AGE DYNAMICS OF FUNCTIONAL REORGANIZATION OF SENSORY-MOTOR FUNCTIONS AMONG THE PERSONS WITH AUDITORY DEPRIVATION

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The patterns and features of functional reorganization of sensory-motor functions of different complexity had to be found and study among children, adolescents and young people with auditory deprivation. 76 children, adolescents and young people with auditory deprivation and 120 peers with normal hearing aged 8–19 were examined. The latent periods of simple visual-motor responses (SVMR), the response of choosing one of three stimuli (RC1-3) and differentiating two of three stimuli (RC2-3) (a circle, a square and a triangle). We consider the value of latent period, which was the least in the three dimensions of each test, to be the individual indicator of sensory-motor reactions. The methodology of neurodynamic research and computer diagnostic complex "Diagnost-1M" was used to study simple and complex sensory-motor responses.

The patterns and features of forming sensory-motor responses SVMR, RC1-3 and RC2-3 with different complexity were determined among the persons with auditory deprivation and normal hearing at different age periods. The obtained data of sensory-motor responses show that there is a functional reorganization of SVMR, complex visual-motor responses of choosing one (RC1-3) and differentiating two of three (RC2-3) stimuli among the children, adolescents and young people with normal hearing and auditory deprivation. The latent periods of simple and complex visual-motor responses among the deaf children, adolescents, young people and the persons with normal hearing decrease gradually with age; and the speed of response increases achieving maximum value at the age of 18–19. The speed of simple and complex visual-motor responses is lower among the deaf persons in all age groups than among the persons with normal hearing. The age reorganization of sensory-motor functions on complex responses is more intensive than on simple responses among the deaf persons.

In neuro-ontogenesis of functional reorganization of sensory-motor functions with different complexity among the persons with hearing deprivation, there is the development of rearrangements in the sensory systems, neural networks of the brain, neuro-muscular system, cross-modal and genetically determined mechanisms of information processing.

The results are discussed from the standpoint of studying the adaptive-compensatory responses of the organism in conditions of sensory deprivation in order to determine the patterns of sensory-motor function reorganization, to improve and to develop adequate and efficient methodologies, innovations with further application of complex medical, psychological, social and physical rehabilitation of people with special needs.

Keywords: ontogenesis, sensory-motor functions, functional reorganization, auditory deprivation.

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