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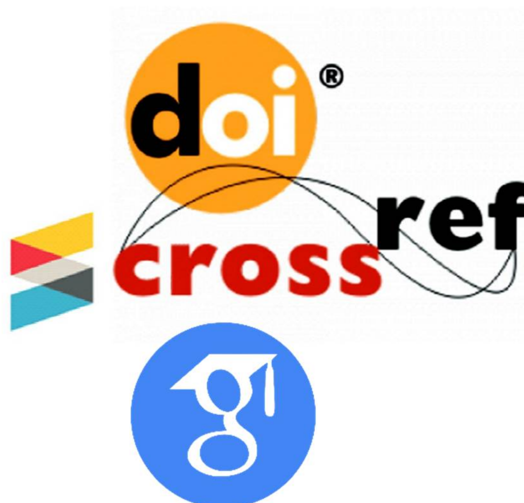

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OPTIMIZATION OF REHABILITATION OF CHILDREN WITH DISEASES OF THE NEUROMOTOR SYSTEM

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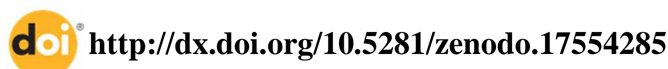
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ABSTRACT

Objective: To research the clinical and neurological manifestations of neuropathy in injuries of the PNS in children and analyze medical, socio-economic and organizational factors influencing the effectiveness of medical rehabilitation. **Methods:** In our research we used clinical and neurological data, careful anamnesis, neurophysiological studies (electroneuromyography) and anthropometric methods, tests and statistical analysis methods. Clinical and neurological exams aimed at identifying sensory, motor, reflex and trophic disorders of patients were carried out. The complex rehabilitation period was 45 days. It used restitution, regeneration, compensation methods of rehabilitation. **Results:** Clinical-neurological, anthropometric exams, ENMG analysis and correlation, early diagnosis of complications in patients, disease prevention, increasing the effectiveness of treatment and preventive measures;In the early comprehensive medical rehabilitation program was developed an innovation – a single unified electronic medical record, which made it possible to reduce the time spent on writing documents and submitting them to the archive due to the electronization of the database and statistical control of determining treatment standards, a single comprehensive systematized electronic program for assessing the medical rehabilitation of children with neuromotor diseases, based on modern computer technologies.**Conclusion:** In pediatric practice, it has been proven that the main causal factor in damage to the peripheral nervous system is the use of injectable non-steroidal anti-inflammatory drugs; The creation of the mobile load "Rem-Ex" - a criterion for preventing relapses of motor disorders and deformations in diseases of the neuromotor system - made it possible to evaluate and monitor the effectiveness of medical rehabilitation.

Key words: neuromotor system, comparison group, monoparesis, muscle hypotrophy, rehabilitation, tremors.

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ОПТИМИЗАЦИЯ РЕАБИЛИТАЦИИ ДЕТЕЙ С ЗАБОЛЕВАНИЯМИ НЕРВНО-МЫШЕЧНОЙ СИСТЕМЫ

