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**Original Approach to the Use of Physical Rehabilitation and Physical
Education in the Sphere of Health Restoration and Preservation of Children
with Orthopedic Pathology in Lviv Region**

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Original Approach to the Use of Physical Rehabilitation and Physical Education in the Sphere of Health Restoration and Preservation of Children with Orthopedic Pathology in Lviv Region

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Abstract

There is a lack of rehabilitation programs, systematic data on rehabilitation examination as well as guidelines for the integrated application of physical rehabilitation for children suffering from torticollis with the aim of physical rehabilitation individualization. The relevance of the problem is supported by the fact that the first in Ukraine Municipal Rehabilitation Centre for Children with Congenital and Acquired Forms of Torticollis was established in Lviv. The objective of this study is to analyze the practice of the City Centre for rehabilitation of children diagnosed with torticollis. The methods that are used in this study are somatoscopy (author's original algorithm), palpation, proprietary methods measuring the angle of head tilt and distance between acromial and mastoid bones when there is a tilt in the cervical spine, neck extension, cervical rotation, interfacial bioelectric potentials of pectoral-clavicular-papillary muscles of the neck); methods of statistical theory. An individual approach to physical rehabilitation of children diagnosed with torticollis improved the functioning of the affected and non-affected pectoral-clavicular-papillary muscles, fostered recovery of muscle tone and body build, narrowed the angle of head tilt, improved mobility of the cervical part of spinal cord and reduced secondary deformations in the body build. The application of physical rehabilitation measures for infants with torticollis should be considered not only as a correction of the existing disorders, but as a preventive measure, aimed at reducing the number of children with congenital motor area disorders as well as prevention of disability in older age.

Keywords: children, physical rehabilitation, torticollis

Introduction

Today's healthy children are tomorrow's healthy citizens of the country able to ensure the development of its intellectual and spiritual potential, give birth and form healthy descendants. Negative tendency towards the growth in a number of young children with orthopedic conditions, which may be traced within recent years, is quite worrying. Rehabilitation of young children with orthopedic pathologies is one of the top medical and social challenges of the society since the increase in number of children with disorders poses a potential threat of their disability in the future.¹ Physical rehabilitation methods for infants shall be considered both as a means of correcting the existing defects and as a preventative means aimed at avoiding the development of certain pathologies in older age. Any deviations from the norms arising at a young age will later cause various health disorders (Korzhynskiy, Klos, 2009). Considerable flexible abilities of young (under 12 months) children's bodies make it possible to tackle most pathological disorders and prevent irrecoverable consequences of the disorders (V. L. Strakovskaya, 1981; Ternovoy, Sinilo, 1987; Stepanova, 1997).

Literature Review

Torticollis is a wide-spread poly-etiological orthopedic pathology which may be diagnosed either after the birth of a child or may be developed later; it may be either a single independent disorder or a symptom of other conditions. Congenital muscular torticollis is a constant wrong head positioning when head is tilted to one side and face being tilted to another side (Ternovskiy, 1959).

Major symptoms of congenital muscular torticollis of infants are as follows: 1) titling head in one direction (with simultaneous lifting of the same side shoulder); 2) tightened sternocleidomastoid muscle (SCM); 3) deeper and asymmetric skin lines on the opposite side of the neck; 4) asymmetry of the face, skull, ear, face muscles atrophy and skull vault asymmetry (Bondarenko, 1981; Mirzoeva, Konyukhov, 1983; Moyiseyenko, 2006). Forced head positioning is caused by pathological changes in neck muscles, particularly in SCM muscle and sometimes in other muscles, e.g. trapezius muscle (Volkov, Ter-Egnazarov, 1983; Radchenko, Korol'kov, Merzentsev, Petrenko, 2006; Kim, Grayson, McCarthy, 2000; Davids, Wenger, Mubarak, 1993). As for its location, torticollis may appear only on one side, either left or right one, or on both sides of the neck. Torticollis may be congenital and acquired (Drobysheva, 2007). Congenital torticollis, in its turn, may be of muscular, neurological and osteal type. Congenital muscular torticollis is the most common one (Oleksa, 2006; Krumin, Sehmin, Usoskina, 1972). Congenital muscular torticollis is a wide-spread disorder of the muscular and skeletal system – between 12, 5 and 31% of children suffer from this kind of torticollis (Vilenskiy, Mikhailova, 1990; Krasikova, 2003). It takes the third place among

