

УДК 159.955:616.831-053.6

RESEARCH OF THINKING PROCESS (GENERALIZATION) FEATURES IN ADOLESCENTS WITH ICP

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Infantile cerebral palsy is a disease of Central nervous system that is characterized by leading lesion of the motor areas and motor tracts of the brain. In the case of ICP there occurs the early organic lesion of the motor and speech structures of the brain. The causes of these violations can be different: infectious diseases, especially viral etiology, intoxications and injuries during pregnancy, chronic diseases, incompatibility of mother and fetus blood on Rh factor or group of blood. With an extremely low weight of the newborn, the probability of infection is significantly increased. After the birth the lesion of the brain structures can be as the result of a craniocerebral trauma or infection, such as meningitis.

In the article there are considered the questions concerned with the problem of development of adolescents with congenital and acquired abnormalities. Features of the thinking process in adolescents with ICP become evident when performing tasks that require stimulation of intelligence based on analytic systems interaction. In adolescents with ICP there is usually noted not only the small stock of knowledge and perceptions because of the poverty of their practical experience and specific difficulties processing of information that is gained in the process of subject-practical activities. Development retardation of visual-actionable thinking in adolescents with ICP can delay the formation of mental operations in General and first of all the verbal-logical thinking (from the total meaning of words and verbal generalization). Adolescents with ICP tend to generalize coincidental phenomena but significant relations are little taken into account.

To reveal the development disturbances of the thinking process in adolescents with ICP we need a comprehensive analysis of clinical-psychological-pedagogical features.

Key words: thinking process, generalization, stimulation of intelligence, verbal-logical thinking, deletion of subjects, the level of mental development.

Детский церебральный паралич - заболевание ЦНС, характеризующееся ведущим поражением двигательных зон и двигательных проводящих путей головного мозга. При ДЦП имеет место раннее органическое поражение двигательных и речевых структур головного мозга. Причины этих нарушений могут быть разные: инфекционные заболевания, особенно вирусной этиологии, интоксикации и травмы во время беременности, хронические заболевания, несовместимость крови матери и плода по резус-фактору или групповой принадлежности крови. При очень низком весе новорожденного вероятность заболевания значительно увеличивается. После родов повреждение структур головного мозга бывает следствием черепно-мозговой травмы или инфекции, например, менингита.

В статье рассматриваются вопросы, связанные с проблемой развития подростков, имеющих врожденные и приобретенные дефекты. Особенности мыслительного процесса у подростков с ДЦП четко проявляются при выполнении заданий, требующих стимуляции интеллекта, основанной на взаимодействии анализаторных систем. У подростков с ДЦП обычно отмечается не только малый запас знаний и представлений за счет бедности их практического опыта, но и специфические трудности обработки информации, получаемой в процессе предметно-практической деятельности. Отставание в развитии наглядно-действенного мышления у подростков с ДЦП может задерживать формирование мыслительных операций в целом и, прежде всего, словесно-логического мышления (от общего значения слов и словесного обобщения). Подросткам с ДЦП свойственно обобщать случайные явления, существенные же отношения мало принимаются во внимание.

Для выявления отклонений в развитии мыслительного процесса у подростков с ДЦП необходим комплексный анализ клинико-психолого-педагогических особенностей.

Ключевые слова: процесс мышления, обобщение, стимуляция интеллекта, словесно-логическое мышление, исключение предметов, уровень психического развития.

Дитячий церебральний параліч - захворювання ЦНС при провідному ураженні рухових зон і рухових провідних шляхів головного мозку. При ДЦП має місце раннє органічне ураження рухових і мовних систем головного мозку. Причини цих порушень можуть бути різні: інфекційні захворювання, особливо вірусної етіології, різні інтоксикації і травми під час вагітності, хронічні захворювання, несумісність крові матері і плоду по резус-фактору або групової належності крові. При дуже низькій вазі новонародженого ймовірність захворювання значно збільшується. Після пологів пошкодження структур головного мозку буває наслідком черепно-мозкової травми або інфекції, наприклад менингіту.

