

СТОМАТОЛОГІЯ

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©P. S. Flis¹, V. V. Filonenko¹, A. O. Melnyk¹, Yu. P. Nemyrovych¹, A. P. Lopoha²O. Bohomolets National Medical University, Kyiv¹National Children's Specialized Hospital "ОКНМАДЫТ" of the Ministry of Health of Ukraine²

ALGORITHM FOR SPEECH DISORDERS CORRECTION USING PROPRIETARY CONSTRUCTION DEVICE

Summary. Currently, there is a tendency in Ukraine to increase the number of children with speech disorders. One of the most common disorders of speech function is dyslalia. Speech therapists are the main form of correctional training, children are assigned certain and consistent stages of speech therapy. Along with that, various individual and standard devices are used.

The aim of the study – to conduct logopedic correction of speech disorders in patients with physiologic occlusion using the in-house designed device according to the proposed algorithm.

Materials and Methods. A survey was conducted on 73 children (24 – aged 3 to 6 years, 49 – from 6 to 12 years old) without significant orthodontic pathology in the presence of speech impairment with normal hearing and intelligence and speech correction. In addition to logopedic exercises, it was recommended to use vestibular plates Dr. Hinz - MUPPY-P with beads, removable orthodontic devices with beads, Bluegrass appliances, devices for elimination and prevention of unhealthy tongue habits. In order to identify early risk factors for major dental diseases, the hygienic state of the cavity of the mouth, the intensity of caries, the presence or absence of inflammatory processes in the tissues of periodontal disease were determined.

Results and Discussion. The first step in the algorithm for successful correction of speech disorders were to explain its necessity. The second stage involved the phonetic diagnosis of all aspects of speech, logic, intelligence, memory and thinking. Polymorphic dyslalia was diagnosed in all subjects of reporting panel. The third stage of the algorithm is to carry out work to overcome the abnormalities of the phonetic side of speech was a direct speech correction. The proposed device for elimination and prevention of unhealthy tongue habits was used in 6 cases.

Conclusions. After the speech therapy correction correct articulation and sound were formed. The proposed device for the elimination and prevention unhealthy tongue habits should be used in conjunction with speech therapy, in particular, dyslalia. In addition to the positive logopedic effect of the proposed therapeutic and prophylactic measures, we have also received improvement of the hygienic state of the oral cavity, the absence of an increase in the intensity of the caries of permanent teeth and increased motivation in patients.

Key words: speech disorders; articulation; device for elimination and prevention of unhealthy tongue habits.

INTRODUCTION Speech is the main means of human communication. The human being defines objects, their properties, and relations by a combination of sounds, words, as a result of which speech became the main tool of thinking. Any thought can be expressed with its help [1, 2].

At present increasing tendency of the number of children with speech disorders occurs in Ukraine. The etiological factors that may cause them are complex and polymorphic [3–5]. One of the most common disorders of speech function is dyslalia. This disease is manifested in the replacement, distortion and the complete absence of certain sounds [4, 5].

Speech therapy classes are the main form of correctional education, children are prescribed specific and successive steps of speech therapy correction [4, 5–8].

With that, various individual and standard devices are used – vestibular plates by Dr. Hinz [3, 9, 10], Bluegrass appliances [11, 12], removable orthodontic appliances with a bead [9], pre-orthodontic trainers [3, 9, 10], etc.

The fact of increasing the number of children with speech development disorders requires a revision of the methods and forms of upbringing and training of this category of children, the creation of conditions for the harmonious development of speech [4, 5].

The aim of the study – delivery of speech therapists correction of speech disorders in patients with physiologic occlusion using proprietary construction device according to the proposed algorithm.

MATERIALS AND METHODS In order to achieve the goal set in the work, the National Children's Specialized Hospital "ОКНМАДЫТ" of the Ministry of Health of Ukraine

conducted a survey of 73 children (twenty-four of them aged from 3 to 6 years old, forty-nine from 6 to 12 years old). All of them were without severe orthodontic pathology in the presence of speech disorders with normal hearing and intelligence, and to whom speech correction was performed. Dental examination and manufacture of additional devices for the correction of speech disorders were carried out in the Stomatological Medical Center of O. Bohomolets National Medical University on the basis of the departments of Orthodontics and Prosthodontics Propaedeutics and Pediatric and Preventive Dentistry.