АННОТАЦИЯ

Цель исследования: Изучить клинико-неврологические проявления нейропатии при повреждениях периферической нервной системы у детей и проанализировать медицинские, социально-экономические и организационные факторы, влияющие на эффективность медицинской реабилитации. **Методы:** В нашем исследовании использовались клинико-неврологические данные, тщательный сбор анамнеза, нейрофизиологические исследования (электронейромиография) и антропометрические методы, тесты и методы статистического анализа. Проводились клинико-неврологические обследования, направленные на выявление сенсорных, двигательных, рефлекторных и трофических нарушений у пациентов. Период комплексной реабилитации составил 45 дней. Использовались реституционные, регенерационные и компенсаторные методы реабилитации. **Результаты:** Клинико-неврологические, антропометрические обследования, анализ ЭНМГ и корреляционный анализ, ранняя диагностика осложнений у пациентов, профилактика заболеваний, повышение эффективности лечебных и профилактических мероприятий; в рамках программы ранней комплексной медицинской реабилитации была разработана инновация – единая унифицированная электронная медицинская карта, которая позволила сократить время, затрачиваемое на оформление документов и сдачу их в архив за счет электронизации базы данных и статистического контроля определения стандартов лечения, единая комплексная систематизированная электронная программа оценки медицинской реабилитации детей с заболеваниями нервно-мышечной системы на основе современных компьютерных технологий. **Заключение:** В педиатрической практике доказано, что основным причинным фактором повреждения периферической нервной системы является применение инъекционных нестероидных противовоспалительных препаратов; создание мобильного приложения «Rem-Ex» – критерия предупреждения рецидивов двигательных нарушений и деформаций при заболеваниях нервно-мышечной системы – позволило оценивать и контролировать эффективность медицинской реабилитации.

Ключевые слова: нервно-мышечная система, группа сравнения, монопарез, мышечная гипотрофия, реабилитация, тремор.

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НЕРВ-МУШАК ТИЗИМИ КАСАЛЛИКЛАРИ БИЛАН ОҒРИГАН БОЛАЛАРНИ РЕАБИЛИТАЦИЯ ҚИЛИШНИ ОПТИМАЛЛАШТИРИШ

АННОТАЦИЯ

Тадқиқот мақсади: Болаларда периферик нерв тизими шикастланишларида нейропатиянинг клиник-неврологик кўринишларини ўрганиш ва тиббий реабилитация самарадорлигига таъсир этувчи тиббий, ижтимоий-иқтисодий ва ташкилий омилларни таҳлил қилиш. **Усуллар:** Тадқиқотимизда клиник-неврологик маълумотлар, диққат билан анамнез йиғиш, нейрофизиологик текширувлар (электронейромиография) ва антропометрик усуллар, тестлар ва статистик таҳлил усуллари қўлланилди. Беморларда сенсор, ҳаракат, рефлектор ва трофик бузилишларни аниқлашга қаратилган клиник-неврологик текширувлар ўтказилди. Комплекс реабилитация даври 45 кунни ташкил этди. Реституцион, регенерацион ва компенсатор реабилитация усуллари қўлланилди. **Натижалар:** Клиник-неврологик, антропометрик текширувлар, ЭНМГ таҳлили ва корреляцион таҳлил, беморларда асоратларни эрта ташхислаш, касалликларнинг профилактикаси, даволаш ва профилактика тадбирлари самарадорлигини ошириш; эрта комплекс тиббий реабилитация дастури доирасида инновация – ягона унификациялашган электрон тиббий карта ишлаб чиқилди, бу маълумотлар базасини электронлаштириш ва даволаш стандартларини белгилашнинг статистик назорати ҳисобига

ҳужжатларни расмийлаштириш ва уларни архивга топшириш учун сарфланадиган вақтни қисқартиришга имкон берди, замонавий компьютер технологиялари асосида нерв-мушак тизими касалликлари билан оғриган болаларнинг тиббий реабилитациясини баҳолашнинг ягона комплекс тизимлаштирилган электрон дастури яратилди.

Хулоса: Педиатрия амалиётида периферик нерв тизимининг шикастланишининг асосий сабаб омили инъекцион нестероид яллиғланишга қарши дори воситаларини қўллаш эканлиги исботланди; «Rem-Ex» мобил иловасини яратиш – нерв-мушак тизими касалликларида ҳаракат бузилишлари ва деформацияларнинг қайталанишининг олдини олиш мезони – тиббий реабилитация самарадорлигини баҳолаш ва назорат қилиш имконини берди.

Калит сўзлар: нерв-мушак тизими, таққослаш гуруҳи, монопарез, мушак гипотрофияси, реабилитация, титроқ.

