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INNERVATION FEATURES OF THE TRICEPS SURAE
IN THE 4-6 MONTHS HUMAN FETUSES

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Research devoted to the studying of the innervation features of the lower leg muscles, especially the triceps muscle, is becoming more and more significant because a long-term disruption of the connection between the peripheral nerve and the muscle leads to serious pathologies, such as muscle atrophy. Knowledge of the general patterns of the intramuscular distribution of nerves in the triceps muscle of the leg at different periods of human ontogenesis is necessary for doctors of different specialties for carrying out diagnostic manipulations, choosing treatment and rehabilitation tactics.

The study aimed to establish the features of the intramuscular distribution of nerves in the triceps muscle of the lower leg in human fetuses 4-6 months old. The study of the innervation features of the triceps surae was carried out on preparations of the lower extremities of 19 human fetuses of 81.0-230.0 mm parietal-coccygeal length (PCL) using the methods of fine dissection, vascular injection, and morphometry.

The triceps of the lower leg is a combination of muscles located on the posterior surface of the lower limb – the two-headed gastrocnemius and the soleus. All muscles of the posterior group of the lower leg have a constant source of innervation - the tibial nerve. The gastrocnemius supplied with intramuscular nerves all over equally. The gate of the muscle branches from the tibial nerve to the medial head of the gastrocnemius muscle is near 2.5-5.0 mm above the gate of the lateral head nerve entry. The places of nerves entry in each head of the gastrocnemius muscle lie close to the entry points of the main arteries. In the thickness of each head, nerves are located in front of the arteries. The direction of the intramuscular nerve trunks does not coincide with the direction of the muscle bundles. The main nerve trunks are divided according to the loose type, and the branches which moved downward from these stems are divided according to the main type. Also, there are much more intramuscular nerve connections in the lateral head of the gastrocnemius muscle than in the medial muscle. At the inferior angle of the popliteal fossa, the tibial nerve is usually divided into two branches: anterior and posterior. The anterior branch of the tibial nerve is distributed in the thickness of the lateral and medial parts of the soleus muscle. The posterior branch of the tibial nerve plunges into the thickness of the posterior surface of the muscle. In this case, the nerves, as a rule, approach the soleus muscle at an acute angle to the long axis of the muscle. The branching of the lateral trunk, which has departed from the anterior branch of the tibial nerve, predominantly occurs according to the loose type, and the distribution of the medial trunk of the anterior branch is of a mixed type. What about of the intramuscular distribution of the nerve trunks that have departed from the posterior branch of the tibial nerve, the main type of branching prevails. The direction of the large intramuscular nerve trunks and their branches does not the same as the direction of the muscle bundles.

During studying the intramuscular distribution of nerves, it is possible to distinguish the medial, intermediate, and lateral regions, which correspond to the parts of the soleus muscle of the same name. The intramuscular nerve trunks of all three regions of the soleus muscle communicate with each other through the connecting nerve trunks. We noticed that the connections between nerve branches are the best developed in the distal soleus muscle. Interesting from our point of view is the fact that in the middle and lower third of the muscular part, the intramuscular nerve trunks formed loops and arcades. In the thickness of the soleus muscle, the arteries were located in front of the nerves.