congenital orthopedic one (Volkov, Ter-Egiazarov, 1983; Kornilov, Gryaznukhin, Ostashko, 2001; Protsaylo, Revchuk, 2005; Oleksa, 2006). Pathological process affects the whole body (Vilenskiy, Mikhaylova, 1990; Korol'kov, 2008; Korzh, Korol'kov, 2011; Andrianov, Veselov, Mirzoeva, 1988; Beribek, Sinos, 1980).

Not treated/undertreated/not effectively treated torticollis may affect morphological and functional condition of the locomotorium, slow down the development of reflexes and movement skills and cause delays in psychological and physical development (Strakovskaya, 1981). ³Pathological processes also affect bones, joints, nerves and the whole skeletal and nerve system (Ternovskiy, 1959). The condition may result in “face scoliosis”, deformation of all skull and lower jaw’s bones, change of acoustic meatus, restriction of the field of view, high intracranial pressure, cerebral circulation disorder, posture problems, vertebra retardation, scoliosis and growth disorders (Mirzoeva, Konyukhov 1983; Oleksa, 2006; Kornilov, Hryaznukhyn, Ostashko, 2001).

Muscular torticollis treatment is a complex and time-consuming process which requires early diagnostics and timely treatment involving adequate measures of physical rehabilitation, since infants are easier to treat from this kind of pathology and their anatomic and functional recovery goes faster and to a fuller extent (Zatsepin, 1960; Andrianov, Veselov, Mirzoeva, 1988; Stepanova, 1997; Beribek, Sinos, 1980).

Available literature lacks unified recommendations on the diagnostic measures of infants as well as systematized somatoscopy data in accordance with different age groups (0–3, 3–6, 6–9, 9–12 months) and peculiarities of psychological and motor development and reflexes of certain age period. There is no data on how to define the movability of cervical spine and methodological recommendations on how to outline an important for torticollis diagnostic criterion - angulation of infant’s head bending. There is a lack of information regarding the use of superficial computer electromyography in case of congenital muscular torticollis among infants as well as the dynamics of bioelectric neck muscles activity indicators. Considering the aforementioned, there is a need for elaborate methodology on how to apply electromyography to infants suffering from congenital muscular torticollis (Tillaev, Bashkinova, Hanikhanova, 1979; Yakovleva, 1979).

Having been working on the problem of physical rehabilitation of infants with congenital torticollis for a long time, we have not found any systematized data on the peculiarities of rehabilitational examination of infants with torticollis and comprehensive application of physical rehabilitation methods. Moreover, we have not found any modern comprehensive physical rehabilitation programs for this group of patients as well as methodological recommendations on a range of adequate rehabilitation means that could allow us to customize the process of physical rehabilitation.

The lack of integrated approach towards diagnostics of congenital muscular torticollis, insufficient adaptation of methodologies of rehabilitational examination and rehabilitation of infants proved the need to elaborate a

comprehensive physical rehabilitation program of infants with congenital muscular torticollis.

The need for thorough scientific research dedicated to the physical rehabilitation of children with musculoskeletal system disorders, in particular, with congenital muscular torticollis rose as the quantity of cases rises gradually. The topicality of the problem is supported by the fact of establishing associations of parents whose children suffer from congenital muscular torticollis and non-commercial organizations as well as special programs which enable children to receive appropriate treatment, physical rehabilitation and social and psychological help. Another fact supporting problem's topicality is the establishment of Ukraine's first Municipal Rehabilitation Center for infants with congenital and acquired torticollis based in Lviv.

