REHABILITATIVE APPLICATION OF UNILATERAL FM SYSTEM ON THE RIGHT EAR IN CHILDREN WITH CENTRAL AUDITORY PROCESSING DISORDERS

INTRODUCTION:

Central Auditory Processing Disorder (CAPD) is a hearing disorder resulting from abnormalities in the Central Nervous System, with proper construction and functioning of its peripheral part; such disorders present a wide range of symptoms. In children with CAPD, both physical and conductive hearing is normal, while damage takes place in the central, i.e. innervated part of the auditory system and is manifested by improper processing of auditory stimuli.

The brain of a child with APD cannot recognize and interpret sounds, including speech sounds.

The FM system is a receiver that makes it easier for children with Central Auditory Processing Disorders to function in difficult acoustic situations, providing a better signal-to-noise ratio.

The FM system helps children with CAPD to overcome distracting background noise, which allows them to use some of their resources to focus on learning.

It was assumed that the unilateral application of the FM System on the right ear would have a positive rehabilitative effect in children with CAPD by stimulating the left cerebral hemisphere (the intersection of the neural pathways: right ear - left hemisphere responsible for speech), as well as by learning to distinguish important stimuli from irrelevant (e.g. a teacher's voice - important stimulus, classroom conversation during a lesson - unimportant stimulus).

METHODS:

The study included 41 patients (100%) aged 6 to 12 years, who were unilaterally prescribed the FM System on the right ear for 4 to 16 months.

The following tests were carried out:
- auditory reaction test,
- speech resonance test in noise,
- dichotic numerical test,
- tone sequence test of different heights,
- noise gap test,
- sound pitch differentiation test.

RESULTS:

After comparing the results from the period before the application of the FM System and after the system was worn by the child unilaterally, on the right ear - during classes, during individual classes (speech therapist, psychologist, pedagogue, etc.) and to study at home, for the period indicated above - data was obtained which showed that:

- 28 children, i.e. 68.3%, improved their results in different tests,
- 13 patients, i.e. 31.7% (i.e. almost 1/3), achieved results corresponding to the age norm.

Studies of the higher auditory functions (performed after the application of the FM System unilaterally on the right ear, in the period referred to above), conducted in children after removing the FM System show the positive rehabilitative effect of the device (improvement in functioning).

In addition, a questionnaire was filled out by legal guardians of children with CAPD (mother/father or legal guardian), wearing FM Systems unilaterally on the right ear, and the following results were obtained:

- 100% legal guardians (41 people) noticed an improvement in learning and functioning of the child at school,
- 100% legal guardians (41 people) noticed an improvement in the self-esteem of the child,
- 85.4% of legal guardians (35 people) noticed an improvement in the child's functioning in its peer group (better relations with colleagues).

CONCLUSIONS:

A 100% improvement in results was obtained after the unilateral use of the FM System on the right ear. The improvement was visible in two ways: either a completely normative result or an improvement in the numerical form of the result.

The effectiveness of the unilateral application of the FM System (on the right ear) was also confirmed by the parents/legal guardians observations of the children covered by the study.

This gives grounds for stating that the FM System applied unilaterally on the right ear has a rehabilitative effect on a child with Central Auditory Processing Disorders (CAPD).

The rehabilitation activity consists in improvement of the child's functioning, which is demonstrated by the tests carried out, also when the FM System is removed, i.e. not used at a given moment by the patient.

There are also additional, positive effects (questionnaire data) of the FM System's performance consisting in raising the child's self-esteem and its better functioning among its peers.

REFERENCES:

1. http://www.templumoraczwajnowo.pl