1. Introduction

Childhood disability is one of the medical and social problems of the whole society. According to the World Health Organization (WHO), “childhood disability due to neurological diseases has increased in many European countries, reaching 4.58% in 2019, and this figure could reach 12% in 2021”. According to statistics for 2018, “in Uzbekistan, there are 10.3 children with disabilities per 1,000 people under the age of 16”. In this regard, children's neuromotor system diseases, which are one of the causes of children's disabilities, have a special place. Among diseases of the peripheral nervous system in children, mononeuropathy of the feet is the second most common after traumatic nerve injuries. Today, improving children's health and preventing childhood disability remain the most pressing issues. Currently, a number of targeted scientific studies are being conducted worldwide to identify the factors causing traumatic neuropathies in children, their control, the development of modern approaches to the treatment of their complications, as well as rehabilitation methods. Priority areas of scientific research remain the identification of neuroorthopedic complications in traumatic neuropathy of the lower extremities in children, timely diagnosis of damage to the peripheral nervous system, determination of tactics for further treatment of damage to the neuromotor apparatus in children, including traumatic damage to the peripheral nervous system, identification of features of the clinical and neurological course, creation of a modern treatment system aimed at early comprehensive medical rehabilitation of intensive care in the treatment of damage to the peripheral nervous system.

In the treatment of patients with damage to the peripheral nervous system, long-term rehabilitation, in contrast to traditional principles of treatment, and in this process, complex treatment of patients using pharmaco-physio-mechanotherapy and orthopedic procedures, gives excellent results. However, in modern conditions of inpatient and outpatient care, the effectiveness of expected results remains low due to the fact that the above treatment principles are not always followed. In this connection, it particularly important to identify gaps in the choice of the most appropriate method by maximizing the concentration of patients undergoing treatment in various regions of our republic, in specialized medical and preventive institutions, while simultaneously providing them with neurological, orthopedic, physiotherapeutic and psychopedagogical assistance. In this case, it is advisable to comprehensively study the above-mentioned complex sequence of measures in the treatment of patients with disorders of the neuromotor system and develop a procedure for their inclusion in the treatment standards formed in the healthcare system.

The practical significance of the research results is that the developed rehabilitation program provides reliable and timely early diagnosis of post-traumatic neuropathy and early ENMG examination of patients with neuropathy of the peripheral nervous system, which allows choosing treatment tactics and evaluating its results, as well as increasing the effectiveness of early comprehensive medical rehabilitation of children with this disease, thereby preventing childhood disability.

The results of clinical, anamnestic, anthropometric and neurophysiological exams of children with diseases of the neuromotor system indicate that the main complaints of limited movement are

hypotrophy and atrophy of the legs. Boys, the younger age group, had a higher percentage of complaints such as limited leg mobility (53.1%), heel pain (42.2%) and foot pain (31.5%). Among boys aged 7–11 years, a significant decrease in the frequency of the above complaints was noted – to 41.6% and 32.8%, respectively.

Patients and Methods

1. 1. Patients

The study involved 65 boys and 35 girls. The patients' ages ranged from 3 to 18 years (Me=4.2 years; Q_1-3.2 years, Q_3 -5.7 years). Table 1. Distribution of children by groups (n=100).

Table 1.

Distribution of children by groups (n=100).

Year	Main group	Comparative group
3-7 years	26(26%)	15(15%)
7-11 years	20(20%)	13(13%)
11-18 years	18(18%)	8(8%)

1. 2. Treatment methods

Among the leg neuropathies, 30 (37.5%) were ulnar nerve neuropathies, 13 (16.25%) were ulnar nerve neuropathies, and 37 (46.25%) were ulnar nerve neuropathies. Of the total number of children with monoparesis of the legs, there were 3 boys (3%) and 2 girls (2%). Complications from injections (iatrogenic): Injections of nonsteroidal anti-inflammatory drugs were observed in 65 children (81.25%), injections of antibiotics – in 15 children (18.75%). All patients were divided into groups depending on the used treatment methods.

