

SUMMARIES

A historical perspective, modern epizootic situation in the world and in Ukraine, immunity and the perspective of the vaccine of African swine fever

L. Korniienko

In Ukraine the outbreak of African swine fever has been reported at first in 2012 (Zaporozhye region). In 2014 two types of outbreaks were recorded. One outbreak, which took place among wild boar was recorded in the Luhansk Region and five outbreaks took place in the Chernihiv Region. In the Chernihiv Region the two outbreak was recorded among the wild boar. It may be suggested that the causative agent was in the population of wild boars, although monitoring studies of previous years have shown no animal carriers. Therefore, the epizootic situation of the disease will only get complicated. Relatively positive in this situation, in comparison to the European countries, is negligible population of the wild boar in our country and insignificant as to such territory, the number of domestic pigs.

Thus, from the beginning of the year 24 outbreaks of the African swine fever were recorded in Lithuania, 7 in Estonia, 206 Latvia and 37 in Poland. However, in Europe the contact of domestic swine with materials or with transfer factors, which might contain a virus of the African swine fever, is eliminated. European pig farms operate as a closed-end company and therefore such contacts are completely eliminated. In Ukraine the livestock of 8 million pigs, 4.5 million of which are held in individual households (56%), where even the minimal biosecurity is not provided. In Belarus an individual sector is about 25% of domestic pigs and in Russia 36.7%. Many researchers have noted that wild boars are quite sensitive to the virus of the African swine fever, but nevertheless it is lower than the sensitivity of domestic pigs. Thus, according to Russian researchers in Sochi's reserve approximately 85% of the wild boar in 2010 was killed, only around 15% of these animals have survived. However, it is easy to calculate that the population will recover in a few years, and in most cases the animals will stay the carriers of the virus (persistence of formation of latent forms of infection).

The short description of the immunity. Passive and maternal immunity is weak. The antibodies do not neutralize the virus. The reasons of the weak intensity of immunity and unneutralized activity are associated with features of the antigenic structure of the virus (blocking antigen with lipids, competition or masking of protective antigens species antigens of the virus or the host, as well as changes in the function of lymphoid cells - a violation of virus and antigen interaction with macrophages and cooperation of them with T- and B-lymphocytes (mechanisms of viral persistence).

In favor of the first hypothesis says weak or altered response to inactivated virus preparations in both sensitive and insensitive animals. In low activity of antibodies the cellular immune responses are enhanced. They are essential in blocking infection and are the cause of allergic and autoimmune complications.

In the pathogenesis and immune of the African swine fever autoallergic reactions play a significant role. In the event of attenuated strains of the virus on lymphoid cells is the synthesis of defective antibodies, which are unable to neutralize the virus. Antigen-antibody complexes, which are concentrated in the tissues of target organs, result in a violation of their functions and the development of allergic and autoallergic processes. The stimulation of cellular immunity - lysis of infected cells sensitized lymphocytes can be observed, along with the selection of mediators of cellular immunity: lymphotoxin, migration inhibition factor blasttrans-formation and so on.

Vaccines with attenuated strains have protected 80-100% of vaccinated animals (immunized animals in Spain and Portugal), but induced an elongated carrier (persistence) of the vaccine virus, caused vaccination complications and have not warned the acclimatization of the virulent virus. The quantity of immunological types of pathogen (22 genotypes) and the existence of mixed virus populations significantly limits the use of such drugs.

Inactivated vaccines do not eliminate problems of the typical plyuralities, carriers and engraftment virulent virus. This virus also established phenomenon of "antigenic mimicry".

In cells infected with the African swine fever found 106 virus specific proteins (for example, the causative agent of classical swine fever has only 8 virus specific proteins), 35 of which are synthesized before the start of viral DNA replication (early proteins) and 71 after DNA replication (late proteins).

Hence the development of vaccines using modern technology looks almost impossible. Thus, the development of vaccines at the present stage of the study of this disease today seems to be not realistic. On the forefront go at first the tough measures of fighting and control this dangerous disease.

