

Materials of conferences

COMPLEX STUDY OF MECHANISM OF SOME ANAESTHETICS ACTION ON CELLULAR AND ARTIFICIAL MEMBRANES PENETRANCE

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For the purpose of studying molecular mechanism of some narcotic substances' action we have carried out experiments on bilayer phospholipid membranes with anion-selective channels formed by amphotericin B. It has been found out that $5 \cdot 10^{-4}$ M of cocaine doubled the conductivity of such membranes without affecting that of the unmodified phospholipid bilayers'. It has been demonstrated that anaesthetics are ranged – cocaine, lidocaine, novocaine, - according to their pharmacological action series. It has been supposed that the molecular mechanism of the detected effect is connected with the action of anaesthetics on the lipid bilayer surface charge. The following anaesthetic gases were tried by us on biological and artificial membranes: Halothane, Methoxyflurane, Chloroform and Butanol. It has been established that some compounds, local and general anaesthetics among them, cause the orderliness factor contraction or, in other words, dissolve the membranes. It was shown that the membrane should be in a certain optimal state to function well. After the inhalant addition the membrane resistance began to fall and after 15-20 min achieved a new level. At that the conductivity increased by 1, 6-3 orders more. It was suggested that perhaps the membrane dissolution accelerated their interaction. This assumption was verified while determining the time of two phospholipids membranes' fusion, when the anaesthetic was added into the solution 10mM KSI, wherein the work was carried out. The data obtained show that in the presence of the investigated inhalants the membranes' fusion accelerated several times as much. The membrane resistance reduction, which occurs in the presence of inhalants, doesn't influence their fusion by itself. It was shown on the model membranes that cocaine doubles the penetrance of phospholipid membranes with anion-selective channels, and inhalation anaesthetics of narcotic action accelerate their fusion several times, when dissolving the membranes.

On the *m. Cutaneus pectoris Rana temporaria* nerve-muscle preparation the influence of some local anaesthetics (LA) (norcaine, novocaine, viadril, trimecaine, lidocaine and its analogues QX-314 и QX-572) was studied. All of them possess a postsynaptic action, the miniature endplate potentials' amplitude contraction (MEP) testifying to this fact. Proceeding from the data obtained one can conclude that all the investigated LA promote the emission of Ca^{2+} ions into the

nerve terminal protoplasm. The LA blocking effect, which manifests itself as the MEP amplitude contraction, happens due to the interaction of LA cationic type (i.e. quaternary amine) with the anionic receptors of the electro-excited membranes' sodium channel orifice.

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MECHANISM OF DEVELOPMENT OF GROWTH OF THE OVIDUCT AND BODY OF THE HENS IN POSTNATAL ONTOGENY

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The study of mechanism of the development of a structure reproductive organs of birds remains by a urgent question. The knowledge of features of stages of the development reproductive organs will help to find resources, which will allow increasing efficiency of poultry. Morphology of reproductive organs of birds during development studied many scientists all over the world, however problems of the mechanism of development reproductive organs have study short.

Sharandak V.I. has offers to choose seven periods of growth and development oviduct in postnatal ontogeny: first period – relative rest, which lasts up from hatching to 60-day age; second period – intensive growth and development oviduct, last till 120 days; third period – complete differentiation of the oviduct on departments, last till 150 days; fourth period – beginning oviposition, last about 360 days; sixth period – attenuation oviposition, last about 480 days; seventh period – involution, start since 540 days.

The purpose of our researches was study of mechanism of development of weight of a body and oviduct of the hens "Lohmann Brown" in postnatal ontogeny with the subsequent definition of critical stages its development.

Analysis facts shows, that the intensive gain of alive weight of chickens proceeded with daily up to 150-days age for this interval of time alive weight of chickens has increased by 45, 1 times. As for to weight oviduct, it for the similar period has increased by 5533, 3 times, and the sharp increase of weight oviduct occurred during 120-150 days by 104, 2 times. It is necessary to note, that in the period about daily to 120-days age weight of the oviduct has increased only on 0, 469 g, that is practically did not develop. The age 150 days is to the periods, when alive weight reaches the peak and becomes concerning constant. The change of oviduct length proceeds in the same law, as its weight. So for the period 1-120 days it has