У статті розглядаються питання, пов'язані з проблемою розвитку підлітків, які мають вроджені і набуті дефекти. Особливості розумового процесу у підлітків з ДЦП чітко проявляються при виконанні завдань, що потребують стимуляції інтелекту, заснованої на взаємодії аналізаторних систем. У підлітків з ДЦП зазвичай відзначаються не тільки малий запас знань і уявлень, за рахунок бідності їх практичного досвіду, але і специфічні труднощі обробки інформації, одержуваної в процесі предметно-практичної діяльності. Відставання в розвитку наочно-дієвого мислення у підлітків з ДЦП може затримувати формування розумових операцій у цілому і, насамперед словесно-логічного мислення (від загального значення слів і словесного узагальнення). Для підлітків з ДЦП властиво узагальнення випадкових явищ, суттєві зв'язки мало приймаються до уваги.

Для виявлення відхилень у розвитку розумового процесу у підлітків з ДЦП необхідний комплексний аналіз клініко-психолого-педагогічних особливостей.

Ключові слова: процес мислення, узагальнення, стимуляція інтелекту, словесно-логічне мислення, виключення предметів, рівень психічного розвитку.

Problem statement.

The research of the hierarchical organization of the thinking process and basic operations in adolescents with cerebral pathology in particular with ICP in the conditions of pathogenesis requires extensive and thorough analysis. Pathogenesis of the thinking process (generalization) disturbances in adolescents with cerebral palsy is extremely complex.

Cerebrostenical phenomena expressed in a low intellectual performance as well as the inertia of mental activity influence the nature of mental activity of children with ICP [3].

The last researches and publications analysis.

In the last decade the problems of adolescents with disabilities attract the attention of an increasing number of specialists of different directions. Disability of adolescents with cerebral pathology takes the first place in the structure of adolescent's disability in neurological profile and its severity is caused by both motor and mental disorders (thinking) [6].

One of the leading places in the structure of this pathology takes an infantile cerebral palsy (ICP). The problem of ICP is one of the most actual in modern medicine. It is caused by that for the last time has delineated a steady increase in the prevalence of ICP among the population and by the bad diagnostic base and inadequate training of the majority of specialists.

The term « infantile cerebral palsy» unites a number of syndromes that occur on the lesion of the Central nervous system. The main clinical symptom of the ICP is the motor function disturbances caused by the delay or atypical development of statokinetic reflexes, tonus pathology and paresis [7].

According to the severity degree of motor functions disturbances and formation of movement skills adolescents are divided into three groups. The first group includes adolescents with severe disabilities. In some of them there are not formed walking, the capture and holding of subjects, skills of self-service; others hardly move with the help of orthopedic devices, self-service skills in them are formed partly. The second group includes adolescents with a medium degree of severity of disabilities. Most of them can move independently but on a limited distance. They possess the skills of self-service, which are not enough automated. The third group consists of adolescents with slight movement disorders. They move independently, possess the skills of self-service, however, some movement are performed incorrectly [1].

The purpose of the article: research of the analysis and synthesis process in the cognitive activity of adolescents with ICP.

Exposition of basic material.

Factor of the dynamics of the course of the disease is crucial for the possibility of the thinking process development. It prevents the formation and development of many types of relations and interaction with peers and adults. Limitation of contacts often facilitates the autization, formation of egocentric attitude, passivity. Underdevelopment of the mental processes including the thinking process (generalization) doesn't follow directly from movement disorders but proves the massiveness and high incidence of brain lesions. As a result of movement restrictions caused by disease the adolescent lives and develops in the space of a very limited world [2].

On ICP there is noted the disturbance of a coordinated activity of the various analytic systems. Pathology of vision, hearing, muscle-and-joint feelings significantly affects the thinking in General, limits the amount of information makes difficult the intellectual activity of adolescents with cerebral palsy. Therefore the cognition of the surrounding world in the vigorous activity is disrupted. Often the visual-vivid and verbal-logical thinking begins to develop almost without Foundation of visual- actionable thinking. The development of verbal-logical thinking begins without the establishment of a generalized meaning of words and development of the verbal generalization. This stage of the development of thinking in adolescents with ICP is dramatically damaged. It depends as on the severity of the speech disturbances, lack of practical and personal experience in active cognition of surrounded world and communication, as well by limited competent early correctional impact. Retardation in the development of the verbal-logical thinking in adolescents with ICP reveals is that children hardly establish similarities and differences, and the causal relations between the objects and phenomena of the surrounding world. Classification of objects is conducted according to the principle of specific situational relations. There is noted a retardation in the formation of generalizing concepts and forms (classification of items, the allocation of the fourth superfluous, comprehension of a simple story). Even more difficult for studding adolescents with ICP is a generalization of observations, such as the union of objects or phenomena on the base of identified common essential for these series features of objects [4].