Fighting the African swine fever in Ukraine is based on the destruction of potential sources of pathogen and strict veterinary and sanitary measures. In epizootic focus all susceptible animals (pigs of all ages) should be destroyed. The fighting measures should be at first preceded in the first zone of high risk of infection (the area that directly borders on epizootic extension on distance 3-20 km). This means slaughter pigs, which kept in holdings of all forms of ownership of processing enterprises, established by the State Department of veterinary medicine exclusively for the manufacture of cooked products. Secondly the measures for the destruction of wild pigs, wild animals, migratory birds and rodents should be organized. The measures against the African swine fever in the second threatening zone (the area surrounding the border of the first zone to a depth of 150 km from epizootic extension) includes immunization records and all livestock pig farms of all types of ownership against classical swine fever, followed by enhanced supervision over them.

African swine fever today is not only cross-border disease, but it is a global problem for the veterinary service in all countries. This is a new challenge for the economies of the countries with developed hog industry. Today this disease has already penetrated into the territory of the European Union, namely, Lithuania, Latvia, Estonia and Poland. It remains unclear how the pathogen came to Europe. It might be that the path of pathogen came through Belarus, where only 2 officially outbreaks were reported, although according to the mass media the magnitude of the outbreaks was much higher. Today in Ukraine 7 outbreaks of this dangerous disease were already recorded. Therefore, our country requires cooperation with EU and international cooperation in this field.

Key words: african swine fever, transboundary infection, epizootic situation, persistncia, late onset infection, wild boar, the vaccine.

Prospects use of succinic acid in veterinary surgery

M. Ilnitskiy, A. Hierdieva

In recent years, in medicine widely used drugs with the use of succinic acid. It possesses adaptogenic, antihypoxic, antioxidant and neurotropic action, normalizes energy metabolism, general physiological condition of the body, accelerates biosynthesis in terms of pathologies and extreme actions.

Taking into account that succinic acid is non-toxic substance, accumulation in the body does not, it can be used repeatedly and for a long time. An overdose of the substance of the currently known works, is not. The content of succinic acid in the tissues of the human body animals is 0,2-0,8 mmol/l, and its plasma concentration is much lower and does not exceed than 0,4 mmol/l. It is known that drugs based succinic acid have metabolic and immunostimulant influence. This formed the basis for the development of a series of medications for prevention and treatment of metabolic abnormalities, acquired immunodeficiencies, infectious diseases of animals.

Among the numerous experiments were proven efficiency of succinic acid and preductal, which has a positive effect on renal function due to reconstruction energy phosphates, with antibiotics such as gentamicin, which use for correction toxic nephropathy. Experiments on white rats have shown the possibility of reasonable use for maintenance of renal function succinic acid and preductal, that significantly improve osmo-regulating renal function and, in particular, the position reabsorption in proximal tubules.

Known use of succinic acid to broiler chickens during mycotoxicosis. Experimental animals in feed was added succinic acid at a dose of 0,1 g/kg body weight once a day for 10 days. The result of the experiment, the animals of the experimental group had higher growth rates of body weight, and increased survival of livestock. Thus, succinic acid reduces the toxic effects of mycotoxins on animals.

According to professor M.S. Naydenskoho, when feeding dry cows succinic acid in a period of intense growth retardation, increased expectations on average 10-15% of the live weight of calves at birth by 12-17%, reduced morbidity. Positive results were obtained in the pig.

Succinic acid – one of the first substances which were found anti-radiation activity. Its radio-protective effect on intestinal bacillus was discovered in 1952, and in 1955 was shown radio-protective effect of prophylactic administration to mice. High antihypoxic and antioxidant activity of succinic acid has been applied in detoxification Reamberin 1,5% solution for infusion, which is a composition of isotonic salt of succinic acid (succinate sodium magnesium chloride, potassium and sodium).

According to E.V. Aleksandrova found that metalsuntsinat in combination with antiseptic - stimulant Dorogova (ASD-2F) enhances metabolic processes in broiler chickens that appear on the activity of adenosine-3-phosphate membrane structures erythrocyte indices protein and mineral metabolism, non-specific resistance, as well as the preservation and performance of broiler chickens. Scientific novelty of these studies confirmed a patent of Russian Federation №2404761. The data can be used as biochemical tests in the study of intercellular exchange, which allows to assess the state of metabolic processes in the poultry when administered in the diet supplements biostimulation based succinic acid.

O.V. Basankin studied the use of succinic acid in pig and poultry, namely the use of solutions of succinic acid for the treatment of hatching eggs in order to stimulate embryonic and post-embryonic development chickens; the use of succinic acid under stress in chickens.

Often succinic acid is used in beekeeping. For example, K.O.Piriazhev studied the effect of succinic acid as a biological supplements at a dose of 0.1% on the life processes of bees carpathion breed. For the first time studied the effect of succinia acid on egg queen bees, productivity and biological characteristics of individuals.

