

Method of delivery as a perinatal factor in the formation of general speech underdevelopment

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***Abstract.** In the world, the number of children suffering from speech disorders is increasing, and therefore, the search for factors of their development is of great importance. A study conducted among children 5-6 years of age revealed a link between the method of delivery and the subsequent occurrence of speech dysfunction. The results of the study make it possible to suggest biomedical and psychosocial mechanisms explaining the influence of such a perinatal factor as caesarean section on the formation of the speech system.*

***Keywords:** speech disorders, delivery method, cesarean section, hypoxia, psychosocial factors.*

Introduction

Every year in the world there are more and more children suffering from speech disorders [5, p. five]. Through the efforts of many talented researchers and teachers, various methods of correcting such violations have been created. However, no matter how effective these methods are, they do not in any way affect the cause of speech development disorders. Therefore, it is of great importance to search for factors that in one way or another affect the occurrence of speech disorders in children.

Since this problem is interdisciplinary, not only teachers and psychologists take part in this search [2, p. 33], but also medical specialists. One of the important medical aspects analyzed in the light of this problem is the assessment of the influence of perinatal factors that can disrupt the formation of speech function in a child or create conditions for its violation [6, p. 63].

Purpose of the study is to establish the role of the delivery method - vaginal delivery or cesarean section - in the occurrence of general speech underdevelopment.

Materials and methods

The study was carried out on the basis of the Kindergarten No. 26 of a combined type and the Kindergarten No. 92 "Rainbow" of a general developmental type in the city of Veliky Novgorod using individual child development cards. Parents have given their consent to data processing. At

the time of the study, all children were somatically healthy. A total of 71 children aged 5-6 years were examined. Of these, 48 children are diagnosed with general speech underdevelopment. 23 children without speech disorders made up the control group. The study used data from the life history and speech therapy diagnosis of each child who participated in the study. Statistical data processing was carried out using Fisher's test.

Results and discussion

As a result of the study, it turned out that 25 out of 48 children suffering from general speech underdevelopment were born as a result of a cesarean section. This is significantly more ($p < 0.01$) than in the control group. Of the 23 children in the control group, only 2 of the children were delivered by caesarean section.

The statistically significant data obtained in this way make it possible to hypothesize about the influence of cesarean section in the child's life history on the development of his speech function. Since the problem of speech impairment in children is an interdisciplinary one, different approaches should be used to explain this result – medical and psychosocial.

From a medical point of view, the relationship between cesarean section as a method of delivery in the history of the child's life and the occurrence of general speech underdevelopment in him in future is rather complicated. The complexity is due to the fact that speech, as a phylogenetically newer function, is formed rather late. One of the main, in a sense, a critical period for its formation is the age of about one year, when the following events occur:

- 1) the formation of ontogenetic speech memory begins;
- 2) the nature of contraction of the articulatory and vocal muscles changes [3, p. 814];
- 3) the rhythm of speech activity develops from syllabic and verbal to syntagmatic [2, p. 32].

All these changes occur with the direct participation of the central nervous system and, in particular, the centers of speech, which are part of the most phylogenetically young structures of the brain. It is known that the phylogenetically younger the structure of the brain is, the more vulnerable it is to adverse effects. Hypoxia is one of the destructive factors for the neurons of the brain.

Caesarean section as a factor of perinatal risk contributes to the occurrence of fetal hypoxia [1, p. 120], albeit short-lived. This may mean that in some neurons of the brain, changes may occur that will not be noticeable until their significant functional activity is required, exceeding a certain threshold established by these structural changes [7, p. 96].

Consequently, transient hypoxia associated with operative delivery may be the key link determining the relationship between caesarean section and the subsequent occurrence of speech disorders in children.

On the other hand, the complexity of the processes necessary for the formation of speech function indicates the importance of communication between the child and the parents during the formation of the functional speech system. This is the key to the psychosocial aspect of the problem. It is communication with a close adult that provides the simultaneous impact of various types of stimuli, including emotional ones, which ensures the coordinated, harmonious formation of the components of the functional speech system. In addition, constant communication with the same owner of the formed speech system increases the likelihood of adequate formation of the rhythm of speech activity [4, p. 115]. This is the role of communication with a close adult in the normal, physiological development of speech in a child.

In a situation where the perinatal effect of hypoxia is very likely, including during cesarean section, the role of communication with parents and especially with the mother increases even more, since it is this that can give an additional stimulus, activate functional reserves and thereby compensate for possible impairment in the formation of speech functions.

However, it should not be overlooked that the birth of a child by caesarean section may affect the nature of communication between the mother and the child. It is logical to assume that the factors that led to the choice of caesarean section as a method of delivery – both medical indications and psychological aspects – can change the subsequent attitude of a woman towards a child. This may be manifested in the fact that with regard to such a child, the mother makes more compromises; more concessions are observed against the backdrop of perceived heightened control. This can serve as an additional factor in the violation of the development of speech function.

Conclusion

Thus, in the group of children with general speech underdevelopment, there are significantly more children born by caesarean section than in the control group. Consequently, the method of delivery is important as a perinatal factor in the occurrence of general speech underdevelopment as a complex disorder with impaired formation of all components of the speech system. The influence of this factor may be associated with transient hypoxia, the long-term effect of which on the cerebral cortex may be a violation of speech development. In addition to biomedical aspects, an important role can be played by the change in the attitude of the mother to the child, probably caused not by the very fact of operative delivery, but by the reasons for its choice. Such a change can be manifested by a large number of concessions, which reduces the influence of afferentations necessary for the formation of speech function, and contributes to the occurrence of speech disorders.

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