

Раздел I

КЛИНИЧЕСКИЕ АСПЕКТЫ ЗДРАВООХРАНЕНИЯ

UDK 616.8:376

*A.Sh.DZHAIROVA¹ *, N.Ye.LIKHACHEVA², M.M.LEPESSOVA²*

¹Kazakh Medical University of Continuing Education

²Municipal Clinic №3 of Almaty, Kazakhstan

PRIMARY DIAGNOSTICS OF PSYCHO-SPEECH DELAYS OF CHILDREN AGED 3 TO 5 YEARS (review)

SUMMARY

The article describes main etiological and risk factors of psycho-speech delays in children. Several classifications scales of psychoverbal delays that are used by child neurologists, speech therapists and psychologists are also outlined, which in turn reflect major stages of speech development in a child, associated with different age periods. There are different psychological scales to assess the child's intellectual areas specified here: adaptive behaviour, social and emotional areas, cognitive, and speech and communications, starting from the age of three, which help in the psychoverbal delays diagnostics. Special attention is given to the correctional work of experts, without which the isolated drug therapy is not efficient. At present, the screening methods have become more important, which enable to diagnose a psychoverbal delay in children before the age of four, thus consequently allow applying correctional methods in combination with the drug therapy at early stages. Main tools used for early diagnostics are also discussed in this review.

Key words: psychoverbal delay, early age, risk groups.

Main causes of psycho-speech delays are:

1. Intrauterine pathology - the most severe speech disorders occur in case of fetus disorders occurring during the period of 4 weeks - 4 months. It is facilitated by a toxicosis during pregnancy, virus and endocrine diseases, injuries, blood incompatibility and etc.

2. The birth trauma and asphyxia lead in the prenatal pathology of the nervous system.

3. Different diseases, such as frequent infection and virus diseases, inflammatory diseases in the central nervous system, and early gastrointestinal disturbances, a child suffers during the first years.

4. Head injuries with a brain concussion and other central nervous system damages.

5. Hereditary factors. In such situations, speech disorders are one of the generalized nervous system damage symptoms and occur with mental and locomotor disturbances.

6. Adverse social and living conditions that lead to the micro-social pedagogic neglect, vegetative disfunction, emotional-volitional disorders and speech developmental deficit [2].

The main purpose of different correctional, psychological, medical and pedagogical techniques is to form an adaptive behaviour and consequently, the improved quality of life of a child with a psycho-speech delay.

The adaptive behaviour is a behaviour pattern, which involves an adjustment tactics, which means the individual's daily activity providing interaction with others and

enabling him/her to take care of him/herself [3, 4].

The adaptive behaviour tends to change with age, thus, children become less dependent on their parents, require less continuous help, increasingly adapt to the environment. Relevant skills required for the child's adaptation in the inner circle, kindergarten, school and etc, develop according to specific age intervals. Disorders of such skills, in particular, the speech delay, in addition, inhibit thinking, cause psycho-speech delays, and, by contrast, the congenital mental and neurological diseases in their turn cause speech delays. The psycho-speech delays are often found in children aged 5 and older. It is clear: a child starts actively communicate at this age, and it is the stage when parents see the evident problems. However, 5 years is late to start treatment of psycho-speech delays, there are less chances to cure, if a child has not started talking until the age of 6, and if the child doesn't speak after the age of 7, medical assistance can be untimely.

Herewith, the type of dysontogenesis determines the more disturbed and the safer life spheres. The correctional process should be planned to consider the problems in relevant life spheres, which requires application of methods to assess the adaptation level, in order to identify the patient's strengths and weaknesses, and to find a link between adaptation levels in different areas of daily life. This factor is especially important, since it enables us to determine the correction target. Thus, the target is a skill, which development will have a positive effect on behaviour in general, rather than a missing skill, in particular, a psycho-

*ayajalair@gmail.com

speech delay.

The neurology and neurosurgery are the main clinical medicine areas, where the neuropsychology facilitates the solution of top diagnostic tasks, the earlier and more accurate diagnostics of cerebral and local symptoms, the treatment dynamics assessment. The neuropsychological diagnostics is a basis to justify the rehabilitation training forms and methods in the rehabilitation system [5].