The aim of the research is to organize and analyze the practical experience of the Municipal Rehabilitation Center for Children with Congenital and Acquired Types of Torticollis in Lviv as well as to attempt to attract the attention of parents and specialists to the problem of infants' physical rehabilitation of different kinds of torticollis.

The aim of the research is to organize and analyze practical experience of Municipal Rehabilitation Center for Children with Congenital and Acquired Types of Torticollis in Lviv as well as to attempt to attract the attention of parents and specialists to the problem of infants' physical rehabilitation of different kinds of torticollis.

Objectives of the Research

1. Research the situation with children suffering from orthopedic disorders, generalize and systematize data on the means of its overcoming.
2. Elaborate the list of the main disorders that are going to be diagnosed and treated in the Municipal Rehabilitation Center for Children with Congenital and Acquired Types of Torticollis.
3. Elaborate methodology of rehabilitational examination of infants with orthopedic pathology (torticollis); determine their morfo-functional status, determine the movability of cervical spine, angulation of head bending and bioelectric activity of SCM muscles.
4. Elaborate author's comprehensive rehabilitational program on morfo-functional status, cervical spine movability and angulation of head bending and bioelectrical activity of SCM muscles.

Findings/Results

Municipal Rehabilitation Center for Children with Congenital and Acquired Types of Torticollis was established on February 17, 2008 with the aim of early diagnostics of different kinds of torticollis, conducting differential diagnostics of aforementioned kinds of torticollis, timely comprehensive rehabilitation, preventing complications, stimulating step-by-step psychomotor development, general recovery and improving functional abilities of infants.

The list of basic disorders that are to be diagnosed and treated in the Municipal Rehabilitational Centre for infants with congenital and acquired types of torticollis:

1. Congenital muscular torticollis.
2. Torticollis caused by the damage of an additional nerve.
3. Torticollis caused by asymmetrical tonus (organic lesion, CNS disorder).
4. Torticollis as a result of a birth trauma (collarbone fracture, shoulder joint plexitis).
5. Scoliosis of I-III degrees caused by torticollis.
6. Posture deformation as a result of torticollis.
7. Dermo-desmogenous torticollis as a result of burns and traumas.
8. Knippel-Feil Syndrome.
9. Neurogenous torticollis (flaccid paralysis).
10. SCM muscle myositis.

Regarding the structure of the Centre a electromyography room was used to conduct electromyographic examination; a room for conducting physical rehabilitation, a physiotherapeutic room; neurologist, surgeon, orthopedist (on the basis of consulting outpatient clinics of CMCH), 3 beds at the neurological department; 2 beds in the surgical department of CMCH hospital.

The electromyographic examination is conducted by the head of the Municipal Rehabilitation Center for Children with Congenital and Acquired Types of Torticollis, doctor-neurologist from the department of functional diagnostics. Physical rehabilitation is done by S.A. Stupnytska, a higher category physiotherapy instructor, PhD in Physical Education and Sport specializing in 24.00.03 Physical Rehabilitation, author of the idea of the Municipal Rehabilitation Center for Children with Congenital and Acquired Types of Torticollis, the author of 29 articles and educational and methodological textbook "Physical Rehabilitation of Infants with Torticollis", teacher at the department of Human Health at Lviv State University of Physical Culture and Associate Professor at the Department of Life Competencies at Lviv Regional Institute of Postgraduate Pedagogical Studies.

Medical care is provided by qualified specialists (neurologist, surgeon, orthopedist and physiotherapist) and the assisting medical staff of the consulting outpatient clinics, registered as the personnel of CMCH hospital. Physiotherapy is conducted in a separate physiotherapeutic room by the staff of the outpatient and rehabilitation departments. If necessary, medical care may be provided by the specialists of the communal municipal hospital and other medical institutions of the city.