K. H. Seilov in pig feeding studies were conducted succinic acid with basic diet sows and piolets at a dose of 0.15% of dry water, this made it possible to get the hight number of live pigs in the group -12,3 head, a member of survival at 91,9% gain and average daily gain -194 h, compared with animals that received feed without supplementation of organic acids.

Succinic acid has unique properties: it accumulates in those areas that need it, bypassing healthy tissue. It is a feel cell that provides the processes of energy in the mitochondria.

Conclusions. Succinic acid and its salts (succinate) is a broad - spectrum drugs: have a theraping effect oven in small doses; have long after the physiological action, not harmful in overdose in connection with the absence ksenobiotic effects that are inherent in synthetic drugs; can be used with feed water and in aerosol form).Therefore there is a need for further study of succinic acid in veterinary medicine.

In the future it is necessary to conduct a study on the use of succinic acid in inflammatory processes in animals with surgical pathology.

Key words: succinic acid, succinate, succinic biostimulant.

State of vascular and platelet macrocirculatory homeostasis by pyometra in dogs

M. Rublenko, V. Andriets, A. Eroshenko, S. Vlasenko

Diseases of the reproductive system in small animals are about 12-20% of the non-contagious disease, and recent years, the incidence of inflammation in the genitals increased by 45%. Among the diseases of the reproductive system of dogs is one of the first places are pyometra - 42.9%.

Pathogenetic criteria of pyometra in dogs, the definition of priority neglected, resulting mainly use surgical removal of the uterus.

Some studies found changes in some morphological and biochemical parameters of blood, and more recently the system cytokines. Also proved that the development of pyometra and surgical treatment of dogs in developing disseminated intravascular coagulation blood, which in turn leads to systemic disruption. This leads to further study the diagnostic and prognostic and pathogenetic significance of hemostasis, fibrinolysis and proteolysis by pyometra.

The aim – to determine the status of various stages of hemostasis by pyometra in dogs.

In dogs of different breeds and age (n=12) who received surgical clinic based on clinical data and results of ultrasonography set pyometra. In rich and poor platelets plasma of healthy (n=25) and sick dogs were tested for fibrinogen and its metabo-

lites, activity fibrin stabilizing factor, prothrombin time, activated partial thromboplastin time, antithrombin III and protein S. Plasma fibrinolytic activity was investigated with simultaneous determination of total activity plasminogen and activity of tissue plasminogen activator.

It was established that the development of pyometra in bitches accompanied by hyperactivation of all parts of the hemostatic system, which is compounded deficit primarily plasma coagulation factors and natural anticoagulants due to their adsorption on the membranes of platelets from depressed activity of physiological fibrinolysis. The first time the pathogenetic criteria, previously known for pyometra in bitches DIC, which are based mechanisms coagulopathy associated with activation of vascular-platelet hemostasis that must be considered, especially for the surgical treatment of sick animals.

Formation of pyometra in bitches accompanied by the development of coagulopathy in the form disseminated intravascular coagulation blood hypercoagulability transition stage to the stage hypocoagulation.

Pathogenetic mechanisms of DIC for pyometra in females caused by activation of vascular-platelet hemostasis.

Laboratory criteria for DIC pyometra is the appearance in plasma cleavage products of fibrin / fibrinogen, prothrombin time and prolongation of activated partial thromboplastin time, decrease the activity of tissue plasminogen activator.

Key words: hemostasis, DIC, pyometra, dog.

Histological changes in the liver, kidneys and myocardium rabbits by using A water-soluble form of vitamin E

M. Ignatovskaya, O. Yakubchak, J. Serdioucov

Priorities in the field of nutrition are to provide people with quality products with high nutritional and biological value. One of the foods that provide people valuable, high-quality and inexpensive protein is a rabbit's meat. To improve the efficiency of growing rabbits and improving the quality of products of slaughter compound feed by constantly balance the vitamins, minerals, amino acids and a number of synthetic biologically active substances that stimulate growth and development. To improve the oxidative stability of meat more efficiently add vitamin E to animals than to the meat after slaughter, as in the second case it is not natural and physiologically incorporated into cell membranes.