To identify speech disorders speech therapy diagnostics of all aspects of speech was conducted. To test logic, intellect, memory, thinking it was suggested to group objects or other things, read a small text, retell it, writes a few sentences and so on.

The children's answers were fixed and the coefficient of logical thinking check was determined using the formula: the number of correctly completed tasks / total number of pictures * 100 %.

For a survey of phonemic perception, analysis, synthesis, and imagination, they offered the child to listen and repeat syllables and words, select a certain sound from a number of sounds, determine the presence of sound, and so on. The children's responses were recorded in the speech survey map and the sound pronunciation coefficient was determined before the beginning of the speech correction.

To overcome violations of the phonetic side of speech, speech correction was performed directly. Usually, 10 lessons were prescribed 3 times a week, if necessary, the number of lessons was increased.

Of the 24 children aged 3 to 6 years in twelve cases, we further recommended, together with speech therapy classes, to use at home the standard vestibular plates Dr. Hinz – MUPPY-P with a bead, from 49 children aged from 6 to 9, eight used removable orthodontic apparatus with a bead, nine – non-removable Bluegrass appliances. A device for eliminating and preventing unhealthy tongue habits (declarative patent of Ukraine No. 126393 of June 11, 2018) was used in six cases [13].

In order to early identify risk factors for major dental diseases in children undergoing examination and speech correction, therapeutic measures were taken, namely, the hygienic condition of the oral cavity, the intensity of caries, and the presence or absence of inflammatory processes in periodontal tissues. We determined the risk factors for the occurrence of a pathology of hard tissues of teeth and periodontal.

RESULTS AND DISCUSSION The first step of the successful speech correction algorithm was an explanation of its necessity. At the beginning of the treatment, the children and their parents were interviewed to clarify the consequences of not treating and supported the interest of those who were already aware of the presence and the need to correct problems with pronunciation.

The second stage of the algorithm, which provided for phonetic diagnostics of all sides of speech and consisted of speech (pronunciation of the suggested list of words) and subject (children were provided with subject and plot drawings) parts, allowed identifying the wrong sound (phonemic speech design): distorted pronunciation of sounds, replacement of sounds or in mixing them. To test logic, intellect, memory, thinking, it was suggested to group objects or other things, read a small text, retell it, writes a few sentences and so on. Diagnostics included checking pronunciation, vocabulary, grammar, and phonetics. When collecting the history, most patients pointed to a typical complaint, namely that the “something wrong” with the tongue.

During the examination, we identified dyslalia of functional and mechanical origin and its mixed forms.

One of the reasons for functional dyslalia in four children, in our opinion, was communication in the family in different languages, when the child transfers the peculiarities of the pronunciation of one language into another. These were children from families where the father or mother did not speak Ukrainian, which is connected with the lexical component of speech and the phonetic component in various speech groups.

Also, in four other children was noted the incorrect pronunciation of sounds by parents, which is onomatopoeia, since children spend most of their time directly at home and imitate the distorted sound of adults.

Three children had younger brothers and sisters, naturally, communicating with them and adopting their sound pronunciation. This may be the cause of infantilism and emotional-volitional immaturity since children tend to imitate their elders.

Unhealthy habits, noted in most children, most often: biting the lower or upper lip, sucking fingers or tongue and fingers, supporting the chin with the hand. All the above habits in the future, in our opinion, lead to the emergence of dental anomalies. Parents of fifteen children indicated mouth breathing. Since the correct speech breathing is breathing in – by the nose, breathing out through the mouth, they were advised to consult an otolaryngologist.

Late termination of the use of the pacifier (longer than one year) was diagnosed in two cases, which could also lead to the formation of abnormal articulation skills and cause abnormal bite formation.

Extra-oral examination focused attention on the position of the chin, lip closing, the severity of the nasolabial and chin folds, proportionality and symmetry of parts of the face. The listed criteria for all patients met orthodontic “norm”.

On examination of the oral cavity, anomalous attachment of the frenulum was found in 28 people out of 73 (shortening the frenulum of the upper lip in 12 people, the tongue – in 16), which makes it impossible to lift it sufficiently with high-lingual sounds. Consultation of a pediatric dental surgeon is recommended for these children and, if indicated, a plastic surgery of the frenulum is performed.