Psycho-speech delay classification

The psycho-speech delay is a group of disorders combined by clinical implications reflecting the psycho- and/or speech delay from the age norm [6].

Clinical Pedagogical Classification [7]

I. Oral Speech Disorders

Disorders of Phonation:

- Dyslalia
- Dysarthria
- Rhinolalia
- Stutter
- Tachylalia
- Bradyarthria

Voice disorders

Structural and semantic disorders:

- Alalia
- Aphasia

II. Written Speech Disorders

- Dysgraphia
- Dyslexia

Psychological and Pedagogical Classification

Group 1 - Communication means disorders

- Phonetics and Phonemic Speech Underdevelopment (FFSU)

- General Speech Underdevelopment (GSU)

Group 2 - Communication means application disorders

- Stutter

FFSU:

1. Speech sound disorder (distortions, confusion, replacement, no sound)

2. Phonemic disorder (perception, not ready for the phonemic analysis):

- Insufficient recognition and distinction of the mispronounced sounds;

- Insufficient distinction of the number of sounds from different phonetic groups with their relatively formed pronunciation.

- Deep phonemic underdevelopment, when a child can practically not separate them from words, determine the sequence of sounds in a word.

Table 1. Differential Diagnostics of Speech Delays and General Speech Underdevelopment (according to M.E. Khvatsev, N.S. Zhukova, E.M. Mastjukova, T.B.Philicheva) [7].

	Speech Delay (SD)	General Speech Underdevelopment (GSU)
Causes	-	-
Presentation	-	-
Correction	-	-

Table 2. Degrees of the Systemic Speech Underdevelopment by Mental Deficiency (acc. to R.I. Lalayeva) [7]

Severe SSU	-
Moderate SSU	-
Mild SSU	-

Developmental delay with a speech disorder (L.A. Bulakhova) [6]:

1. Motor alalia.
 2. Sensor alalia.
 3. Dyslalia developmental delay:
- with a dysgraphia;

- with a dyslexia;
- with a acalculia;
- with a dyspraxia;
- caused by a congenital or early acquired deafness and hearing loss;
- due to a blindness or hypovision.

Table 3. Group of disorders combined by clinical implications reflecting the psycho- and/or speech delay from the age norm [6].

Diagnosis, Sign	Rett Syndrome	Early Infantile Autism	Senso alalia	Motor alalia
Speech	Children who achieved the specific level of speech development, communication and social adaptation, lose these skills after the onset. According to parents, expressive and impressive speech and social skills are lost at the age of 4-11 months on average, and self-care skills at 12-14 months.	The communicative speech function is especially affected, the speech delay is observed.	The sharp phonetic disorder, no or limited speech, numerous errors in words, sound replacement, echolalia.	Speech development is delayed, no babbling speech at an early age, the distorted obscure words appear by the age of 2-3, the simplified phrasal speech by the age of 4-5.

Behaviour	Autistic behaviour, stereotyped arm movements like squeezing, pressuring, clapping, hand-washing, rubbing appearing after the loss of aimed arm movements; gait disorders (apraxia and ataxia) appearing at the age of 1-4	Children play alone, stereotypically, often with non-game objects, distorted communications behaviour, stereotyped games	Children are often antsy, disinhibited	Lack of self-confidence, irritability, quietness
Intelligence	Under 1 year, the psycho-speech development corresponds to the age, then the earlier acquired skills are gradually lost. Significantly reduced intelligence	Intelligence level is subnormal to normal	Developmental delay	Mild developmental delay
Speech understanding	Speech understanding is extremely limited, deep disorder of expressive and impulsive speech and gross psychomotor retardation	Children understand the surrounding speech	Children do not understand the surrounding speech	Children understand the surrounding speech

Diagnostic Scales Overview

At the modern stage of development of educational programs for children with PSD, the interest to the modern diagnostics and the integrated approach in treatment and rehabilitation continues growing steadily. This trend in medicine, pedagogics and psychotherapy gave a rise to the integrated programs of early assistance based on the diagnostic systems, which help to identify the risk groups and the initial presentations of PSD in young children [8, 9].

