Contractures of Spastic Genesis Condition of the Musculoskeletal Structures of the Lower Leg in Infected Children

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Relevance. It is known that skeletal muscles play a key role in creating optimal biomechanical conditions, normal trophism and function of the injured and elongated limb. At the same time, the reparative capabilities of muscle tissue differ from the possibility of reparative restoration of bone tissue, in connection with which, often, it is the functional state of skeletal muscles that is the limiting factor in the treatment and rehabilitation of orthopedic and traumatological patients.

Despite the fact that metabolic processes in skeletal muscles are under strict control of systemic, local and genetic factors, muscles demonstrate significant plasticity and lability of the structural and metabolic profile in response to changes in their functional load. The material basis for this is the significant genetic polymorphism of both contractile and regulatory proteins and enzymes, as well as the high interchangeability of energy exchange pathways. In this regard, the restoration of the functional activity of muscles in the post-traumatic and rehabilitation period depends on the intensity of the restoration of its structural and metabolic characteristics and should be provided with a sufficient amount of plastic and energy resources in the tissue.

If numerous data from physiological, morphological and histochemical studies give a sufficient idea of the functional and structural changes in skeletal muscles during its reparative regeneration during skeletal injuries and under conditions of surgical elongation, then the results of biochemical studies that allow an objective assessment of the state of skeletal muscle metabolism are clearly insufficient. This is especially true for studies with surgical limb lengthening. Changes in metabolism in a contralateral injured or operated limb have also not been practically studied, although the functional load on it in the post-traumatic and postoperative period? increases significantly. In addition, evaluation criteria and schemes of laboratory diagnostics and monitoring of the state of skeletal muscles in orthopedic and traumatological patients have not been sufficiently developed.

In the practice of traumatology and orthopedics, the effectiveness of such developed tools, in our opinion, should be based on the possibility of simultaneous influence on the repair of bone and muscle tissue, which should ensure synchronous restoration of bone integrity and functional activity of skeletal muscles that make up a single anatomical and functional unit. In this regard, the methods of food and pharmacological regulation are the most accessible and effective. In addition, these methods are the most promising in terms of their further implementation using nanomaterials and nanotechnology.

Ilizarov occur against the background of compensated energy costs. The kinetic properties of myosin from the skeletal muscles of the lower leg were studied for the first time after treatment of a comminuted fracture of the bones of the lower leg by the Ilizarov method. For the first time, metabolic features in the skeletal muscles of the lower leg were studied depending on the timing of treatment of comminuted fractures of the lower leg bones. For the first time, metabolic changes occurring in the skeletal muscles of a contralateral, non-injured limb have been studied. It is shown

that for the regeneration process, with operative limb lengthening, skeletal muscle mainly uses extracellular plastic and energy sources, with reparative regeneration in the post-traumatic period - intracellular.

Conclusions

1. The greatest changes in the metabolism of skeletal muscles of dogs during postnatal development occur in the tissue energy supply system. The predominant aerobic orientation of energy exchange processes in the calf muscle decreases more intensively with age than in the anterior tibial muscle.

2. Age-related decrease in the intensity of protein metabolism and activation of the POL-AOS system in skeletal muscles have no differences related to the typological affiliation of muscles.

3. In the skeletal muscles of the elongated segment, the processes of energy metabolism, peroxidation and the system of antioxidant protection are activated. The intensity of the alanine cycle and the measles cycle increases, the content of sarcoplasmic and myofibrillary proteins in the tissue decreases, the affinity of myosin to the substrate decreases.

4. With limb lengthening, the greatest metabolic changes associated with a significant decrease in the efficiency of the tissue energy supply system are noted in the anterior tibial muscle of the elongated segment.

LITERATURES

1. Абдишева З.В. Влияние уровня двигательной активности на формирование энергетического обмена в различные возрастные периоды : автореф. дис. . канд. биол. наук. М., 1991. 17 с.
2. Бакарев М.А., Непомнящих Л.М., Колосова Н.Г. Деструктивные реакции скелетных мышц крыс OXYS и Вистар при токсико-метаболических повреждениях, вызванных бупивакаином // Бюлл. эксперим. биол. и медицины. 2007. № 5. С. 589-594.
3. Владимиров Ю.А. Кальций-транспортные АТФазы // Энциклопедия современного естествознания, т.8. М. : Наука, 2000. С. 201-209.
4. Гланц С. Медико-биологическая статистика. М. : Практика, 1998. 459 с.
5. Гребнева О.Л., Ковинька М.А., Изотова С.П. Влияние остеоиндуктивных компонентов плазмы крови на гематологические показатели у мышей // Гений ортопедии. 2005. № 3. С. 58-61.
6. Ерофеев С.А., Чикорина Н.К., Сайфутдинов М.С. Реакция мышц голени на ее удлинение с высоким темпом в условиях автоматической дистракции в эксперименте // Гений ортопедии. 2004. № 4. С. 18-22.
7. ЗайчикА.Ш., Чурилов Л.П. Основы общей патологии. Часть 2. Основы патохимии. СПб. : Элби, 2000. 688 с.
8. Ильина-Какуева Е.И. Особенности развития мышечных атрофий у крыс различного возраста при вывешивании // Авиакосмическая и экологическая медицина. 2001. № 1. С. 28-32.
9. Кроткиевски М. Капилляризация мышц, морфология и патогенез метаболического синдрома // Проблемы эндокринологии. 1996. № 4. С. 42-46.