put the processor on in the morning and report the need to replace the batteries. 4 children clearly respond to the name. 3 distinguish sounds by volume and its presence. 2 began to discern the parents by their voices. 4 respond well to household sounds: a knock on the door, the sound of running water, the sound of a drill, a vacuum cleaner, a hair dryer, a phone ring. They hear the sounds of the street, the barking of a dog, the sound of a car. 1 patient hears the creaking of snow.

4 children began to publish various voiced sounds, voice of animals, a typewriter. One boy clearly pronounces the words-appeals "Mom, Dad."

Conditionally-motor reaction is developed in all patients.

In a girl with ossification of a cochlea, after having had meningitis with bilateral implantation, the period is slower compared to other children. CI was conducted in two stages with a difference of 1.5 months. In the development of speech there is a slight dynamics. The girl seldom uttered babbling words.

On February 6, 2018 the specialists of the Clinical Research Center of otorhinolaryngology Russia and Republic hospital №1 NCM for the first time jointly conducted a remote connection of speech processors to 6 children, whom the CI performed on December 16-17, 2017. When connected, 5 children gave a clear reaction to loud non-verbal sounds. One of the girls with the ossification of the cochlea was in doubt. Within a week of rehabilitation sessions, this patient developed a clear conditioned-motor reaction. At low frequencies, the reaction is from 6 meters, at medium frequencies - 2.5 meters, at high frequencies - 0.5 meters.

Conclusion

The performance of CI in the first

years of life shows significantly better results in the rehabilitation of patients. This is an important motivational factor for conducting this operation in the territory of Yakutia, where no time will be spent on solving paramedical issues. From the economic point of view, the operation in the region, both for the patient and for local government is preferable. In addition, the emergence of new candidates and the presence of implanted patients dictate the need for staffing and training specialists involved in this pathology.

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