The results showed that in the SCG, the SN application resulted in an increase in the amplitude of the evoked potentials, which peaked at 10-day-old and older rats after 10 min. This increase in amplitude was completely eliminated under the influence of L-NAME for 30 min. The amplitude of the EPSP increased under the influence of SN and decreased under the influence of L-NAME in 10-day-old and more adult rats.

In vivo experiments, the 10-minute SN application caused an increase of the average amplitude of discharges, an increase in the power of frequencies in the respiratory range and frequencies in the range of 10-14, 22-32 Hz in 10-day and more adult rats. With L-NAME application, the power of all spectrum frequencies decreased within 1 hour. Similar changes were observed in 10-day and more adults. SN and L-NAME did not affect the characteristics of the electrical activity in newborn rats.

Thus, NO activates the synaptic transmission in the sympathetic ganglia of rats from 10 days of life. The absence of the significant effect of NO on synaptic transmission in newborn rats is associated with the absence of the enzyme for the synthesis of NO - NO synthase at this age in sympathetic fibers.

This work was supported by RFBR, grant 16-04-00538.

NPY5-TAKE PART IN CONTRIBUTION OF VENTRICULAR MYOCARDIAL OF NEWBORN RATS

Nour Hussein Mansour[1], ZverevAleksej Anatolevich[2], Anikina Tatyana Andreevna[2], Krylova Alevtina Vasilevna[2], Sitdikov Farit Gabdulhakovich[2]
[1]Damascus University, Damasc, Syria
[2]Kazan Federal University, Kazan, Russia, Alekcei5@rambler.ru

Neuropeptide Y has trophic effects, in particular contributes to neurogenesis, angiogenesis, myocardial hypertrophy. In addition, neuropeptide Y plays an important role in the processes of age-related development of neurons in the autonomic nervous system. Neuropeptide Y stimulates the activation, migration, proliferation of endothelial cells. It is established that neuropeptide Y is required for age-related development of calcium channels L-type in the myocardium.There is evidence of an increase in the density of the location of alpha and beta-adrenoceptors in the cardiac muscle by the influence of neuropeptide Y, which is important for the formation of sympathetic innervation of the heart. According to the literature review in the nervous system, the percentage of neurons containing NPY at the time of birth is 73%. With aging it decreases to 37%. Initiation of NPY-receptors leads to activation of nonselective cation channels with predominance of permeability for calcium ions. Free sarcoplasmic calcium connected to the regulatory protein troponin, leads to increasing formation of the actomyosin complexes, triggering a contractile response. The aim of this study is to determine the role of NPY5 - receptors in the realization of positive inotropic effect. According to certain authors, from the two neurotransmitters stored in the sympathetic nerves, neuropeptide Y, but not noradrenaline, controls the

development of myocardial contractility in the early stages of ontogenesis. However, in addition to localization in sympathetic postganglionic fibers, NPY was also found in interneurons, which are located at the base of the heart, endocardium, and myocardium.

The study of the contractile activity of the myocardium strips of right ventricle was performed using «PowerLab» («ADInstruments») unit with «MLT 050/D» force sensor («ADInstruments»). CGP 71683 was added in a concentration 1.4 mM.

NPY in concentrations of 10^{-9}-10^{-5} causes a dose-dependent change in the contractility of the ventricular myocardium of rats 7- days of age. The greatest effect is observed in the concentration of 10^{-7}M. Adding blocker CGP 71683 causes a decrease in contractility of the ventricular myocardium by 8.6%. Againstthe background of the NPY5 receptors blockade, the amplitude-time parameters of isometric contraction do not reach the starting values.

Thus, NPY_5-receptors take part in realization of positive inotropic effect in ventricular myocardium in 7-day animals.

The reported study was funded by RFBR according to the research project № 18-34-00567.

THE POSTSYNAPTIC ACETYLCHOLINE RECEPTOR ORGANIZATION AND ACETYLCHOLINESTERASE ACTIVITY IN NEUROMUSCULAR SYNAPSES OF RAT «FAST» AND «SLOW» MUSCLES UNDER HYPOGRAVITY

Volkov Evgeny Mickaelovich[1], Nurullin Leniz Faritovich[2]
[1]Kazan State Medical University, Kazan, Russia, euroworm@mail.ru,
[2]Kazan Institute of Biochemistry and Biophysics KSC RAS, Kazan, Russia, leniz2001@mail.ru

Using immunofluorescent techniques we have shown that 35 day revealed that 35 days of hindlimb unloading resulted in the increase of the intensity and decrease of fluorescent staining area of acetylcholine receptors, enhanced intensity and extended area of fluorescent staining for acetylcholinesterase, in the change of the ratio of the number of postsynaptic acetylcholine receptors and the amount of acetylcholinesterase as well as their spatial position relative to each another in neuromuscular synapses of rat «fast» and «slow» muscles. These results on synapse restructuring correlate with electrophysiological data which showed the decrement of the amplitude of miniature endplate currents in both muscles. The above mentioned changes are accompanied by the decrease in the volume of muscle fibers. Hindlimb unloading (simulation of hypogravity) leads to an increase in functional activity of acetylcholinesterase on the background of reduced postsynaptic membrane area occupied by acetylcholine receptors. That leads to the reduction of the amplitude of excitatory postsynaptic potentials thereby reducing the nerve-muscle excitation transmission safety factor.