In the surveyed, physiological and pathological defects of the dentition were noted, since children were involved in the treatment during the period of temporary and transitional dentition. The criterion for the influence of defects in the dentition on speech was articulation, a constant form of pronunciation of sounds. For each sound it is different, and if it is correct, then the pronunciation defect is temporary and is not subject to correction.

Determining the shape and size of the language is quite a subjective criterion. When examining the tongue, teeth were imprinted on its lateral surfaces in thirteen people, which indicated a lack of oral cavity volume. In further speech diagnostics, the tongue tone, speed, and the number of movements were checked.

When examining the dentition we paid attention to the shape, interposition, the presence of sufficient space for the teeth. In all patients examined, the ratio of the first permanent molars (key of occlusion) was within the normal range.

Children were offered to consider pictures and perform tasks to check logical thinking depending on age: “Find an extra object (thing)”, “Find a family”, “Find a similar picture”, “Show and give the name of the object” and others. We demonstrated cards and offered to make the text of a series of drawings, group items or other things.

Using diagnostic schemes, it was found that out of seven children aged 3 to 6 years in ten assignments, 97.94 % received the correct answers in 90 % of cases, out of twenty-nine children aged 6 to 12 years (Table 1).

The children's responses were fixed and the coefficient of logical thinking was calculated according to the formula: the number of correctly completed assignments / total number of pictures * 100%.

For the examination of phonemic perception, analysis, synthesis, and presentation, the child was encouraged to

Table 1. Logical Thinking Test Results

Number of children	Age	Number of tasks	Correct answers	Uncorrect answers
24	3 – 6 years	10	63 (90 %)	7 (10 %)
49	6 – 12 years	10	284 (99.39 %)	3 (0.61 %)

listen and repeat the wares and words, to select a certain sound from a series of sounds, to determine the presence of sound, and so on. The children's responses were recorded in the speech survey card. If the child correctly spelled the sound, then the «+» sign was put, if it distorted or did not pronounce at all – «-», if one sound was replaced by another, then the substitute sound was written: [c-ш], [c-c], [ч-щ] (s-sh; s-s; ch-shch).

The results were translated into points as follows: «+» – 0 points, «-» – 1 point, replacement of one sound to another – 2 points.

Analyzing the children's responses, they determined the coefficient of sound reproduction at the beginning of the speech correction, taking into account the sibilant («з», «з'», «с», «с'», «ц», «ц'») (z; z'; s; s'; ts; ts'), hissing («ж», «ч», «ш», «щ»-[шч]) (zh; ch; sh; shch), sonorous («л», «л'», «р», «р'») (l; l'; r; r') (total – 14 sounds) made a conclusion about the severity of the phonemic speech for each child (Table 2).

It should be noted that the replacement or passage of sounds under the age of 4–5 years is an option of a physiological norm for the proper development of articulation motility and articulation (sound reproduction). If there is a replacement of sounds at an older age, then this is a sign of phonetic and phonemic underdevelopment of speech.

Separately, the defects of the pronunciation of the voiced consonorous sounds are the defects of the pronunciation, which are expressed in replacing the voiced consonorous sounds with paired voiceless sound: [б-п], [д-т], [в-ф], [з-с], [ж-ш], [р-к] (b-p d-t v-f z-s zh-sh h-k). They were observed quite rarely (in the age group up to 6 years – 2 children, 6–12 years old – 1 child), and also refer to phonetic and phonemic underdevelopment of speech, but did not enter the object of our study.

As a result of our survey of 73 children, it was found that violations of the sound transmission of sonorous sounds «л» (l) occur most often – 20 cases in the age group of 3 to 6 years old and 31 in the age of 6 to 12 years, and «р» (r) – respectively 21 and 35 cases. Most of the disturbances in the sound pronunciation of sibilant and hissing sound are noted in children aged 3 to 6 years.

The replacement of sounds in children over 6 years old, with the formed phonetics, was not observed. Coefficient of sound pronunciation prior to the beginning of speech

correction was in the age group from 3 to 6 years: sibilant – 116, hissing – 81, sonorous – 61 (total – 258), which is significantly more than in the age group from 6 to 12, respectively: 19, 10 and 72 (total – 101). Thus, all patients were diagnosed with polymorphic dyslalia.