It should be noted that vitamin E is a natural active antioxidant that prevents the oxidation of fats and reduces lipid peroxidation in muscle tissue, but insolubility in water tocopherols complicates and limits their direct use. In human medicine to create soluble forms of drugs and ensuring long-acting in vivo they were placed in a polymer matrix, which allows you to control the release rate of drugs and make their transport towards the required authority. Furthermore, it should be noted that vitamin E in the form of water-soluble supports proper absorption and use of lipids, a positive effect on the liver, intestine, pancreas and supports optimal functioning of the immune system.

Study of the influence on the structure of tissue products slaughtering rabbits vitamin E in water-soluble form was conducted. Therefore, we conducted histological studies of products of slaughter rabbits, which we are feed the vitamin E in water-soluble form.

The intention of the research was to study the effect of vitamin E in water-soluble form in the histological structure of the liver, kidneys, myocardium of rabbits.

In the liver of animals in the control group had liver lobules hexagonal shape. At high magnification clearly distinguish the structure of hepatic beams. Vessels lobes moderately with full blood. Stroma was represented by thin layers of loose connective tissue. In the liver, the experimental group of rabbits there were dual-nuclear hepatocytes. The nuclei and cytoplasm of hepatocytes were stained more intensely compared with the control, were hyperchromic nuclei.

In the rabbit kidney vascular glomeruli round or oval vessels they painted intensely eosinophilic. The lumen of the tubules great without content. Tubular epithelium has a cubic shape. Eosinophilic cytoplasm, nuclei stained moderately. We did not detect any difference in histological structure of the kidney of experimental animals compared with controls.

Myocardium is built from bundles of muscle fibers, consisting of cardiac cells that are spindle-shaped. In the center of the cell are one or two nuclei, heavily shaded with hematoxylin. Cardiomyocytes are connected with neighboring cells anastomosis. In preparations of myocardium animals of the experimental group were intensely stained nucleus and cytoplasm of cardiomyocytes, cells were somewhat larger than in the control group animals.

Conclusions: in the experimental group of animals hepatocyte cell structures somewhat intense painted, indicating a better permeability of cell membranes. In the kidneys of animals of the control and experimental groups changes were detected. Nucleus and cytoplasm of cardiomyocytes of the research group rabbits intensively shaded, core bit larger compared to the control.

Key words: rabbits, vitamin E, histology, liver, kidneys, myocardium.

Influence of amount of somatic cells of cow's milk on the indexes of protein composition

N. Tyshkivska

Somatic cells of raw milk – blood cells, white blood cells, red blood cells, epithelial cells, which zluschylysyia from the alveoli and milk duct of mammary gland. According to different authors number of somatic cells in raw cow milk ranges from 60-80 thousand/cm³ to 1 million/cm³, depending on the condition of the udder. In the presence of inflammation (mastitis) in the mammary gland number of leukocytes increases to ten millions due to their enhanced migration in inflammation. Accordingly the total number of somatic cells in milk increases.

At the initial stage of inflammation destructive processes in the mammary gland do not cover substantially the biosynthesis of milk proteins. The content of total protein remains unchanged, but there are significant changes in the structure of the alveolar epithelium, as indicated by the change in the number of glycoproteins, primarily due to degradation products of hyaluronic acid, which is a matrix for binding of the epithelial cells of the alveoli. The increase of immunoglobulins concentration is marked, in their structure, probably there are certain changes that are caused by a decrease in the content of N-acetylneuraminic acid that is the link between protein globules and carbohydrate hapten in each immunoglobulin.

Research was conducted on cows of black and white breeds that are kept in NNDTS of BNAU. Samples of milk from each cow were collected by automatic selector milk or by probe under the proportional yield of ISO 707:2002. Research of milk samples was performed in the research laboratory of veterinary-sanitary examination and hygiene of livestock products of BNAU. The number of somatic cells in milk were determined by direct counting of somatic cells on analyzer "EkomilkScan", made in the USA, working on the principle of laser-fluorescence flow cytometry. The level of sialic acids was determined by the method of Hess, qualitative indices of milk – by standardized methods.

As a result of our research number of somatic cells in the tested samples ranged from 90 to 1,500 thousand/cm³, and averaged 455,0±156,27 thousand/cm³, that corresponded to the first grade.

In the cow's milk from the first group (20%) the number of somatic cells ranged from 1170 to 1,500 thousand /cm³, which is typical of subclinical mastitis. In the cow's milk from the second group (10%) – the number of somatic cells ranged from 583 to 600 thousand/cm³, which meets the requirements for the first grade milk, in the cow's milk from the third group (70%) - indices ranged from 90 to 360 thousand/cm³, typical for extra and the highest quality milk.