The main objectives of physical rehabilitation of children with torticollis are:

- 1) general health improvement;

- 2) renewing the form and function of SCM muscle;
- 3) improving SCM muscle trophism;
- 4) eliminating the remains of hematomas in injured SCM muscle if any;
- 5) strengthening healthy SCM muscle;
- 6) normalizing the amount of active and passive movements of cervical spine;
- 7) normalizing/reducing the tonus of a strained trapezius muscle.

Additional tasks of the physical rehabilitation program for infants with torticollis:

- 1) eliminating/reducing existing deformations;
- 2) stimulating step-by-step adequate psychological and motor development as well as weakened congenital reflexes;
- 3) regaining normal coordination in nervous and muscular apparatus;
- 4) destroying old conditioned reflexes and compensatory mechanisms (e.g. cervical scoliosis, elevated shoulder, simultaneous turning of head and shoulder), building new muscular skills;
- 5) normalization of general muscular tonus;
- 6) preventing complications (facial asymmetry, head and chest deformation and spine curvatures).

The list of necessary clinical, paraclinical and instrumental examinations:

- examination of surgeon,
- orthopedist,
- neuropathologist,
- physiotherapist,
- rehabilitation specialist,
- electromyographic examination,
- rehabilitational examination,
- palpation,
- Somatoscopy,
- Photography,
- video shooting.

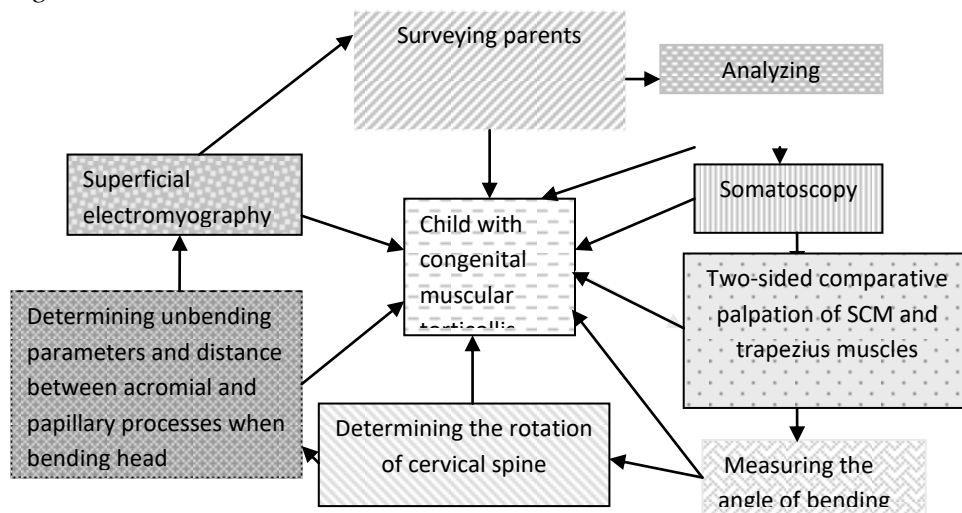
Additional measures

- filling out the form,
- filling out the medical card of a child with torticollis,
- signing written consent.

Rehabilitational examination of infants with congenital muscular torticollis started from familiarizing with medical documentation (medical card, form) which enabled the examination of the condition of the child's health in detail (existing disorders, pathological changes etc.). Next, specialists examined the

body, determined angular peculiarities of cervical spine movements, checked if the movements were symmetrical and determined functional restrictions. The following methods were used in the process of rehabilitation: somatoscopy (original author's algorithm of somatoscopy), two-sided palpation of SCM muscles, determining the range of cervical spine movability and head angulation, the distance between acromial and papillary processes when bending and unbending head to one of the sides in cervical spine and rotating cervical spine. Bioelectric activity of the SCM muscles was determined by means of electromyography (in accordance with author's original approach); controlling changes in the course of physical rehabilitation (Figure 1).

