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 5.10^{-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, Methoxyfluranum, 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 KS1, 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

increased by 3, 9 times, and for the period 120-150 days by 6, 6 times. The jump has taken place within 5 months, when the relative gain of length oviduct has made 147, 4 %.

The growth of weight of a body of the hens is active on 1 and 2 months of development, and oviduct on 4 and 5. These parameters are reduced, accordingly on 6, 7 and 6 month.

Thus, having compared the received results on weight of a body, weight and length of oviduct, it is possible to make the conclusion that the increase of alive weight of the hens occurs per the first 5 months and further is stabilized. In development oviduct, opposite, the first 4 months are the period of relative rest. And since 4 months there is an intensive development of an organ. The period 120-150 days, when weight of oviduct is increased by104 times, and length by 6, 6 times is necessary to consider critical.

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HOW MUCH HEALTHY IS "APPARENTLY HEALTHY" MEGACITY RESIDENT (IN TERMS OF KRASNOYARSK)

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Nowadays, more than a third of the world's population lives in big cities. Socially meaningful and professionally conditioned stressogenic diseases manifest themselves more acutely in a megalopolis. At the functional body reserves decreasing the priority value is acquired by dyscrasia diagnostics for a complex and effective sanitation of the internal environment. A non-specific resistance cellular link functional-metabolic reserve evaluated by means of chemiluminiscent (CL) method on *Tono-Oka et al.* (1983) in the modification of Zemskov V.M. with co-authors (1988) can serve one of the body's adaptative potential criteria. On the basis of the analysis of hemophages' "breathing outburst" kinetics parameters in 1252 persons of various sexes, ages and health states the reserve coefficients RC_S, RC_I and the prooxidant shift evaluation index were calculated. The norm is characterized by the values $RC_S \geq 3, 8$; $RC_I \geq 10$; EI=0%; a disease - $RC_S \leq 1, 5$; $RC_I \leq 2$; EI>33%, a pre-existing disease - $1, 5 < RC_S < 3, 8$; $2 < RC_I < 10$; $0\% < EI < 33\%$. The parameters association of "apparently healthy" and absolutely healthy people testified that in 80% of clinically asymptomatic active working age adults of both sexes the non-specific cellular defence functions in conditions of chronic oxidative stress. It is fraught with adaptative mechanisms deterioration. Authentically, in 6% of the selection a phagicytic cells' "functional palsy" has been found out. In children in conditions of constant urbanized environment chemical pollution an extreme adaptative mechanism with a higher prooxidant shift against the imbalance of mineral status and antioxidant components than in adults is realized. In 38% of pregnant women a double rise of cellular immune reactivity reserve capacity "is paid" by three-time intensification of the prooxidant shift and eight-time increase of the endogenous free-radical background. The reserve coefficient RC_S increase adaptative price is the prooxidant shift increase manifested in men 1, 7 times more intensive than in women. The phagocytic functional response is characterized by a reversed quotient (overshoot) of activated and basal production of free radicals and the reserve coefficient RC_I decrease 30 times at inflammatory, 3 times – at noninflammatory diseases and twice – at the pre-existing disease stage. The nonspecific resistance functional disturbances at the pre-existing disease stage are reversible when using the alimentary correction. The therapeutic measures efficiency enhances at their application with due consideration of the cellular immune reactivity original type and reserve corresponding to the body's phase of adaptation to the effects of controlled and uncontrolled factors of the environment.

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CARBOHYDRATE AND LIPID METABOLISM FACTORS IN GIRLS WITH MENSTRUAL FUNCTION DISORDER DEPENDING ON BODY WEIGHT

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The performances of the last years testify to high frequency of carbohydrate and lipid metabolism deviations from the age norms in girls with menstrual function disorders (MFD). However, these researches were mainly carried out in patients with polycystic ovarian syndrome, anorexia nervosa and Turner's syndrome. At the same time, the most commonly encountered MFD forms among teenagers are oligomenorrhea (OM) and pubertal uterine bleedings (PUB).

The purpose of the present work has become the study of carbohydrate and lipid metabolism features in teenage girls with OM and PUB depending on body-weight index (BWI). For the objective implementation 68 teenage girls were examined, 25 of them having OM and 43 – PUB. In 40 patients the BWI was contained within the confines of age norms (in 13 with