According to literary sources 5% cows from the herd identify 50% of the total content of somatic cells of milk per herd, in our case there were 20% animals. According to GOST 3662-97 (with changes) in milk class "extra" and "higher" the number of somatic cells should not exceed 400 thousand/cm³, the "first" – 600 thousand/cm³ and "second" - 800 thousand/cm³.

Increased somatic cell 500 thous. /cm³ may be indicative of subclinical and 1 million / cm³ – the clinical form of its manifestation. According to other authors, content of somatic cells in milk between 200 thousand/cm³, and in some cases 100 thousand./cm³ can be a sign of disease.

Inflammation of the tissues of the udder may be expressed by clinical signs and hidden (subclinical). Pathogen enters the parenchyma, and from here to the alveoli, and the ability of cells to synthesize casein, lactose and fat is ruined. To maintain the osmotic pressure of blood ions of blood in large quantities pass into the milk that contributes to the pH of the samples to 6,76 ± 0,018 for fluctuations indices from 6.65 to 6.87. According to the literature the pH of milk from healthy cows is 6,5–6,6, with the development of inflammation increases to 7–7,5 and more.

Partly affected tissue of the udder becomes permeable to serum proteins. At the same time the total amount of dry matters reduces, quantitative proportion among the components of milk changes. This is reflected in the reduction of the mass fraction of fat, lactose and casein, as well as increasing the content of serum proteins, chlorides and somatic cells.

Mass fraction of protein in the milk of tested cows in the experimental group was an average of 3,02 ± 0,03% (2,84–3,2%), corresponding to basis normal. That is, the total amount of protein did not change, maybe due to increasing of serum proteins.

Under such conditions there are the first changes in protein spectrum of milk whey, first of all concentrations of antibodies to 1,17±0,21 mg / ml increases, which is associated with a protective function of the body against 0,68–0,8 mg / ml serum milk of healthy cows. With the development of inflammation the structure of protein changes, content of N-acetylneuraminic acid decreases.

Thus, at the increase of amount of somatic cells in raw whole milk marked the increase of active acidity and amount of immunoglobulin and increase of level of sialic acids.

It should be noted that it is important not only the total amount and quality of somatic cells but also their cooperation and correlation that influences on the result of pathological process. These questions are perspective direction of our further research.

Key words: somatic cells, sialic acid, total protein, immunoglobulins.

Risk assessment and control of safety and quality indices at the production of rennet cheese

O. Hitska

Implementation of systems of safety food management based on HACCP principles in the domestic food industry is an effective tool to ensure high food hygiene. This system provides production control of the food chain, allowing to take preventive measures and to prevent the negative impact of production risk on the safety of the finished product. Knowledge of manufacturing processes, understanding the biochemical and microbiological transformation of raw ingredients, strict control at all stages of processing ensures the release of a safe and high quality products.

The objective of our study was to determine the critical control points and assess risks in production of rennet cheeses, to conduct identification of indicators of quality and safety of milk and cheese according to the criteria established by the applicable regulatory and technical documents.

The material for the study: cow's whole milk, rennet and hard cheese. Investigation of the quality and safety of raw milk and rennet cheeses was carried out by standardized and rapid methods. Research methods - organoleptic, physics-chemical, microbiological, statistical.

Due to the nature of rennet cheese production the main critical control points may be defined: the quality of milk, pasteurization of milk, salting and cheese ripening.

Milk as raw material – is the first critical control point, which contains significant risks in the production of dairy products. The quality of raw material in the production of cheese exhibits higher and specific requirements. Only cheese production milk is used, which has not only the necessary physical, chemical and microbiological parameters, but also characterized by certain biological and technological properties.

The research results indicate that all investigated milk met the standards. Mainly for processing into cheese milk received higher and the first grade.

Correlation of fat and protein was 1,15, fat and fat dry milk residue – 0,42, protein and fat dry milk residue – 0,36, indicating the suitability of milk for cheese production. Titrated acidity on average reached 17 °T, indicating the freshness and naturalness of milk. Active acidity averaged 6,65 at a rate of 6,3-6,9. Investigated fermenting raw and rennet-fermenting samples corresponded to the first and the second classes, indicating the absence of the bacteria of *E. coli* and spore anaerobic microorganisms. Most of the studied samples of milk in terms of content somatic cell corresponded to the highest quality.