Figure 1. *Components of Rehabilitational Examination of Children with Congenital Muscular Torticollis*



Physical rehabilitation was conducted comprehensively, in accordance with the program elaborated and parents' participation outside the clinics was obligatory. Our previous research showed that the duration of one rehabilitational course shall last ten days. The program contains methodological and organizational approaches towards customizing rehabilitational process, assessment criteria for evaluating the effectiveness of the program that enables to evaluate changes in the course of somatoscopy by means of comparing indicators at the beginning and at the end of the course as well as to generalize the results.

The elaborated author's original rehabilitational program for infants with congenital muscular torticollis is based on the data obtained in the process of rehabilitational examination of a certain child and is conducted in accordance with elaborated algorithms that involve the integrated use of rehabilitational measures: use of different kinds of classical massage with special attention paid to the SCM, trapezius and facial (external, internal side, author's method) muscles (Figure 4), point massage from the healthy and affected side of neck (according to Bortfeld) (Figure 3), stretching (Figure 7) and therapeutic exercise

(reflex, passive (Figure 2, 5, 6), passive and active, active breathing exercises), physiotherapy methods (electrophoresis with 2% potassium iodide solution on the hematoma area, short-wave therapy, thermotherapy), hydrotherapy, therapeutical positioning (Figure 8), using collars, rollers and bandaging (Figure 9, 10).

Figure 2. *Stretching SCM Muscle in Different Positions a) on the back, b) on the side (personal observations, 2010)*

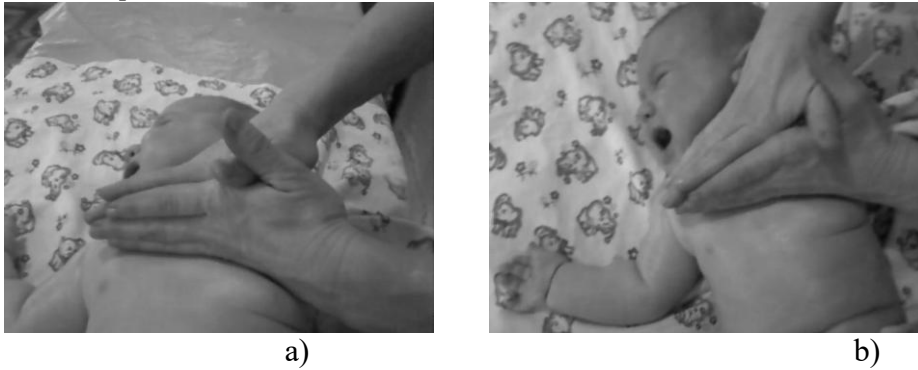


Figure 3. *Point Massage According to Shiatsu method a) Points, Located in the Middle and Front Part of Neck; b) Points, Located on Back Part of Neck; c) Points, Located on the Side of Neck*

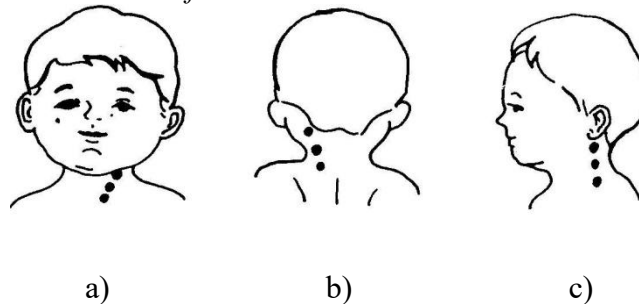


Figure 4. *Author's Supplementary Methods and Modification of the Reduction Method a) 1st and 2nd Fingers are Located on the External Surface of a Cheek, b) Dorsums of the 1st and 3rd are Placed on External Surface of the Cheek (personal observations, 2012)*



Figure 5. *Passive Gymnastics for Infant with Congenital Muscular Torticollis*
a) *Bending Head towards Healthy Side, b) Bending Head Towards the Affected Side, c) Passive Unbending (personal observations, 2008)*



Figure 6. *Exercise Aimed at Passive Stretching of Muscles in case of Infant's Congenital Muscular Torticollis (personal observations, 2008)*



