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DIAGNOSTIC VALUE OF ELECTROMYOGRAPHIC EXAMINATION OF LEG MUSCLES IN CHILDREN WITH FLAT FEET.

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Relevance.

Flatfoot is one of the most common pediatric orthopedic diseases. One of the changes arising from flatfoot are changes in the muscles. According to many authors [1; 2], these changes are observed not only as a defect in the development of ligaments, but also as a delay in the development of muscles and joints.

The incidence of flat feet in children aged 3-5 years to 81.2% with a subsequent relative decrease among older children indicates that the disease is associated with functional and anatomical features of the foot in the early years of life. Later, as a result of the child's gait, flatfoot persists at 30%. Thus, this confirms that the condition may be due to other causes. That is, the morphological and biochemical reactions occurring in the bones, ligaments, joints and muscles of the jaw are abnormal.

A review of the literature shows that the diagnosis of flatfoot is mostly made from the age of 3 years. However, changes in the foot are directly related to the passage of pathophysiological processes in the child from the first step on his feet. These processes show clinical signs when they reach their peak at age 3. Diagnostic aspects of flatfoot (plantography and podometry) are studied in detail, but the essence of its origin, namely as dysplasticity of the soft tissues of the foot, the biochemical processes occurring in it are not disclosed. Congenital and acquired foot deformities in children, clarifying their diagnosis and treatment is one of the most important tasks facing modern orthopedic science.

Objective of the study. To determine the functional state of the flexor and extensor muscles of the foot, as well as to determine the role of the muscles in changing the shape of the dome of the foot.

Materials and methods.

Electromyographic studies were performed before and after treatment in 75 children (9 boys, 8 girls) in the polyclinic of TashPMI in Tashkent. In total 136 functional states were studied. The control group consisted of 12 children (7 boys, 5 girls) and they underwent 48 examinations.

The test was recorded on a Microsoft 2-channel electromyographic device. The anterior greater calf muscle and triceps triceps of the shin, which act as flexors and extensors in the tibia-ankle system, were examined for the purpose of the study.

The biopotentials of the muscles were recorded when the muscles were relaxed and in maximum tension. Biopotentials were recorded from the muscles using bi polar electrodes.

Myographic lines on paper were studied. For this purpose, the number (frequency), amplitude of 1.0 cm oscillations were calculated, and the arithmetic mean amplitude was calculated. In addition, the limit of muscle excitation was determined.

The obtained indices were calculated by the method of variation statistics, the accuracy of the average indices, the difference between them was calculated by Student's method.

Results and discussion.

The results of the electromyographic study are given in the table. The table shows that preliminary studies showed a decrease in bioelectrical activity before treatment, but after treatment these indices changed for the better.

Before anterior cruciate ligament treatment, the excitation limits in the right and left legs were 27.7-2.7 and 28.6-2.8 mV (P<0.001), and after treatment 19.4-1.4; 18.4 ± 1.5 mV (P<0.01), and in healthy children 10.8 ± 1.3 and 11.0 ± 1.8. The values indicate that the muscle excitability threshold before treatment was high and differed significantly from the control group. After treatment, the excitability threshold approached the values of children in the healthy group, and the level of reliability decreased.

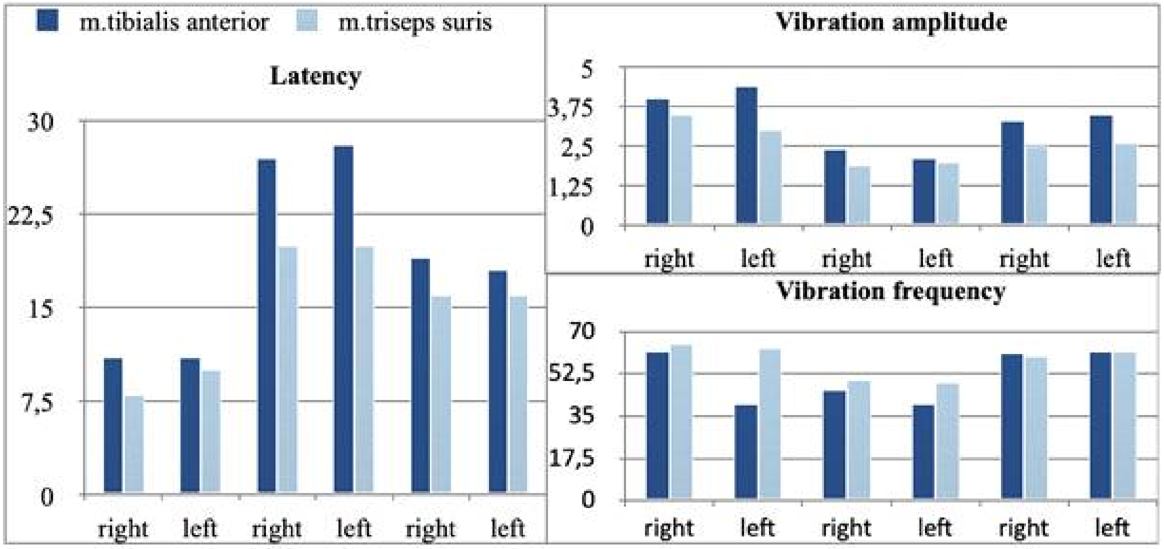
A similar situation was observed in the study of the triceps muscle. Before treatment, it was 19.9 ± 2.2 and 19.9 ± 2.3 mV (P < 0.001), and after treatment it was 16.4-0.9 and 16.3-0.9 mV (P < 0.001). In healthy children, the values were 9.7-1.2 and 10.1-1.2 mV (Table 2.3.5.1).