The results of psychological studies should be analysed strictly versus clinical observations. The Stanford-Binet Intelligence Scale is applied to determine the intelligence level in children from the age of 3, the Wechsler scale for children aged 5-15, the Raven's method and some other. In addition, the Gesell Development Scale, the Knobloch technique, the Bayley Scales of Infant Development, the Denver Screening Test, the Bender Visual Motor Gestalt Test, the Subject Classification method, are applied. The pedagogic characteristics is an important supplement to the clinical and psychological studies, since it is a pedagogue who is able to assess child's cognitive abilities impartially, to select various forms of education. It is an error to determine a diagnosis based on the IQ figures only (usually acquired by the Wechsler technique), it means that even with the most impartial methods applied to determine mental disorders, the integrated approach is required to determine the diagnosis and make doctor's statements. In all cases, the diagnosis should be determined by a psychiatrist based on clinical data, and any psychological techniques are supplemental to rather than defining the diagnostics [10].

Express assessments are still relevant for the early diagnostics of disorders and the speech ontogeny studies at early stages. Plus is that the available evaluation scales at present are focused on identifying the complete information. Minus of these tests is the long time to perform them and to complete by parents, which excludes the impartial approach, and the risk of subjective evidence arises.

The first diagnostic systems that appeared in the 20s

of the XX century were the standardized scales for infants and developed to assess the psychomotor development of young children. In 1905, A. Binet and T. Simon presented the first intelligence scale to identify children with developmental delays, whose education in ordinary school would provide many difficulties. The test was meant for children aged 3-11, included the group of questions, which helped to assess the level of child's development in different areas (sensorics, motor, emotional communication, speech development and other). Initially, it included 30 test tasks in difficulty ascending order, which provided the test success increasing with the chronological age. This scale allowed to determine with confidence, whether a child has any signs of mental disorder. In 1916, the new Binet-Simon scale version appeared - the Stanford-Binet Intelligence Scale, which included the tests from the original scale and the set of new tests mostly prepared by Termen. The most notable innovation was the refusal from IQ assessment as a ratio of the intelligent to chronological ages [8].

One of the noteworthy diagnostic methods is the Nancy Bayley Scale of Infant Development aged from birth to 42 months (Bailey-III, 3d edition). This tool was recognized by international community as one of the most integrated infant psychomotor development assessment method in children aged 1 to 42 months. Bayley-III offers the reliable assessment of child's abilities and allows to determine both child's weaknesses and strengths. The Bayley Scale is considered as a standardized method with the high validity level, corresponding all federal and state requirements of the USA for early diagnostics of PSD.

The first domestic developments were characterized by a complex content and were applied by neurologists to assess child's neurological area and the nervous system maturity. The techniques were based on the analysis of child responses and the age points of such responses, and on accumulated data about the age mental changes in children as compared to the norm. Later, the diagnostic models ap-

peared based on psychological and pedagogical indicators (G.V. Pantyukhin, K.L. Pechora, E.L. Fruht, L.G. Golubev (1983), O.V. Bazhenov (1986), G.V. Kozlovskaya, A.V. Goryunova (1997) et al. [8].

We should also note the Vineland Adaptive Behavior Scale -VABS, which is a common adaptation assessment tool for normal people and people with developmental disorders. The scale is recognized as a reliable, valid tool for diagnostics of the adaptive functioning level, and as a method to plan the correction development programs for children and adults with disabilities, and to assess their efficiency. The Vineland scale is a semi-structured interview, where the experts answer the questions (parents or relatives). The scale allows to assess the four major life spheres:

- Communication,
- Daily life skills,
- Socialization,
- Motor skills.

The questionnaire has also the maladaptation scale, which separates the maladaptive behavioural phenomena into two groups [10].

