



COGNITIVE IMPAIRMENT IN CHILDHOOD WITH SOME NEUROLOGICAL DISEASES

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ABSTRACT

This article deals with cognitive disorders which are related to adolescence as well as treatment of such kind of impairment. There are several types of children's memory and attention in this paper. In addition, this article gives information about cognitive defects and its difficulties in children. Especially, main causes of speech deficiency are mentioned in this work.

The problem of cognitive disorders is currently one of the most relevant and significant from a medical and social point of view. In the literature, cognitive disorders in the adolescence are widely discussed not only as syndromic symptoms of diseases, but also as a natural age-related process. However, cognitive dysfunctions occur in at least 20% of children and adolescents. The speech and language disorders, including reading and writing disorders, are found in 5–20%. [1:40–41]

Cognitive Functions are the most complex functions of the brain. These functions include memory, attention, psychomotor coordination, speech, gnosis, counting, thinking, orientation, planning and control of higher mental activity. The development of cognitive impairment, which is associated with focal or diffuse damage to the brain, leads to a dysfunction of one or more cognitive functions. In neurology and

neuropsychology, cognitive functions are usually understood as those that are necessary for the introducing of the process of rational cognition of the world.[2: 95–104]

According to modern concepts, memory is the ability of the brain to absorb, store and reproduce the information which is necessary for current activity. Severe disorder of memory for life events is commonly referred to as "amnesia". There are 3 types of memory - short-term, which lasts 1-3 minutes, memory for recent events (lasts 5-10 minutes and is often impaired in old age) and memory for faraway events, which is the last to be disturbed in various diseases.

Attention is a process by which information is selected and then reproduced. Attention characteristics include selectivity, directionality and distraction. There are unconscious, conscious and post-conscious (first, a



person sets a goal, and then becomes interested himself) types of attention. Attention is necessary for the selection of significant impacts, holding this activity until the goal is achieved, regulation and control. The properties of attention are:

- 1) concentration of attention (the degree of concentration of attention on an object);
- 2) the volume of attention (the number of objects that can be covered);
- 3) changing attention (deliberately transfer of attention to another object);
- 4) apportionment of attention (the ability to keep several objects in the field of attention at the same time);
- 5) stability of attention (long-term concentration of attention on an object (approximately 10-12 minutes);
- 6) distraction of attention (inability to long and intense concentration of attention).

Another important cognitive function is speech. Mostly, speech disorders occur in childhood. In series cases of speech disorders, the child not only cannot speak clearly, but also he does not perceive and assimilate someone else's sounding speech, has difficulty with building phrases and sentences, and has a limited vocabulary. This applies to both the active vocabulary (words meaningfully used in speech) and the passive one (words of other people's speech, perceived by ear). As special studies have shown, 25% of four-year-old children suffer from serious disorders in speech development. In the mid-70s, speech deficiency was observed in only 4% of children of this age. Over the past 20 years, the number of speech disorders has increased by more than six times. Speech disorders are observed in 70-80% of children with cerebral palsy.[1:10]- Many special studies have been devoted to the study of speech disorders in children with

cerebral palsy, which mitigate the issues of their pathophysiology, clinic and correction. Proper measures should immediately be taken so as to correct speech, otherwise the children come across serious communication problems with peers and adults, as a result, the development of all kinds of complexes which is related to learning and increasing of mental and creative potential is observed in their character.

Another type of serious disorder in children of primary school age is dyslexia (also alexia). This is a common learning difficulty that mainly causes problems with reading, writing, spelling, resulting from pathologies of certain parts of the brain (the cortex of the left hemisphere, if the child is right-handed). Different types of alexia develop depending on the location of the brain lesions.

E.D. Khomskaya emphasized several types of attention:

sensory attention (visual, auditory, skin-kinesthetic);

motor attention, manifested in motor processes, their awareness and regulation; emotional attention, attracted by emotionally significant stimuli and having a close relationship with memory, imprinting information;

intellectual attention associated with intellectual activity (attention to the subject of training, to intellectual operations through which the process of thinking is realized) [3:491-496].

Attention disorders include a narrowing of the scope of attention (a person can simultaneously perceive little - 2-3 objects), its instability (impaired concentration of attention) and impaired attention with local brain lesions. Children with impaired memory and attention have



insufficient formation of control functions [4:250-256]. Control functions allow the child to maintain the psychological attitude necessary to achieve the goals.

Cognitive defects in children are caused by a wide range of factors and arise as a result of previous diseases with brain damage in the pre and postnatal periods: ischemic brain damage, encephalitis, brain injuries, hereditary metabolic disorders and chromosomal diseases, malformations (dysgenesis) of the brain, degenerative and demyelinating diseases, with epilepsy. Transient or persistent disorders of the cognitive sphere in children can accompany many diseases, both acute and chronic, different in etiology and pathogenesis. Dysfunction of psychoneurological development is noted in 30–56% of healthy schoolchildren. [5:55-59]

The choice of therapeutic tactics is determined by the severity of cognitive impairment and their etiology. In mild to moderate dementia associated with AD, cerebrovascular insufficiency or mixed, vascular degenerative etiology of dementia, acetylcholinesterase inhibitors and memantine are the first choice drugs. The use of these drugs has an undoubted positive effect on memory and other cognitive functions, contributes to the normalization of behavior, increases adaptation to everyday life and, in general, increases the quality of life of patients and their relatives. According to some reports, the use of these drugs also helps to reduce the rate of progression of cognitive

impairment; however, this issue requires further study.

At the stage of moderate and mild cognitive impairment, the effectiveness of acetylcholinesterase inhibitors and memantine has not been proven to date. Since cognitive impairment does not significantly affect daily life in MCI and MCI, the main goal of the treatment of mild cognitive impairment is not so much to improve memory as to prevent the progression of cognitive impairment, that is, the prevention of dementia. Therefore, drugs with a neuroprotective effect are the drugs of first choice. Such an effect is expected in the so-called vascular and metabolic drugs.

CONCLUSION

The listed difficulties are not always shown directly. It is common for parents and teachers to observe low achievement and inability to achieve success after a child's trauma. At that time a child is not always checked by a specialist. It may take time for the effects of brain damage to become apparent.

Sometimes serious concern appears two or three years after the injury. If the child is traumatized at a younger age (three or four years), the impairment may be more general rather than localized. In addition, because the brain develops during the first 20 years of the life, some disorders directly associated with trauma may not become apparent until areas of the brain that have been damaged have fully developed (eg, the frontal lobes).

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