Figure 7. *Stretching Exercise (personal observations, 2008)*



Figure 8. *Positioning of a Child with Congenital Muscular Torticollis (personal observations, 2008)*



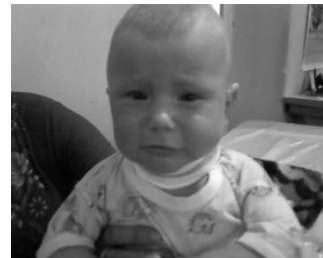
Figure 9. *Types of Cervical Collars a) Soft, b) Plastic, c) Self-made (personal observations 2007–2008)*



a)

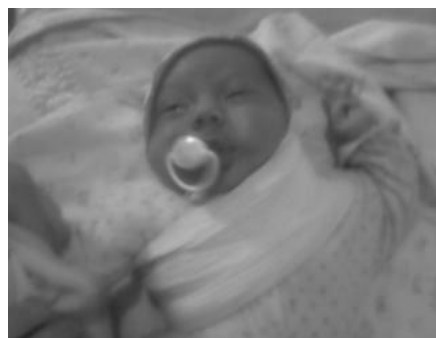


b)



c)

Figure 10. *Infant Suffering from Congenital Muscular Torticollis after Bandaging (personal observations, 2008)*



The program of physical rehabilitation for infants with congenital muscular torticollis is different from the other programs in the following points:

1. Arrangement and systematization of a wide range of well-known methods of physical rehabilitation.

2. Conducting physical rehabilitation in compliance with outpatient and home program according to the elaborated organizational and methodological recommendations.
3. Use of rehabilitational measures in accordance with elaborated algorithms that involve revealing morphological, functional, psychological and emotional deviations.
4. Existence of original author's approaches towards facial and cervical muscles massage.
5. Doing massage combined with therapeutical exercises in a certain order during one rehabilitational session by one person (rehabilitologist).
6. Combining general massage with facial massage from inner and out sides of the cheek during 1 massage session, cervical massage on both sides, point massage of the affected side of neck.
7. Applying physiotherapeutic methods depending on general state, peculiarities of child's body, presence or absence of hematomas, severity and duration of a disorder.
8. Controlling the results of physical rehabilitation in accordance with elaborated criteria.
9. Conducting physical rehabilitation in small rehabilitational courses and making a 1 or 2-day break in the middle of the course with the aim of revitalizing body defenses.
10. Continuation of one rehabilitational course does not exceed 10 sessions while other generally-accepted courses involve 15-25 sessions.
11. Duration of one physical rehabilitation session involving therapeutical exercise and massage lasts 35-40 minutes in general.
12. Break between two consecutive rehabilitational courses continues 3-5 weeks, which gives possibility to realize 3-4-week effect after massage and physiotherapy.
13. Engaging parents of ill children to help with rehabilitation.
14. Important peculiarity of the program is participation of parents in rehabilitational activities.
15. Physiotherapeutic methods are used in view of the general state of the body, peculiarities of the disease, age and functional peculiarities of the body, presence or absence of hematomas, severity of disease and its duration.

Evaluation of the effectiveness of rehabilitational course was done by comparing indicators at the beginning and end of the course, comparing and generalizing the obtained results.

Discussion

The results of the study showed that the elaborated mechanism of somatoscopic examination of infants with congenital muscular torticollis

helped determine part of the body which needs rehabilitational measures and evaluate the effectiveness of rehabilitational methods used.

Elaborated examination card of infants with congenital muscular torticollis made it possible to obtain objective results of the examination depending on certain age groups (0–3, 3–6, 6–9, 9–12 months old).

The author's original method of determining head and neck angulation, distance between acromial and papillary processes when bending neck to the sides enabled to determine the movability of cervical spine, angle of bending head and control their change in course of physical rehabilitation.