Table 2.

Distribution into groups depending on the used methods of treatment (n=100)

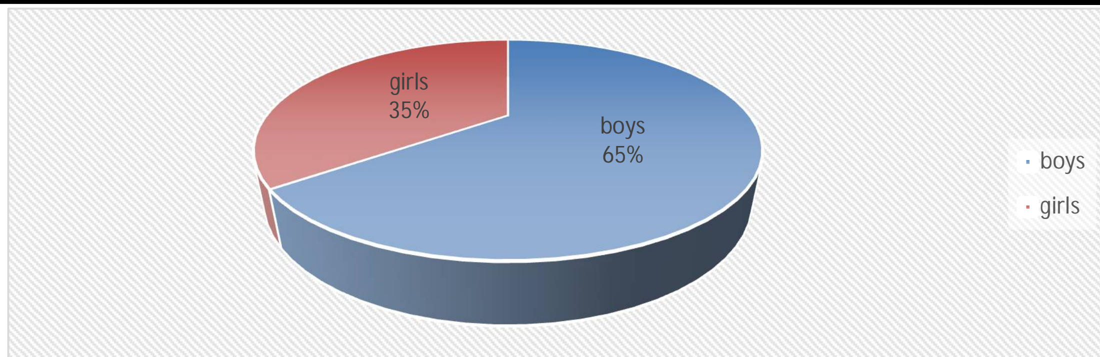
Groups	Quantity, age	Used кehabilitation methods
Main	64 children, 10,05±0,27	Traditional treatment method + developed rehabilitation method
Comparative	36 children, 9,8±0,25	Traditional treatment method

All patients complained of a “cold” before the onset of the disease (58%), the rest noted cold shock (squalor) (27%), and domestic trauma was detected in 15% of children. When assessing the severity of paresis, a mild degree of the disease was observed in 27 (27%) patients, moderate paresis - in 33 (33%), moderate paresis - in 30 (30%) patients. The average duration of rehabilitation measures in children of the main group was 45 days.

It was also conducted clinical, anamnestic, anthropometric and neurophysiological exams of children with diseases of the neuromotor system. As a result of the exams, it was established that the main complaints about limited movement are hypotrophy and atrophy of the legs. Boys, a younger age group, had a higher percentage of complaints, such as limited leg mobility (53.1%), heel pain (42.2%) and foot pain (31.5%). Among boys aged 7–11, a significant decrease in the above complaints was noted — to 41.6% and 32.8%, respectively. In the group of patients aged 11-18 years, the percentage of complaints decreased slightly and amounted to 26.2%-34.5%, which is less than in the previous group, which contradicts the idea of an increase in pathology proportional to age. Thus, a clear correlation was found between the prevalence of complaints of leg pain and limited mobility in the affected area among boys. Асосий кўрсаткичлар қаторида тана вазни индекси ҳам бахоланди. The average BMI for boys was 26.5 kg (minimum 17.1; maximum 41.6; standard deviation 4.2), for girls – 27.2 kg (minimum 17.1; maximum 38.7; standard deviation 4.5)..

Figure 1.

Prevalence of neurological complaints by gender (n=100)



All patients underwent clinical, neurological, anthropometric and electrophysiological exams. The clinical method of exam included the study of complaints, anamnesis of life and diseases, analysis of general and neurological status.

2. Results

The study showed that the prevalence of post-injection mononeuropathies was higher in the younger age group (6 times higher than in boys). It was found that in the middle age group (7-11 years), the prevalence of pathology in girls was lower than in boys. The clinical symptoms of the patients who participated in the study were as follows: severe motor impairments corresponding to a certain myotome, loss or reduction of proprioception and sensory changes (specific to the corresponding dermatome). The most frequent complaint among all the examined patients was leg paresis. All the examined children were divided according to the type of nerve fiber damage.

Table 3.

Distribution of examined children by type of nerve fiber damage (n=100).