Inhibitory substances (antibiotics) in raw milk determined by rapid method using a test set of «Copan Test». None of the analyzed samples of milk antibiotic was found.

According to research results, the majority of samples of milk for microbial contamination met the requirements of the first (22 samples) and the second (21 sample) grades according to the state standard.

Analysis of content of main microflora of milk before pasteurization and after showed that during heat treatment the number of mesophilic aerobic and facultative anaerobic microorganisms decreased on average by more than 6 times. Thermophilic molds did not withstand pasteurization regimes and gave no growth on nutrient medium after heat treatment. Most of the residual microflora - is microflora, which provides cheese ripening process together with the microbial starter cultures.

Critical control point is the process of salting the cheese in brine, as a result of diffuse osmotic processes a portion of the components cheese dough and its microflora gets into the brine. We investigated the survival of certain microorganisms damage in brine, in particular - the yeast that grow well in acidic medium and are precursors to the development of mold and putrefactive microflora. The results showed that the yeast in brine do not develop, and gradually die. Bacteria of *E. coli* in brine were not found.

The next critical control point is the ripening of cheese. Our research found that in microflora of cheese at the end of extrusion lactic acid bacteria were dominated. On the 10th day of ripening bacteria amount was the highest and then decreased due to their extinction. Bacteria of *E. Coli* were not found.

Study of separate quality indices of rennet cheese after ripening showed that the mass fraction of fat in cheese slightly higher than the minimum level (not less 45 %) and averaged $45,73 \pm 0,26$ %. Water content averaged $41,3 \pm 0,23$ % for the regulated rate not exceeding 44 %. Mass fraction of salt did not exceed the standard indicators (from 1,5 to 3,0 %) and amounted to $1,69 \pm 0,07$ %. Active acidity of cheese was $5,26 \pm 0,03$ (at a rate of 5,25 to 5,45).

In all investigated samples of cheese pathogenic organisms were not detected.

The results of investigation of cheese on heavy metals show that these indices are well below the maximum permitted level. Thus, the content of cadmium was 0.01 mg/kg of arsenic - $0,027 \pm 0,009$, mercury - $0,005 \pm 0,001$ and of lead - $0,143 \pm 0,048$ mg/kg.

Key words: milk, cheese, quality, safety, risk, critical control point, system of food safety management.

Express-determination of carbohydrates and lipids status in cows with different productivity

N. Vovkotrub, O. Chub

In the article is analysed informing of determination the content of β -hydroxybutyric acid and glucose in blood of milking cows with different productivity by Blood Sugar Meter *Optium Xceed*. Last time for quantitative determination of ketones (β -hydroxybutyrate) and glucose in blood of cows in the farm with success use of *Optium Xceed* device (producer *Abbot Diabetes Care*, Germany), main advantages of which are: portability, independence from central energy searchers, high exactness, fast test time and simplicity of screening. Determination the β -hydroxybutyrate and glucose content in blood by this meter enables doctors to control the state of energy metabolism in animals directly on farms which promoted to discover ketosis on the early stages and accordingly the possibilities in time appointed of therapy and prophylactic measures.

In 70% cows of early puerperium period (1–15 days after calving) the level β -hydroxybutyrate was increasing and was within the limits of 0,7–4,4 mmol/l (norm to 0,6 mmol/l). In 71,4 % it was exceeded the level 1,5 mmol/l. Only in 30 % of cattle the ketonemia level was in a norm (0,5–0,6 mmol/l). However, in a group with the less level of the productivity the increasing level of β -hydroxybutyrate acid (0,7–1,3 mmol/l) observed in 40 % cows.

The clinical symptoms of ketosis (depression, hyporeksiya, rumen hypotonia) observed only in 30 % cows of the second group, while in 100 % of animals of the first group the clinical state was normal.

In high-productive cows the glikemia level on 35,5 % is exceeded an analogical index at a cattle with the middle level of the productivity ($r < 0,05$). Development of hypoglycemia was observed in 40 % cows of the first group.

At the physiological level of ketonemia ($< 0,6$ mmol/l) in the cows of the first group content of glucose was within the limits of 2,2–2,7 mmol/l and averaged $2,4 \pm 0,22$ mmol/l. By increasing of ketonemia level to 0,7–1,4 mmol/l (subclinical stage of ketosis) blood contents of glucose in cows with the middle level of productivity had a tendency to decreasing ($1,7 \pm 0,30$ mmol/l), here in 100 % animals were fixed hypoglycemia.