With the purpose of realizing set research goals we were taken as a basis the methodic "deletion of the objects – the fourth extraneous" S. Y. Rubinstein «Experimental methods of pathopsychology and experience of their usage in the clinic» [5].

The research was carrying individually on the base of children's specialized clinical sanatorium «Hadzhibey». Time of research: the first half of the day.

From the analysis of the results follows, that the thinking process in adolescents with ICP has a lower limit of norm. As a consequence the process of maturation of the level of generalization and the features of the processes of analysis, comparison and synthesis that are leading to the formation of categories is within

the lower limit of normal and below it. Time of tasks performance for adolescents with ICP exceeded the established norm by 30-40% for all age groups. Almost all the respondents in the course of execution of tasks could easily cope with simple tasks but while performing more complex tasks could not go to the level of verbal, more abstract meaning of a group of items. It allows making conclusions about that in the respondents with the absence of a verbal description of the excluded items the thinking is on a visual-substantive level. It was also found that age possibilities of process of generalization have a steady decline in adolescents with ICP. Reduction of the level of generalization indicates the presence of intellectual defect the severity of which depends on the severity of damage to the CNS.

Table 1

Test results «deletion of the objects»
(n=201 with ICP)

Age (completed years)	Number (n) of respondents								
	N	Boys		Girls			Total		
		Sum score y	%	N	Sum score y	%	N	Sum score y	%
12	10	25	4,975	-	-	-	10	25	4,975
13	18	26	8,955	5	26	2,488	23	26	11,443
14	25	23	12,435	8	26	3,980	33	25,5	16,415
15	30	24	14,925	11	23	5,472	41	23,5	20,397
16	34	22	16,915	9	22	4,480	43	22	21,395
17	42	22	20,895	9	24	4,480	51	23	25,375
Total	159	-	-	42	-	-	201	-	-
Mean	-	23,7	79,100	-	24,2	20,900	-	24	100

Notes:

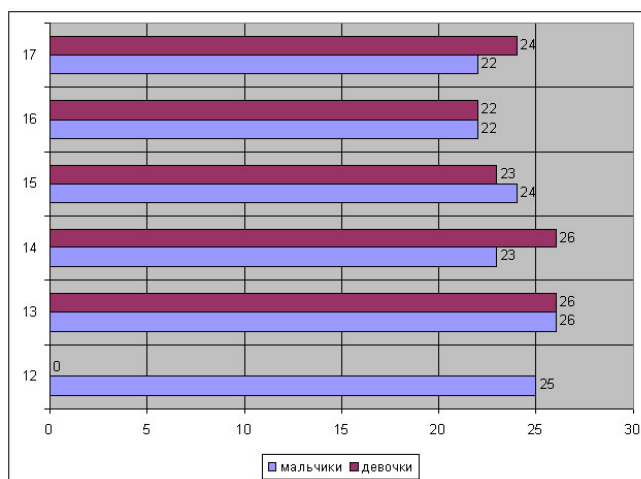
N - number of respondents;

y - sum score for each age group;

% - number of respondents in each age group from the total number of respondents.

While analyzing the responses was found inertia or «viscosity of thinking»: the respondents are not able to classify the picture, which stands for them single specimen and they are not able to switch to another picture, to compare with other images.