Priority type of damage	**Boys**		**Girls**		**Total**	
	abc	%	abc	%	abc	%
Motor	16	38,7	21	42,7	37	40,0
Sensor	10	10,3	3	3,4	13	18,0
Mixed	23	51,0	27	53,9	50	42,0
Total	49	100	51	100	100	100

According to the predominant nature of the lesion, three main groups are distinguished: axonal, demyelinating and axonal-demyelinating (mixed) neuropathies (Table 4).

Table 4.

Classification of patients by the nature of nerve fiber damage (n=100).

Nature of damage to nerve fibers	**Boys**		**Girls**		**Total**	
	abc	%	abc	%	abc	%
axonal	11	21,5	12	24,5	23	23,0
demyelination	14	27,4	13	26,5	27	27,0
Mixed	26	51,1%	24	51,0	50	50,0
Total	51	100	49	100	100	100

2. 1. Improvement of treatment group after 45 day complex rehabilitation.

Based on the results of anthropometric studies, our analysis of the results obtained before rehabilitation showed that in 56% of 3-year-old children the average leg length was 57.6±1.5 cm (hypotrophy), and in 44% it was 51.8±1.6 cm (hypotrophy). Before rehabilitation, 63% of 5-year-old children had a height of 65.4±1.7 cm (hypertrophy), and 37% had a height of 61.3±1.4 cm (hypotrophy). Before rehabilitation, the leg length of 7-year-old children in 58% of cases was 70.5±1.6 cm (hypotrophy), in 42% - 68.4±1.4 cm (hypotrophy). After a set of rehabilitation measures, almost all children (96%) of the main group showed an improvement in their condition. Thus, the leg length of 3-year-old children increased by an average of 2.4±0.2 cm and amounted to 59.8±1.2 cm in 90% of children of this age included in the study, while in 10% of children the leg length increased

somewhat less and amounted to 58.6±1.1 cm ($p<0.05$). In the comparison group, traditional rehabilitation methods were used, and 71% of children showed improvement. It follows that in the comparison group the leg length increased somewhat less and amounted to 58.2±0.8 cm in 3 year old children. In the main group of 5 year old children the leg length increased by an average of 3.7±0.1 cm and amounted to 69.5±0.5 cm (92%) of patients who took part in the study. In 8% of children the leg length was less and amounted to 67.8±1.3 cm Among 5 year old children in the comparison group, improvement was observed only in 68% of children. Leg length increased less and amounted to 66.5±1.5 cm, and in 32%, leg length remained unchanged, which indicates the presence of hypotrophy or atrophy of the legs. In 7 year old children of the main group, the leg length increased by an average of 2.8±0.2 cm, while in the examined patients it was 73.6±0.3 cm (90%) ($p<0.05$). In the comparison group, the changes were insignificant. Thus, in 64% of 7 year old patients who took part in the study, the leg length was 71.6±0.4 cm ($p<0,05$). In 36% of children in the comparison group, no changes were observed. Before rehabilitation, in 62% of 8 year old children, the average leg length was 78.5±1.7 cm (hypotrophy), and in 38% it was 76.4±1.5 cm (atrophy). In 70% of 10 year old children, the leg length was 87.3±1.7 cm (hypotrophy), and in 30% – 85.7±1.3 cm (atrophy). In 67% of 11 year old children, the average leg length before rehabilitation was 90.6±1.4 cm (hypotrophy), and in 37% – 88.8±1.2 cm ($p<0.05$). After the complex of rehabilitation measures, almost all children in the main group showed improvement (97%).