However, the results of determination the glikemia level in the second group appeared ambiguous – it was found hypoglycemia only in 30 % cows. In animals with physiology β -hydroxybutyrate content the content of glucose in blood was within the limits of 2,4–3,3 mmol/l. At subclinical stage of ketosis it had a tendency to the increase and had been averaged $3,9 \pm 0,90$ mmol/l. Only at high level β -hydroxybutyrate (1,7–4,4 mmol/l) the blood contents of glucose in high-productive cows began to decreased ($1,2–3,7$; $2,5 \pm 0,51$ mmol/l).

Express-analysis of urine was marked the presence of insignificant ketonuria (the level of ketonic bodies was not exceeded by the index of 1,5 mmol/l) in 40 % cows of the first and second groups. Thus it was found proteinuria in 40 and 70 % cows of the first and second groups accordingly.

The results of our researches were showed that with the purpose of estimation carbohydrates and lipids status at sub-clinical stage of ketosis in cows with early after calving period more informing is determination the level of blood β -hydroxybutyrate.

Subclinical and the clinically expressed stages of ketosis were more frequent registered among high-productive cows (70 %), while in cows with the productivity 5000 kg of milk for lactation – in 40 % cases.

The use of glucose meter *Optium Xceed* with the purpose of diagnostics of ketonemia and glycemia level in cows allow quickly and high-quality to conduct quantitative determination of β -hydroxybutyrate acid and glucose in blood in the conditions of farms, avoiding many errors.

Key words: ketosis, ketones, glucose, glucose meter, high-productive cows, after calving period.

The treatment of working dogs with hepatic dystrophy

T. Hudyma

By clinical examination performed of 13 from 65 working dogs (20%) showed clinical symptoms, by the results of biochemical blood assay, these changes are characteristic features of hepatic dystrophy. In particular hepatic dystrophy was diagnosed in 15.9% of German Shepherds, Spaniels 33.3% and 16.7% Malinois. For the production of the final diagnosis, intravital liver biopsy was conducted. Histological study of the biopsy showed that the dogs had fatty liver degeneration.

It was found, during the clinical studies of sick working dogs that the body temperature of the animals was within physiological fluctuations (38,0-39,0°C). The pulse rate of 8 (61.5%) animals ranged from 70 to 120 beats/min., while 5 (38.5%) dogs had tachycardia. Respiratory rate of dogs was within physiological oscillations (15-25 breath/movements. per min.). The visible mucous membranes (conjunctiva, mouth) of 10 (76.9%) of the studied dogs were anemic, especially the mouth cavity. 13 (100%) dogs had wool cover changes, in particular rumpleness and the loss of shine. The skin was dry, with scales, and 10 (76.9%) of animals had ectoparasites.

The use of adjuvant therapy for 30 days had a positive effect on the dogs' bodies. The positive changes in nutritional status of dogs on the third week of treatment were found on the repeated clinical study. 11 (84.6%) dogs had pale pink mucous membranes, 2 (15.4%) animals still had pale mucous membranes. 10 (69.2%) animals had thick and shiny wool cover, three (23%) had their skin and wool recovered partially.

Hyperenzymemia (ALT and AST) was found of all animals under investigation during the blood serum study of working dogs with hepatic dystrophy.

The treatment of working dogs with hepatic dystrophy contributed to the normalization of the functional liver state, that was demonstrated by a decrease in ALT activity by 29.3% ($p < 0.001$) compared with sick animals, AST - 22.3% ($p < 0.001$).

The conducted studies have shown that the activity of HLDH in the blood serum of working dogs with hepatic dystrophy increased of all animals under investigation. The tendency to HLDH activity decreasing by 23.5% ($p < 0.1$) compared with sick animals was found after the established treatment.

6 (46.1%) working dogs had hyperbilirubinemia. The concentration of bilirubin in blood serum after treatment was lower by 2.6% ($p < 0.1$) than in sick dogs blood serum.

According to the research, ALP activity was higher of all dogs under investigation. Hyperenzymemia HHTP was diagnosed at 23.1% German shepherds and spaniels, respectively, and 100% Malinois. After the therapy conducted ALP and HHTP activity decreased by 5.8% ($p < 0.1$) and 25.4% ($p < 0.001$) compared with sick dogs.