From adolescents (boys) worth to choose two age groups: 12-years-olds (n = 10) and 13-years-olds (n = 18), which showed relatively high results in our research. In quantitative terms it is 28 adolescents. The lowest rates on the used test revealed a group of 16-year-old and 17-year-old adolescents. In adolescents girls the highest result are in the group of 13 (n = 5) and 14 (n = 8) year-olds. In quantitative terms it is 13 adolescents that constitute about one-third of all the respondents and it is two and a half more than in adolescent boys. Reaction on the research performance is classified as a sensitive type.



Picture 1. (The sum of scores by gender)

Research with adolescents in the norm performed individually on the base of two Odessa secondary schools №13 and №73. Time of research: from 14.00 to 16.00. All respondents were informed about the purposes and objectives of the research (research of the intellectual sphere using the technique “deletion of the objects - the fourth extraneous”). The attitude to the testing process was completely positive.

Table 2

Test results «deletion of the objects»
(n=200 without development deviations)

Age (completed years)	Number (n) of respondents								
	Boys			Girls			Total		
	N	Sum score y	%	N	Sum score y	%	N	Sum score y	%
12	5	46	2,500	2	44	1,000	7	45	3,500
13	10	45	5,000	6	45	3,000	18	45	9,000
14	18	47	9,000	10	48	5,000	28	47,5	14,000
15	27	46	13,500	7	47	3,500	32	46,5	16,000
16	40	45	20,000	11	47	5,500	51	46	26,500
17	60	47	30,000	4	48	2,000	64	47,5	32,000
Total	160	-	-	40	-	-	200	-	-
Mean	-	46	80	-	46,5	20	-	46,25	100

Notes:

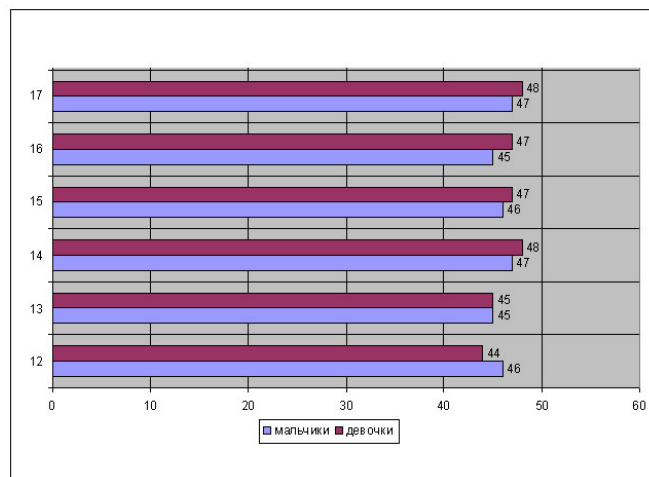
N - number of respondents;

y - sum score for each age group;

% - number of respondents in each age group from the total number of respondents.

In 14-years-olds (n = 18) and 17-years-olds (n = 60) adolescent boys in these two groups was noted the highest measures. And relatively low measure was revealed in groups of 13-year-olds (n=10) and 16-years-olds (n = 40) adolescent boys. In adolescent girls without development disabilities the highest measures revealed in a group of 14-year-old (n=10) and 17-years-olds (n = 4). And the measure is in a group of 12-year-olds (n=2).

Stage of development of the thinking process both in adolescent girls and boys (without development disabilities) is within the upper limit of norm.



Picture 2. (The sum of scores by gender)

Conclusions:

1. In adolescents with ICP have been revealed features of the thinking process, in particular, indicators in points on the applied methodic (below the lower limit of the average norm), as well as the distortion of generalization level and its qualitative pathological characteristics. The correct solution typically requires detachment from the visual image and switching on a level of verbal, more abstract meaning of group of items. When experimenter asked to give a detailed verbal explanation of the answer none of the respondents coped with this task.

2. In adolescents without deviations in the development the process of thinking, levels of generalization are within the upper limit of normal. Processes of analysis, comparison and synthesis that are leading to the

formation of the category are in a state of the completed development.

3. The specifics of violations of the thinking process in adolescents with ICP and the subsequent potential of its development are at the level of subjective-visual thinking and didn't switch to abstract (verbal-logical) type thinking.

4. In adolescents with ICP generalization by specific and situational features is a characteristic attribute of specific thinking which in turn indicates the delayed mental development and mild mental retardation.

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