The author's methodology of determining superficial bioelectropotentials of SCM muscles by means of superficial myography made it possible to determine the state of both SCM muscles at rest and functional loading together with the application of methods of determining the movability of the cervical spine with the help of a goniometer and measuring tape to infants adapted to morpho-physiological changes; the methodology helps the diagnosis of congenital muscular torticollis at early stages and effectively control of the physical rehabilitation process.

Elaborated criteria for evaluating the effectiveness of rehabilitation enable the evaluation of changes of torticollis indicators that were determined in the course of somatoscopy.

Elaborated author's physical rehabilitation program for infants with congenital muscular torticollis is a rational combination of tested measures that were modernized and expanded by the author's original massage techniques and methods of examination. That is why the author's physical rehabilitation program is different from the others being customized to a maximum extent in terms of applying rehabilitational measures.

The program and practical recommendations for children constituted the basis for establishing Ukraine's first Rehabilitational Centre for children with congenital and acquired torticollis and are used in practice at the work of rehabilitational and diagnostic departments of Lviv Municipal Children's Hospital and outpatient clinics No.2 of City Clinical Hospital No.1.

In the period from the end of 2008 to 2016, the parents of 829 children suspecting or suffering from congenital or acquired torticollis addressed the Municipal Rehabilitational Centre for infants with congenital and acquired torticollis in Lviv city.

Out of all the patients, 332 children suffered from congenital muscular torticollis, 123 children suffered from torticollis with additional nerve impairments, 124 children with spine curvature and posture violations, 250 children with neurogenic torticollis, 3 children with myositis, 3 children with Knippel-Feil syndrome, 14 children with birth trauma. 114 children were referred to receive treatment and rehabilitation in hospital and 715 children received outpatient rehabilitation. About 16100 sessions were held: 8050 therapeutical exercises and 8059 massage sessions.

During primary morpho-functional status determination, it was found out that children with congenital muscular torticollis also had substantial asymmetries of body parts, muscular tonus disorders, worsening of cervical

spine movability, a bowing head in the direction of healthy SCM muscle, difference of bioelectric potentials of healthy and affected SCM muscles. Besides the affected function of SCM muscle which is connected with anatomic or functional disorders causing limited unbending, side bending, cervical spine rotation, turning head to the affected side when lifting and holding head in a horizontal position as well as turning it and maintaining balance.

Comparison of the results at the end of morpho-functional examination showed that the positioning of the head moved close to the central line depending on the sub-group (0-3, 3-6, 6-9, 9-12 months) in 54,5%-62,6% of children. Considerable improvement was observed in 27,2%-40%, moderate improvement in 9,09%-18,1% of children. Body asymmetry: normalization in 54,5%, 36,3%, 18,1%, 10% respectively depending on the sub-group (1, 2, 3, 4). Considerable improvement was observed in 9,3% of children, 9,09% per child in 1st, 2nd, 3rd sub-groups and 10,0% children from the 4th sub-group.

The flattening of a cheek was eliminated in 58,1% of children and the resistance sign disappeared in 18,6% of children. Tonus of the affected SCM muscle was absent in 27,9% of children, with 51,2% it was considerably lower and 13,9% of children moderately reduced. The hyper tonus of trapezius muscle from the affected side was absent in 23,2% of children, considerably reduced in 44,2% and moderately reduced in 6,97% of children. The hyper tonus of trapezius muscle from the opposite side was absent in 9,3% of children and in 6,9% it was considerably reduced.

The examination contributed to determine that elaborated integrated physical rehabilitation program of infants with congenital muscular torticollis promotes movability of cervical spine and reduction of head bending angulation. This fact is supported by higher numeral indicators (by about 11,12%-13,7%) of the distance between SCM and papillary processes when bending the head to the healthy side. Distance indicators between acromial and SCM papillary processes when bending the head towards the affected muscle were higher by 7,2%-9,5%. As for the children from the 1st, 2nd, 3rd and 4th sub-groups, rotational indicators of the cervical spine towards the healthy SCM muscle were higher by 9,9%-11,56%. Head-bending angle after rehabilitation was reduced with children from the 1st, 2nd, 3rd and 4th sub-groups by 72,7%, 68,5%, 72,0% and 71,1% respectively. Comparing unbending indicators in the cervical spine after the rehabilitation course, one could observe an increase of the parameter by 47,2% – 9,53%.