Clinical example

Patient P., 7 years 6 months. Speech unfolded phrase. Vocabulary is age appropriate. Voice voiced modulated. Articulatory motility is normal. Skips «р» (r) sounds when consonorous match. Sound pronunciation: interdental sibilant and hissing sounds are distorted; there are no «р» (r) and «р'» (r'). Diagnosis: polymorphic dyslalia.

The third stage of the algorithm for conducting work on overcoming violations of the phonetic side of speech was direct speech correction, which included: the formation of the correct pronunciation of phonemes, phonemic perception, and differentiation, skills of phonemic analysis and synthesis.

Early intervention, in the presence of speech pathology, is the most effective, since it allows you to quickly eliminate speech defects. For a long time, the existing unhealthy habits lead to a change in the growth of certain segments of the dental apparatus.

For the formation of skills of correct articulation of the language by a speech therapist, additional means were used: a speech therapy device for "raising the tongue" (Fig. 1), an individual sound detector for setting sounds (Fig. 2), a speech therapy device for developing conversational breathing "moustache-whistle" (Fig. 3) probes for myogymnastics (Fig. 4), mills of various shapes (Fig. 5), and others.

An important component in the treatment of children of the younger age group is the translation of treatment into the game. Preventive exercises, namely: to blow bubbles, drink juice through a straw, playing the flute, which children like a lot – this is the element of treatment. These exercises have a positive effect on the elimination of speech disorders. Children can do exercises both at home with their parents and in groups of children's groups in the presence of a speech therapist, also recommended orofacial gymnastics.

When conducting a speech therapy correction, cooperation and understanding between the child and the speech therapist are important. The child should clearly and intelligibly perform the proposed exercises, and parents

Table 2. Sound pronunciation coefficient prior speech correction

Number of children, 73	Age group	Number of interrupted sounds		
		sibilant	hissing	sonorous
24	3–6 years	«з» (z) – 15 «з'» (z') – 7 «с» (s) – 16 «с'» (s') – 4 «ц» (ts) – 10 «ц'» (ts') – 8 [c - ш] (s-sh) – 15 [з - ц] (z-ts) – 12 [c - з] (s-z) – 1	«ж» (zh) – 19 «ч» (ch) – 18 «ш» (sh) – 20 «щ» [шч] (shch) – 20 [ч - щ] (ch-shch) – 2	«л» (l) – 20 «л'» (l') – 8 «р» (r) – 21 «р'» (r') – 12
Total points, 258		116	81	61
49	6–12 years	«з» (z) – 6 «з'» (z') – 3 «с» (s) – 4 «с'» (s') – 4 «ц» (ts) – 2 «ц'» (ts') – 0	«ж» (zh) – 2 «ч» (ch) – 3 «ш» (sh) – 2 «щ» [шч] (shch) – 3	«л» (l) – 31 «л'» (l') – 4 «р» (r) – 35 «р'» (r') – 2
Total points, 101		19	10	72



Fig. 1. Speech therapy device for "raising the tongue".



Fig. 2. Individual sound detector for sounding.



Fig. 3. Speech therapy device for the development of conversational breathing "mustache-whistle".



Fig. 4. Set of probes for myogymnastics.



Fig. 5. Mills of various shapes.

should follow the advice and recommendations received. Usually, 10 classes of speech therapy correction were prescribed 3 times a week. If necessary, the number of classes increased.

Of the 24 children aged 3 to 6 years, in 12 cases, in addition to our speech therapy sessions, we have recommended to use at home standard vestibular plates Dr. Hinz – MUPPY-P with a bead, allowing you to fight the habit of sucking fingers, translate mouth breathing into the nasal, develop circular muscle of the mouth and normalize lip closures, correct infantile swallowing, exercise myofunctional training, stimulate the process of natural self-regulation of the growing organism, correct the defects of the tongue, forming the upper position of the tongue and the correct articulation mode (Fig. 6).

Use of vestibular plates Dr. Hinz for 6–7 months allowed to improve the tone, and contributed to the training of flaccid muscles and tissues of the oral cavity, because they provoke weakening or, if necessary, relieve the tension of the muscles of the vocal apparatus. Placing the plate in the mouth, the child immediately begins to instinctively roll the bead with his tongue across the hard palate, thus stimulating the tone of the lingual muscle.

Eight children for the period of 6–8 months simultaneously with logopedic exercises used removable orthodontic instruments with a bead (Fig. 7), which also contributed to the elimination of laying the tongue between dental rows, infantile swallowing type, speech therapies, etc.