At present, the modern techniques are based on the early logopedic diagnostics programs (G.V.Chirkina, Yu.A. Razenkova). G.V.Chirkina emphasizes that the logopedic diagnostics and speech stimulation at the early stages of speech communication development are aimed at the early identification and correction of speech disorders and starts from the first month of child's life. By early diagnostics of speech disorders, one should focus on the traditional development pattern in children aged under 3 by N.M. Aksarina, L.O. Badalyan and the methods of neuropsychic diagnostics in young children by G.V. Pantyukhina, K.L. Pechora, E.L. Fruht [7].

In the early 21st century, the screenings for fast assessment of psychomotor infant development were popu-

lar, which benefit is the coverage of the large number of patients to determine the risk factors. In the USA, they recommend to use USPSTF, Screening for Speech and Language Delay and Disorders in Children Aged 5 Years or Younger. This screening allows to reveal PSD caused by a hearing loss, and an autism in infants and young children [11]. Consequently, the need in screening methods issue is raised here. Thus, the study of developmental delays made by Abo El Elella S.S. et al., which included 1012 children aged 24-60 months, in Egypt, revealed that 987 children (96.4%) had normal development, children with developmental disorders had such factors as a male sex and home education. Nine questionnaires were used during studies based on the age restriction [13].

Conclusion. On the basis of the analysis made, the diagnostic scales are provided that allow to identify speech disorders at an early age. According to the WHO review, most children live in the low and middle income countries. For centuries, the researchers and defenders globally work towards prevention, diagnostics and treatment of child diseases, for children could enjoy a good health and reach their maturity [15]. However, due to the anthropogenic intensification in the modern society, people's health progressively decreases, the psychoneurological and neurogenic pathologies develop early tightly linked to the economic situation and national security in the country [15]. Equally unacceptable is the discrepancy between countries in their healthcare and social support systems that facilitate optimal development of children, designed to prevent, identify and manage the development problems in infancy and early childhood [14]. Since the assessment tools developed for children with another social and cultural level may appear inconvenient in our social environment, which results in the need to improve and develop the domestic algorithms of the PSD early diagnostics and efficient prevention.

REFERENCES

1. Zlofazova M.V. Developmental Delay (clinical and psychological, age comparative and rehabilitation aspects): synopsis. ...MD—<http://www.dissercat.com/content/zaderzhka-psikhicheskogo-razvitiya-kliniko-psikhologicheskiesravnitelno-vozzrastnye-i-reabil#ixzz56rE4ZJyW>
2. Borovtsova L.A., Kozodayeva L.F. Prevention of Speech Disorders in Young Children // Psychological and Pedagogical Magazine Gaudeamus. – 2015. - № 1 (25). – PP. 111-120
3. Glossary. Psychological Dictionary // www.psychologies.ru
4. Alexandrovsky Yu.A. Shorter Psychiatric Dictionary // <http://pda.rlsnet.ru>
5. Sadyrbekova A.K., Nurgaliev K.B., Zhetkinshek D.G. Revisiting the Diagnostics of Disorders and Restoration of Higher Mental Functions in Patients with Brain Focal Lesions // Neurosurgery and Neurology of Kazakhstan. – 2013. - №3 (32). - PP. 19-22
6. Altynbekov S.A., Joldygulov G.A., Raspopova N.I., Satbayeva E.M. Psycho-Speech Delay // Clinical Diagnostics and Treatment Protocol of Kazakhstan. - 2015 - №9.
7. N.N.Yakovlev Speech Disorders Classification // Report of Department of Special (Correctional) Pedagogics, PB PPEA. - <http://kolpino-center.ru/documents/Klassifikatsiya.pdf>