It was determined that an increase of the initial data of bioelectric activity of the affected SCM muscles after the course of physical rehabilitation from the 1st, 2nd, 3rd and 4th sub-groups were obviously bigger ($p < 0,05$) both at rest and while functioning and rose respectively by 19,0%, 22,0% 13,4%, 19,5% and by 18,3%, 18,3%, 14,8% and 19,2% respectively.

Obtained indicators almost reached the level of healthy SCM muscle's which supposes that functional condition of the affected muscles was improved, their functional capacity was strengthened (holding head along the central line). Moreover, the decrease of biopotentials of healthy SCM muscle

after the rehabilitation shows, due to the improvement of head positioning, load on healthy SCM muscles when holding head is reduced. Having analyzed the results obtained, we believe that they contributed to the balancing and “equalization” of bioelectric activity of healthy and affected SCM muscles.

Conclusions

We have been organizing and analyzing practical work of the Municipal Rehabilitational Centre for children with congenital and acquired torticollis in Lviv city for seven years. We have attempted to draw parents and specialists' attention to the problem of physical rehabilitation of infants with different types of torticollis. We have examined the situation with children's orthopedic disorders, generalized and systematized data on how to solve the problem. The list of main disorders that are to be treated in the Municipal Rehabilitational Centre for children with congenital and acquired torticollis was formed. Methodology of rehabilitational examination of infants with orthopedic pathology (torticollis) and physical rehabilitation program for infants with congenital muscular torticollis were elaborated.

Analysis of scientific and methodological literature helped with the discovery that congenital muscular torticollis is a widespread poly-etiological disorder which demonstrates specific tendency of growth. Non-treated pathology causes gradual development of a range of morpho-functional disorders that may result in a decrease of the main indicators of children's life quality or even disablement. This makes congenital muscular torticollis a serious medical and biological problem. The most spread methods of overcoming congenital muscular torticollis are massage and therapeutical exercise.

Analyzing practical work of the Rehabilitational Centre for children with congenital and acquired torticollis, it was discovered that among all the children who underwent examination in the Centre, 332 children were diagnosed with congenital muscular torticollis.

It was found out that rehabilitational examination of infants with congenital muscular torticollis shall consist of somatoscopy in different positions in compliance with elaborated algorithm of somatoscopic examination and depending on the age period, two-sided palpation of SCM and trapezius muscles, measuring cervical biding parameters and distance between acromial and papillary processes (when biding head to the sides) with a measuring tape, measuring cervical spine rotational parameters and head bending angulation with goniometer, defining indicators of bioelectric activity of both SCM muscles at rest and functional loading by means of superficial computer electromyography.

Elaborated program of physical rehabilitation for infants with congenital muscular torticollis is based on data obtained in the course of examination of a certain child and is done in compliance with elaborated algorithms involving specific type of massage, therapeutical, stretching exercise, physiotherapy, positioning, applying additional techniques e.g. specific collars, bandaging etc. The program contains methodological and organizational approaches to the individualization of the rehabilitational process, rehabilitation evaluation criteria which makes it possible to evaluate changes of somatoscopic indicators.

It was discovered that the author's original approach to physical rehabilitation of torticollis more than other generally-accepted approaches, promotes normalization of muscular tonus and body build, reducing the head bending angulation, improving the movability of cervical spine and reducing secondary body build deformations. In the course of rehabilitation, head positioning along the central line, the cheek flattening, asymmetry of the body, hematomas in the affected SCM muscle, hyper tonus of the affected SCM muscle, hypo tonus of the stomach muscles, resistance sign, psychological condition of a child and coordination of movements improved substantially.

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