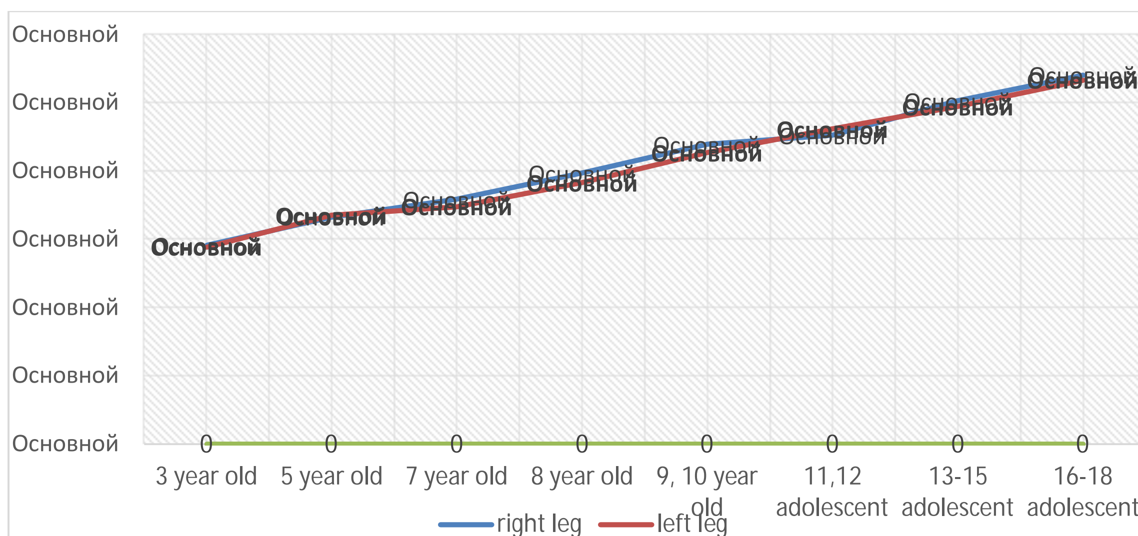
3. Discussion

Thus, in the main group of 8 year old children, the growth was 2.6±0.3 cm, and in 92% of children who participated in the study at this age, it was 82.5±0.5 cm At the same time, minor changes were observed in 8% of children and amounted to 80.7±0.3 cm Insignificant changes were observed in 76% of 8-year-old children in the comparison group, which amounted to 79.3±0.7 cm, and in 34% of children no changes occurred. In the main group, 91% of 10 year old children showed significant changes in leg length, on average, it increased by 2.3±0.4 cm and amounted to 91.6±0.4 cm In 9% of the examined children, minor small changes were observed, the leg length was 88.3±0.5 cm In the comparison group, in 72% of 10 year old patients, the changes were minor, and the leg length was 87.8±1.0 cm In the main group of 11 year old patients, the leg length after rehabilitation increased by an average of 2.8±0.3 cm and amounted to 93.0±0.4 cm (95%). A slight improvement was observed in 5% of children in the main group and amounted to 90.6±0.4 cm In the comparison group, only 69% of patients showed a slight improvement. After rehabilitation, the leg length in 11-year-old children was 90.4±0.5 cm ($p<0.05$). In the comparison group, no effect was observed in 31% of children. Before rehabilitation, the leg length in 88% of 12 year old patients was 92.6±1.3 cm (hypotrophy), and in 12% it was 90.8±0.3 cm (hypotrophy). In 92% of 13-15 year old adolescents, the average leg length before rehabilitation was 97.4±0.5 cm (hypotrophy), and in 8% of children, the leg length was 95.8±0.2 cm (hypotrophy). In 83% of adolescents aged 16–18 years, the average leg length before rehabilitation was 110.6±0.8 cm (hypotrophy), and in 17%, the average leg length was 108.3±0.6 cm (hypotrophy). After the rehabilitation procedures, significant changes were noted in 94% of patients in the 12-year-old group: the length of the patients' legs increased by 3.5±0.4 cm and reached 99.5±0.5 cm In 6% of patients, the changes were insignificant and amounted to 97.7±0.3 cm Minor improvements were observed in 68% of 12 year old patients in the comparison group, meaning the leg length was 95.6±0.4 cm ($p<0.05$). In 32% of patients, no changes were detected as a result of measurements. In 93% of patients aged 13-15 years in the main group, the shin length was 105.5±0.5 cm, while in 7% of children, minor changes were observed and the shin length was 103.8±0.6 cm In the comparison group, after rehabilitation, 66% of children showed a slight increase in leg length, which was 100.5±0.7 cm In 34% of patients, no improvement was observed. In 97% of 16-18 year old adolescents in the main group, after rehabilitation, the leg length increased by 3.8±0.3 cm and was 113.5±0.5 cm, while in 3% of 16-18 year old adolescents the leg length was 110.6±0.4 cm ($p<0.05$). In the comparison group, after rehabilitation, 71% of children showed minimal changes, and the leg length was 108.2±0.4 cm No improvements were observed in 39%. In patients of the main group, the length of the right and left legs remained virtually unchanged ($p<0.05$). In the comparison group, the length of the right and left legs in 3 year old patients changed by 0.3±0.02 cm ($p<0.001$).