Component parts of such devices are a shortened basis of the apparatus, vestibular arc, bracket on the edge of the front and middle 1/3 of the sky, bead, fixing clamp. In our opinion, the main flow of the indicated technical solution is the cumbersome nature of the device due to the size of the structure, which overlaps articulation zones and impedes qualitative treatment.

Nine children used the permanent Bluegrass appliances (Fig. 8) for a month, consisting of orthodontic rings to the first permanent molars, connected by an arc, moving into the



Fig. 6. Vestibular plate Dr. Hinz – MUPPY-P with a bead.



Fig. 7. Removable orthodontic apparatus with a bead.



Fig. 8. Bluegrass appliance.

bracket in the front section of the sky, on which a functionally active element in the form of a roll or beads is attached. The main drawbacks of this technical solution are the inadequate versatility associated with the use of non-removable elements for fixing (orthodontic rings) on permanent teeth, which makes it impossible to use it in the interim occlusion period (the most effective period for prevention) and to increase the risk of caries on non-mineralized the neck area of permanent teeth during the root forming stage.

The device we proposed for eliminating and preventing unhealthy tongue habits was used in 6 cases over a period of 2 to 4 weeks. The device contains a bracket that is soldered to two thin-walled perforated casting crowns designed to be fixed on temporary canines to a composite flowable light curing material (Filtek flow 3M ESPE) or a hybrid glass-ionomer cement with a triple hardening mechanism (Vitremmer 3M ESPE), in the middle part of which is attached functionally acting element in the form of a bead (Fig. 9).

The advantage of the device proposed by us, in our opinion, is the following: fixation on temporary pointed tooth makes the device compact, by reducing the size of the structure, in turn, facilitates hygienic care and improves the hygienic condition of the oral cavity, eliminates the risk of caries on the non-mineralized cervical area the stage of forming the root of the permanent teeth; compactness increases the articulation zones of the language, which in turn has a positive effect on the quality of the elimination of speech disorders; the use of a functionally active element in the form of a bead, allows you to control the usual palatal position of the tongue, to activate the root of the tongue, as during a conversation the child involuntarily rolls it in the sky, stimulating the muscles of the tongue.

Clinical indications for the use of the proposed device is the prevention and treatment of speech disorders, in particular dyslalia, the prevention of dental and maxillary deformities by eliminating unhealthy tongue habits, infantile type of swallowing. Age indications: temporary and first period of a replaceable bite.

Special attention was paid to the teeth to which fixed prophylactic devices were attached or which served as a support for removable ones, because the influence of the retention areas of orthodontic equipment on the hard tissues of the teeth and periodontal due to the difficulty of cleaning some surfaces is indisputable.

Measures of comprehensive examination included the determination of the hygienic status of the oral cavity. Considering the fact that many children in the age group from 6 to 12 years had permanent first molars and incisors of the upper and lower jaws, it was considered appropriate to use the international hygiene index OHI-S (Green, Vermillion). The coloring was carried out using the Mira-2-Ton bezeritrozinim dye (Miradent), which has the properties of a clear demonstration to the child and his parents, by the difference in color, the maturity of the biofilm on the tooth surface. In 26 children out of 49 examined (53.06 %), at the beginning of treatment, the index values were greater than 2.0, which was interpreted as an unsatisfactory level of oral hygiene. In 18 children (36.73 %), it turned out to be more than 2.6, which is an indicator of a very poor level of hygiene. Only 5 children (10.2 %) had oral hygiene at a satisfactory level.

In order to prevent all children, professional teeth cleaning was carried out with the help of end brushes, medium abrasive pastes, fluorization (Fluor Protector Vivadent, Clinpro White Varnish 3M ESPE, Fluoroplain LaTuS), sealing of permanent molars fissures (Fissurit FX VOOCO).

If necessary, medical treatment was carried out, this included treatment of caries and its complications, inflammatory processes of periodontal tissues, mucous membranes and others.

In addition, all children were taught a standard teeth cleaning method in the presence of parents and individually appointed or modified individual and hygienic care products for the oral cavity. For children with permanent teeth, it was considered expedient to advise to use paste containing fluoride content in the amount of 500 to 1450 ppm, giving preference to paste containing amino fluoride and low abrasiveness – Lacalut 4-8, Lacalut 8+, Lacalut Junior, Rocks school. It was also considered expedient to prescribe some hygiene aids, namely rinses (Lacalut 8+) and exogenous preparations for home use, in particular Tooth Mousse (GC).

