

SUMMARY

The problem addressed in this research paper is to assess the state of speech perception and comprehension in people with profound intellectual disabilities. The study includes selected brain factors responsible for speech comprehension (phonemic hearing and short-term auditory memory) and the evaluation of other factors that may affect speech comprehension, such as hearing loss and central auditory processing disorder (CAPD).

To assess speech perception and comprehension, the study included 52 children diagnosed with profound intellectual disabilities. Most of the subjects (33 subjects - 63.46%) had a moderate degree of intellectual disability. The second largest group was that of children with severe intellectual disabilities (12 people - 23.08%). The least numerous group was made up of respondents with profound intellectual disabilities (7 people - 13.46%).

Empirical material was collected by means of tests to assess the perception and understanding of speech among the children studied, such as the physical hearing test, the lateralization test (bias dominance profile), the sound source localization test, the test of lateralizing sound to the other ear in the tonal audiometer test, the auditory dominance profile test, the auditory short-term memory test and the phonemic hearing test.

The tests carried out to assess speech perception made it possible to analyze the speech comprehension status of the studied children with more profound intellectual disabilities based on the examination of the following factors:

- Degree of hearing loss;
- Risk of central auditory processing disorder (CAPD) expressed in:
 - o Symptoms observed in the child determining the risk of CAPD in the subjects, derived from the CAPD survey questionnaire
 - o Type of lateralization;
 - o Profile of ear dominance;
 - o Localization of sound source;
 - o Lateralization of sound to the other ear in a tonal audiometer test;
- Auditory short-term memory capacity:
 - o Number of repeated words,
 - o Number of indicated designators,
 - o Degree of fresh auditory memory deficit;
- Phonemic hearing test results:
 - o Number of confused vocal oppositions,

o Degree of phonemic hearing deficits.

Statistical verification of the collected empirical material consisted first of all of analyzing the overall results of the study, in order to assess the state of perception and understanding of the speech of the children studied. In the next step, the groups of subjects distinguished by the degree of intellectual disability (i.e., those with moderate, severe and profound disabilities) were compared in terms of their speech perception, understood as the aforementioned results of the surveys and tests conducted. Next, the relationship between the results of the survey questionnaire determining the risk of CAPD and selected test results for assessing the occurrence of CAPD, such as the type of lateralization, the profile of ear dominance, the results of localizing the source of sound, lateralization of sound to the other ear in the tonal audiometer test, was examined. Subsequently, the question of whether the subjects were at risk for CAPD (five or more CAPD-only specific symptoms and normal physical hearing) and the degree of their hearing loss were verified in terms of their association with the results of the phonemic hearing test in the form of the degree of phonemic hearing deficit. Finally, the association of the degree of hearing loss and the aforementioned results of the phonemic hearing test in the studied children with selected results of CAPD occurrence tests, such as the ear dominance profile, the results of localizing the source of sound, lateralization of sound to the other ear in the tonal audiometer test, was checked.

A study of speech perception and comprehension in people with profound intellectual disabilities and analysis of the results showed that the speech comprehension status of people with profound intellectual disabilities is characterized by deficits. Hearing impairment is present in more than half of the surveyed children with deeper intellectual disabilities (57.69%). The risk of CAPD compared to children without features of deeper intellectual disability is high. The possibility of a CAPD-like disorder was confirmed by the results of a survey of teacher-educators, which allowed diagnosing the risk of CAPD based on the child's behavior (36.54% of respondents), the results of a lateralization test (lateralization heterogeneous 65.37% of respondents), the results of an auditory dominance profile test (left ear as dominant 38.46%), the results of a sound source localization test (difficulty locating the source of sound 75% of respondents), and the results of a test of lateralizing sound to the other ear in a tonal audiometer test (sound lateralized in 59.62% of the subjects). Short-term auditory memory deficits were found to be widespread (90% of the subjects). The study of phonemic hearing showed the massiveness of its deficits (94% of the subjects). Investigating the relationship between factors affecting speech perception in the studied children with more profound intellectual disabilities, it was shown that there is a relationship between the results of phonemic hearing of children

with more profound intellectual disabilities and localization of the sound source and lateralization of the sound to the other ear in the tonal audiometer test. The higher number of oppositions confused by the children in a test of their phonemic hearing is accompanied by a lower number of points they scored in five trials during the sound source localization test, a higher degree of their deficit in localizing the source of sound, and a more difficult assessment of lateralization to the other ear in the tonal audiometer test.

With a low level of cooperation from people with more profound intellectual disabilities, we may get a misleading impression of their understanding of speech and direct inadequate messages to our audience, which further implies taking inappropriate pedagogical and therapeutic measures. An accurate diagnosis of the speech of a person with profound intellectual disabilities is the basis for appropriate logotherapeutic interventions and improvement of the person's communication. It seems necessary to introduce audiological testing as a required diagnostic test for people with more profound intellectual disabilities (in addition to the common examination of newborns) and to take measures to diagnose the risk of CAPD in these people. It is also important to pay attention to the diagnosis and stimulation of short-term auditory memory and phonemic hearing in pedagogical and therapeutic interactions with people with deeper intellectual disabilities.

Keywords: profound intellectual disability, hearing impairment, central auditory processing disorder, auditory short-term memory, phonemic hearing.