In the comparison group, the length of the right and left legs in 5 year old children changed by 0.4±0.03 cm (p<0.001). In the comparison group, the length of the leg in 7 year old children changed by 0.2±0.02 cm (p<0.001). The length of the leg in 8 year old patients changed by 0.3±0.01 (p<0.001) cm In the comparison group, the life expectancy of patients aged 9-10 years remained virtually unchanged. In patients aged 11-12 years, the length of the right and left legs changed by 0.3±0.02 cm (p<0.001). In the comparison group, the length of the right and left legs in adolescents aged 13-15 years remained virtually unchanged. In the comparison group, the length of the right and left legs in adolescents aged 16-18 years changed by 0.2±0.01 cm (p<0.001).

Figure 2.

Changes in the legs (right and left) in the comparison group after rehabilitation



Thus, while some patients in the comparison group showed minor changes in the length of the left and right legs after rehabilitation, another group of patients developed scoliosis of the left or right side of the body, which depended on the length of the legs.

Also, anthropometric indicators showed that before rehabilitation, the average thigh circumference in 76% of 3 year old patients was 20.21±0.01 cm, while 24% had hypotrophy and the thigh circumference was 19.46±0.02 cm (p≤0.001). After rehabilitation measures, the calf circumference in 92% of 3 year old children in the main group was 21.16±0.01 cm In 8%, minor changes were observed, the thigh circumference was 20.73±0.02 cm (p≤0.001). In the comparison group, only 67% of children showed minor changes in the form of an increase in the shin circumference to 20.44±0.03 (p≤0.001). In 33% of children in the comparison group, no changes were observed. The shin circumference in patients 5 years before rehabilitation was 20.17±0.02 cm (p≤0,001). After rehabilitation, 93% of children in the main group showed an improvement in the form of an increase in the circumference of the lower leg by 1.85±0.02 cm (p≤0.001). Thus, after rehabilitation, the circumference of the lower leg in most children of this age was 22.80±0.01 cm (94%). In 6% of children, a slightly smaller improvement was noted: the circumference of the lower leg was 21.76±0.03 cm (p≤0.002). In the comparison group, after rehabilitation, 72% of patients showed minor changes in the form of an increase in the circumference of the lower leg to 21.64±0.01 (p≤0.001). Thus, 28% of children did not show any changes. The average shin circumference in 7 year old children before rehabilitation was 22.21±0.01 (p≤0.001). After the rehabilitation procedures, the shin circumference in children of the main group increased by an average of 2.00±0.02 cm and in 98% it was 24.47±0.03 cm, in 2% of patients minor changes were observed and the shin circumference was 23.72±0.04 cm (p≤0,001). In the comparison group, 65% of children showed minor changes, the thigh circumference was 23.18±0.03 cm (p≤0.001). In 35%, no changes were observed at all. In 8-year-old patients, the shin circumference before rehabilitation was 23.34±0.04 cm (p≤0.002), which indicates hypotrophy. After the rehabilitation procedures, 94% of patients in the main group showed significant improvement, the thigh circumference was 25.46±0.03 cm (p≤0.002).