When choosing items of hygiene, brushes, and flosses, an individual approach was used. Mostly advised Oral B brushes – Pro-Expert Stages 8+, Cross Action Soft 8+ years, because they have better cleaning properties due to the CrissCross bristles, the so-called power projection at the end of the working part – elongated bristles of the Power Tip, and most importantly, the wear indicator of bristles.

For children from 6 to 8–9 years, for interdental hygiene, floss was prescribed as flossers for children (DenTek,



Fig. 9. A device for eliminating and preventing unhealthy tongue habits in the oral cavity.

Complete Clean). Older children – super floss (Oral B Super floss) with a stiffened-end dental floss threader for more convenient use.

They also motivated patients to use an irrigator (Water Jet, Water Pick-100, Philips HX 8211/02, and Braun Professional Care MD20) in everyday hygiene, because children have a psychological peculiarity to imitate parents' behavior. Children whose parents are irrigator users noted that they also will use this tool.

Thus, while observing all of our councils, when re-examining children from 49 children, in 36 (73.47 %) the OHI-S hygiene index was 1.5 (average level), which indicated satisfactory hygiene. We have not noted an increase in the intensity of caries of permanent teeth. The DMFT index for children of 6–8 years old was 1.8 for permanent teeth, for children of 9–12 years of age, DMFT was 3.4.

CONCLUSIONS After the speech therapy correction, the correct articulation and sound pronunciation was formed.

Coefficient of sound pronunciation, considering sibilant («з», «з'», «с», «с'», «ц», «ц'») (z; z'; s; s'; ts; ts'), hissing («ж», «ч», «ш», «щ»-[шч]) (zh; ch; sh; shch), sonorous («л», «л'», «р», «р'») (l; l'; r; r') (total – 14 sounds), amounted to 2.

The device we proposed for eliminating and preventing unhealthy tongue habits should be used in conjunction with speech therapy correction, in particular, dyslalia. Conducted clinical studies confirm the possibility of its widespread use.

In addition to the positive speech therapy effect of the proposed therapeutic and preventive measures, we also received an improvement in the hygienic condition of the oral cavity, the absence of an increase in the intensity of caries of permanent teeth and an increase in patient motivation. This was due to the close cooperation of specialists of different profiles in the development of measures aimed at early detection of risk factors for the occurrence of diseases and their elimination.

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E-mail for correspondence: melnik.alona@gmail.com

©П. С. Фліс¹, В. В. Філоненко¹, А. О. Мельник¹, Ю. П. Немирович¹, А. Б. Лопоха²
Національний медичний університет імені О. О. Богомольця, м. Київ¹
Національна дитяча спеціалізована лікарня ОХМАТДИТ МОЗ України²

АЛГОРИТМ КОРЕКЦІЇ МОВЛЕННЕВИХ ПОРУШЕНЬ ІЗ ВИКОРИСТАННЯМ ПРИСТРОЮ ВЛАСНОЇ КОНСТРУКЦІЇ

Резюме. На даний час в Україні спостерігається тенденція до збільшення кількості дітей із мовленнєвими порушеннями, серед яких найпоширенішими є дислалія. Логопедичні заняття – це основна форма корекційного навчання, дітям призначають певні та поступові етапи логопедичної корекції. Також застосовували різні індивідуальні та стандартні пристрої.

Мета дослідження – провести логопедичну корекцію мовленнєвих порушень у пацієнтів із фізіологічним прикусом, використовуючи пристрій власної конструкції, згідно із запропонованим алгоритмом.

Матеріали і методи. Проведено обстеження 73 дітей (24 – у віці від 3 до 6 років, 49 – від 6 до 12 років) без вираженої ортодонтичної патології за наявності мовленнєвих порушень із нормальним слухом та інтелектом і виконано мовленнєву корекцію. Додатково до логопедичних занять рекомендували використовувати різні індивідуальні та стандартні пластинки Dr. Hinz – MUPPY-P з намистоною, знімні ортодонтичні апарати з намистоною, Bluegrass appliances, пристрої для усунення та профілактики шкідливих язикових звичок. З метою раннього виявлення чинників ризику основних стоматологічних захворювань визначали гігієнічний стан порожнини рота, інтенсивність карієсу, наявність чи відсутність запальних процесів у тканинах пародонта.