The table shows that the vibration amplitudes in the anterior greater calf muscle were 2.4 ± 0.2 and 2.2 ± 0.2 mV (P < 0.01) on the right and left before treatment, 3.3 ± 0.3 and 3 after treatment. 5 ± 0.3 mV (P < 0.05), and 4.1 ± 0.4 and 4.4 ± 0.5 mV in healthy children. The triceps muscle amplitude was 1.9 ± 0.2 and 2.0 ± 0.1 mV (P < 0.01) before treatment and increased significantly after treatment: 2.7, 2.0.2, and 2.7 ± 0.2 mV (P < 0.05). As a result, the values approached those of healthy children: 3.5: 0.5 and 3.1 ± 0.3 mV.

Table. Electromiographic indicators of extense and flex muscles of shin in children (M±m)

		Latency M±m			Vibration amplitude MV±m			Vibration frequency Hz M±m		
		Right	Left	R	Right	Left	R	Right	Left	R
Healthy children	m. tibialis anterior	10.8±1.3	11.0±1.8		4.1±0.4	4.4±0.5		63.5±3.6	39,4±3,9	
	m. triseps suris	9.7±1.2	10.1±1.2		3.5±0.5	3.1±0.3		66,1±3,5	63,6±5,4	
Patients before treatment	m. tibialis anterior	27.7±2.7	28.6±2.8	<0.001	2.4±0.2	2.2±0.2	<0.01	46,8±3,0	39,4±3,9	<0.01
	m. triseps suris	19.9±2.2	19.9±2.3	<0.001	1.9±0.2	2.0±0.1	<0.001	49,8±4,1	48,4±3,6	<0.01
Patients after treatment	m. tibialis anterior	19.4±1.4	18.4±1.5	<0.01	3.3±0.3	3.5±0.3	<0.05	62,8±3,8	63,5±3,4	<0.01
	m. triseps suris	16.4±0.9	16.3±0.9	<0.01	2.6±0.2	2.7±0.2	<0.05	61,3±3,2	63,3±3,2	<0.01

Chart. Electromiographic indicators of extense and flex muscles of shin in children.



When examining the vibration frequency by electromyographic indices, the same situation was observed. The frequency of the anterior calf muscle before treatment was 46.8 ± 463.0 and 39.4 ± 3.9 gts (P < 0.01), after treatment it approached the healthy group: 62.8 ± 3.8 and 53.5 ± 3.4 gts (P < 0.01); in healthy children 63.53.6 and 55.72.2 gts. Triceps vibration frequency was 49.8 ± 4.1 and 48.4 ± 3.6 gts (P<0.001) before treatment, 61.3 ± 3.2 and 63.3 ± 3.7 gts after treatment (<0.05); in healthy children 66.13.5 and 63.65.4 gts.

Thus, the bioelectrical activity of the tibialis anterior muscle and the triceps muscle is sharply reduced in children with flatfoot. However, after physiotherapeutic procedures, the frequency and amplitude of muscle bioelectric activity fluctuations were close to those of healthy children. The differences in the obtained data can be clearly seen in the figure.

Thus, our electromyographic studies showed that there are changes in all muscle activity associated with flatfoot. These changes are closer to those in healthy children as a result of treatment. Electromyographic studies before and after treatment allowed to dynamically assess the effectiveness of high-function therapy.

Conclusion.

Myographic studies have shown decreased excitability of leg muscles in patients with flat feet, which has been shown to be a major factor in the occurrence of flat feet. These measures help practitioners in diagnosing patients and selecting treatment tactics, as well as in choosing adjustments to correct changes. It also helps determine the effectiveness of treatment.

Used literature.

1.Batyrshin, I. Preschool rehabilitation of children with orthopedic pathology / I. Batrshin // Proceedings of the XI Congress of Pediatricians of Russia "Actual problems of pediatrics. - M., 2007. - 61.

2.Khramtsov P.I., Kurgansky A.M. Functional stability of the vertical stance in children depending on the state of the foot arch // Bulletin of the Russian Academy of Medical Sciences.-M., 2009.- № 5.- P.41-44.

3.Solomin V. Conservative treatment of flat feet in children and adolescents / V. Solomin, V. Fedotov, I. Viktorova // Vrach. - Moscow, 2009. - №2. - C. 67-68.

4.Pansatova N. U. Comparison of various methods of instrumental diagnosis of flat feet in children up to school age: a scientific publication / N. U. Pansatova // Pediatrics. - Tashkent, 2013. - N3-4P13013-4. - C. 100-102. - Bibliography .: 10 titles.