At the same time, a slight improvement was noted in 6% of patients, the thigh circumference was 24.78±0.04 cm (p≤0.001). In the comparison group, after rehabilitation, a slight improvement was noted in the form of an increase in the circumference of the lower leg to 24.37±0.03 cm in 58% of patients (p≤0,001). The remaining 42% of patients showed no improvement. In 9-year-old children, the average calf circumference before rehabilitation was 26.65±0.02 cm (p≤0.001). After treatment, 93% of children showed significant improvement, the thigh circumference was 28.01±0.03 cm (p≤0,001). In the comparison group, 66% of children showed minor changes, the shin circumference was 27.74±0.02 cm No improvement was observed in 34% of patients. In 10-year-old patients, the shin circumference before rehabilitation was 27.44±0.01 cm (p≤0.001). After the rehabilitation procedures, the shin circumference was 29.22±0.02 cm in 97% of children in the main group (p≤0,001). Minor changes were noted in 3% of patients, the thigh circumference was 28.79±0.03 cm (p≤0.002). In the comparison group, the shin circumference after rehabilitation was 28.64±0.02 cm (p≤0.002). In children aged 11–12 years, the average shin circumference before rehabilitation was 28.37±0.02 cm After the rehabilitation procedures, 91% of patients in the main group had a calf circumference of 30.04±0.04 cm (p≤0.002). Minor changes were noted in 9% of children: the thigh circumference increased to 29.93±0.03 cm (p≤0.001). In the comparison group, 72% of patients showed minimal changes, the thigh circumference increased to 29.75±0.02 cm (p≤0,002). In 28% of children changes were no observed. In adolescents aged 13–15 years, the average circumference of the lower leg before rehabilitation was 30.04±0.03 cm (p≤0,003). After the rehabilitation procedures, 97% of the subjects in the main group showed an increase in calf circumference by 2.56±0.03 cm and amounted to 32.60±0.04 cm (p≤0,002). In the comparison group, the calf circumference after rehabilitation was 31.94±0.06 cm in 69% of patients (p≤0.001). In 31% of cases, changes were no observed. In adolescents aged 16–18, the average calf circumference before rehabilitation was 32.52±0.03 cm (p≤0.001). After the rehabilitation procedures, the calf circumference was 35.02±0.03 cm in 90% of children in the main group. (p≤0,002). In 10% of patients, the thigh circumference increased to 34.78±0.02 cm (p≤0.001). In the comparison group, 78% of patients showed unreliable dynamics in the form of an increase in the calf circumference to 34.33±0.02 cm (p≤0,002).

4. Conclusion

As a result of studying medical, socio-economic factors influencing the effectiveness of medical rehabilitation, the disability of children in the main group decreased by 92.4% (p≤0.05) (in the comparison group by 55.8%, p≤0.05), improvement of motor indicators was noted in all patients of the main group (100%), improvement of trophic indicators was noted in 98% of children in the main group (p≤0.05). These results will allow us to reduce childhood disability as a socio-economic factor and improve the quality of life of children.

Individually developed rehabilitation programs for children with neuromuscular diseases reflect the necessary focus of health and rehabilitation measures, facilitate the implementation of highly effective and at the same time cost-effective treatment methods. The effectiveness of the developed method was 90.57% (p<0.05). The shelf life of the effectiveness was 10.2 months.

The use of the developed "Unified Electronic Disease Protocol" in the therapeutic complex rehabilitation of peripheral nervous system diseases increases the effectiveness of medical rehabilitation. A promising model for organizing medical care in restorative medicine is a systematic approach to the problem of maintaining and strengthening health by reducing the costs of restoring lost functions of the human body, as well as determining priority areas for effective health management.

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