Результати досліджень та їх обговорення. Першим кроком алгоритму успішного проведення корекції мовленнєвих порушень було роз'яснення її необхідності. Другий етап передбачав фонетичну діагностику всіх сторін мови, логіки, інтелекту, пам'яті

та мислення. В усіх обстежених діагностовано поліморфну дислалію. Третім етапом алгоритму – проведення роботи щодо подолання порушень фонетичного боку мовлення була безпосередньо мовленнєва корекція. Запропонований пристрій для усунення та профілактики шкідливих язикових звичок застосували у 6 випадках.

Висновки. Після проведення логопедичної корекції сформувалися правильний артикуляційний уклад та звуковимовна. Запропонований пристрій для усунення та профілактики шкідливих язикових звичок доцільно використовувати у комплексі з логопедичною корекцією, зокрема дислалій. Окрім позитивного логопедичного ефекту від запропонованих лікувально-профілактичних заходів, ми отримали ще й поліпшення гігієнічного стану порожнини рота, відсутність приросту інтенсивності карієсу постійних зубів та підвищення вмотивованості пацієнтів.

Ключові слова: мовленнєві порушення; артикуляційний уклад; пристрій для усунення та профілактики шкідливих язикових звичок.

© П. С. Флис¹, В. В. Филоненко¹, А. А. Мельник¹, Ю. П. Немирович¹, А. Б. Лопоха²

*Національний медичний університет імені А. А. Богомольца, г. Київ¹
Національная детская специализированная больница ОХМАТДЕТ МОЗ Украины²*

АЛГОРИТМ КОРРЕКЦИИ РЕЧЕВЫХ НАРУШЕНИЙ С ИСПОЛЬЗОВАНИЕМ УСТРОЙСТВА СОБСТВЕННОЙ КОНСТРУКЦИИ

Резюме. Сейчас в Украине наблюдается тенденция к росту числа детей с речевыми нарушениями, среди которых, самыми распространёнными нарушениями является дислалия. Логопедические занятия – основная форма коррекционного обучения, детям назначаются определённые и последовательные этапы логопедической коррекции. Вместе с тем используются различные индивидуальные и стандартные устройства.

Цель исследования – провести логопедическую коррекцию речевых нарушений у пациентов с физиологическим прикусом, используя устройство собственной конструкции, согласно предложенного алгоритма.

Материалы и методы. Проведено обследование 73 детей (24 – в возрасте от 3 до 6 лет, 49 – от 6 до 12 лет) без выраженной ортодонтической патологии при наличии нарушений речи с нормальным слухом и интеллектом и выполнено речевую коррекцию. Дополнительно к логопедическим занятиям было рекомендовано использовать вестибулярные пластинки Dr. Hinz – MURRY-P с бусиной, съёмные ортодонтические аппараты с бусиной, Bluegrass appliances, устройства для устранения и профилактики вредных языковых привычек. С целью раннего выявления факторов риска основных стоматологических заболеваний определяли гигиеническое состояние полости рта, интенсивность кариеса, наличие или отсутствие воспалительных процессов в тканях пародонта.

Результаты исследований и их обсуждение. Первым шагом алгоритма успешного проведения коррекции речевых нарушений было разъяснение её необходимости. Второй этап предусматривал фонетическую диагностику всех сторон речи, логики, интеллекта, памяти и мышления. Во всех обследованных диагностировали полиморфную дислалию. Третьим этапом алгоритма – проведение работы по преодолению нарушений фонетической стороны речи была непосредственно речевая коррекция. Предлагаемое устройство для устранения и профилактики вредных языковых привычек использовали в 6 случаях.

Выводы. После проведения логопедической коррекции сформировался правильный артикуляционный уклад и звукопроизношение. Предлагаемое устройство для устранения и профилактики вредных языковых привычек целесообразно использовать в комплексе с логопедической коррекцией, в частности дислалій. Кроме положительного логопедического эффекта от предложенных лечебно-профилактических мероприятий, достигнуто ещё и улучшение гигиенического состояния полости рта, отсутствие прироста интенсивности кариеса постоянных зубов и повышение мотивации пациентов.

Ключевые слова: речевые нарушения; артикуляционный уклад; устройство для устранения и профилактики вредных языковых привычек.