8. Bondarenko O.M. Review of Diagnostics Techniques to Reveal the Children in the Risk Group of Early Age // VIII International Student Conference. – 2016. - www.scienceforum.ru
9. Hayiou-Thomas M.E., Carroll J.M., Leavett R., Hulme C., Snowling M.J. When does speech sound disorder matter for literacy? The role of disordered speech errors, co-occurring language impairment and family risk of dyslexia // Journal of Child Psychology and Psychiatry. – 2017. – Vol.58. -№2. – P.197-205.
10. Mental deficiency in children and teenagers // Clinical Advice (treatment guidelines). - FSBI St. Petersburg V.M.Bekhterev Psychoneurological Research Institute of the Ministry of Healthcare of Russia; Russian Psychiatrist Society, child psychiatry section. - 2015
11. Saifutdinova L.R., Sudarikova M.A. Assessment of Child Adaptation Developmental Level with the Vineland scale // School of Health. - 2004. - №1. - PP. 48-56
12. Screening for Speech and Language Delay and Disorders in Children Aged 5 Years or Younger: Recommendation Statement // American Family Physician. – 2015. – Vol. 92. - №4. – PP. 300A-300D. - <http://www.aafp.org/afp/uspstf>
13. Abo El Elella S.S., Tawfik M.A.M., Abo El Fotoh W.M.M., Barseem N.F. Screening for developmental delay in preschool-aged children using parent-completed Ages and Stages Questionnaires: additional insights into child development // Postgrad Med J. – 2017. -№93 (1104). – PP. 597-602.
14. World Health Organization. Review Developmental Difficulties in Early Childhood Prevention, early identification, assessment and intervention in low- and middle-income countries. - 2012
15. Ilyukhina V. A., Kataeva G. V., Korotkov A. D., Chernysheva E. M. Oxygen-Dependent Energy Deficit as Related to the Problems of Disorders of Human Ontogenetic Development and Sociobiological Adaptation (Theoretical and Applied Aspects)//Journal of Evolutionary Biochemistry and Physiology. – 2015. - Vol. 51. - №2. - PP. 85—97

ТҮЙІНДІ

Мақалада негізгі этиологиялық факторлар және тәуекел факторлары, сонымен бірге бала неврологтарымен, логопед мамандарымен және психологтармен тәжірибеде қолданылатын әртүрлі тіл дамуының кешеуілдеуінің жіктелуі ұсынылған. Әртүрлі жас аралықтарына сәйкес келетін бала сөйлеуінің дамуының негізгі кезеңдері көрсетілген. Баланың зерделі салаларының деңгейіне баға беруге арналған әртүрлі психологиялық шәкілдер ұсынылған: бейімді мінез – құлықтар, әлеуметтік – эмоционалды салалар, танымдық, сонымен қатар 3 жастан бастап сөйлеу мен қатынас құру қабілеттері, олар психикалық - тіл дамуының кешеуілдеуінің диагностикасына көмектеседі. Ерекше назар мамандардың түзету жұмыстарына бөлінген, олардың көмегісіз оқшауланған дәрі – дәрмектік емнің тиімділігі аз. Қазіргі уақытта скринингтік әдістемелердің рөлі арта түсті, олар 4 жасқа дейін балалардағы психикалық - тіл дамуының кешеуілдеуін анықтауға жағдай жасайды, демек дәрімен емдеумен бірге түзету әдістерін ерте қолдану мүмкіндіктерін береді. Ерте диагностика үшін қолданылатын негізгі құралдар қарастырылған.

Кілт сөздер: Психикалық - тіл дамуының кешеуілдеуі, ерте жас, қауіп - қатер тобы.

АННОТАЦИЯ

В статье представлены основные этиологические факторы, факторы риска и разнообразные классификации задержки психоречевого развития, используемые в практике детскими неврологами, логопедами и психологами. Отражены основные этапы развития речи у ребенка, соответствующие разным возрастным периодам. Представлены различные психологические шкалы для оценки уровня интеллектуальных сфер ребенка: адаптивное поведение, социально-эмоциональной области, познавательной, а также речь и коммуникации, начиная с 3 лет, помогающие в диагностике задержки психоречевого развития. Особое внимание уделено коррекционной работе специалистов, без помощи которой изолированная лекарственная терапия мало эффективна. В настоящее время возросла роль скрининговых методик, которые позволяют диагностировать задержку психоречевого развития у детей до 4 лет, а, следовательно, дают возможность раннего применения коррекционных методов в сочетании с лекарственной терапией. Рассмотрены основные инструменты, используемые для ранней диагностики.

Ключевые слова: задержка психоречевого развития, ранний возраст, группа риска.