Hypocholesterolemia was diagnosed of sick working dogs. After a complex of therapeutic measures the cholesterol content increased by 37.5% ($p < 0.01$) compared with its rate before treatment of dogs.

The research conducted has shown that the concentration of crystal in blood serum before feeding, as well as and after it was increased of sick working dogs. After the treatment the concentration of bile acids in blood serum before feeding and 2 hours after it decreased by 46.6% ($p < 0.001$) and 53.5% ($p < 0.001$).

The combination of L-ornithine and artichoke of working dogs regulates liver function and has protective properties during the treatment of liver failure. L-ornithine regulates the urea cycle of dogs, takes part in the ammonia transformation, and also reduces its toxicity. Artichoke has hepatoprotective, membrane function, improves liver detoxification function and normalizes lipid metabolism.

Conclusions. 1. It was found that the dogs suffering from hepatic dystrophy had a violation of the functional state of the liver, including increased activity of ALT, AST, HLDH, total bilirubin, alkaline phosphatase, HHTP, hypocholesterolemia, the increasing concentration of bile acids.

2. The use of hepatoprotectors in integrated circuit treatment for hepatic dystrophy of dogs gradually restores functional status of hepatocytes through a combination of L-ornithine and artichoke.

Key words: dogs, liver, hepatic dystrophy, enzymes, bilirubin, cholesterol, bile acid, treatment hepatoprotectors.

Electrocardiographic indicators Hutsul horses breed

I. Maksymovych

The reasons that motivate the implementation of cardiovascular system in horses is their participation in sports, respiratory diseases, degradation or loss of consciousness. However, such studies are rarely performed in order to monitor the state of the cardiovascular system during exercise. Often cardiology studies conducted when the animal developed symptoms of heart failure.

Echocardiography refers to the priority of the heart in horses. Diagnosis of arrhythmias in horses is important because they are recorded more frequently than the other species. Some of them are physiological, while others are abnormal and may indicate damage to the heart muscle. None of the clinical methods can not replace electrocardiography in the diagnosis of cardiac arrhythmias.

Since electrocardiographic studies performed in different leads, there is much disagreement normal values electrocardiogram. However, the difference in the image electrocardiogram in horses obtained by writing to the leads of the electrodes are put in different places, relates mainly wave amplitude. Therefore, some authors in the interpretation of electrocardiograms in horses fed only the width of the teeth and the time intervals and segments.

Electrocardiogram in horses differs significantly from ECG humans and small animals. These differences are related to the structure of the conducting system of the heart horses, as well as the distribution and activation sequence of excitation in cardiac muscle.

Anatomical structure of the sinus node of the heart in horses caused by the fact that the P wave is broad and often forked. This complicates the interpretation of the morphological changes of P wave, which is typical for increasing fibrillation. In ventricular QRS complex in leads most dominant negative waves, also zatrudnyaye detect signs of an increase in the ventricles. Heavy in diagnosis is to establish intraventricular conduction disturbances, since excitation occurs in the ventricles "burst" in a

short period of time. Therefore, the ECG arrhythmias arising from the violation of intraventricular conduction recorded by marked changes in the myocardium.

The heart of a horse has substantial reserves, allowing several times to increase its systolic volume during exercise. Therefore, the pathological changes in the heart for a long time may not show up and run without symptoms. Clinical symptoms of disease occur in the later stages when developing heart failure.

There are several electrocardiographic symptoms that characterize normal and pathological response of the heart to stress in horses. Particular attention is paid to the ECG ventricular complex shape of teeth.

Electrocardiographic monitoring of heart in horses shown to hold also in older animals during surgery. At the same time electrocardiography is less informative with increasing heart or individual departments for electrolyte and hormonal imbalance. Changes of this nature need to confirm with other more specific methods. However, the performance of electrocardiography allows to diagnose heart disease in horses, including arrhythmias, and in accordance with the change of use in work or sports.

Key words: horses, electrocardiography, electrocardiogram, battlements, intervals, electrical axis of the heart

State of A and E vitamin metabolism in broiler chickens using the drug Dekavit

A. Melnyk

The objective of the study was to conduct research and production test, experimentally verify the effectiveness of vitamin preparation "Dekavit" - solution for peroral administration in order to prevent hypovitaminosis and prevention of metabolic diseases in broiler chickens.

The work was conducted in 2014 at the Research Institute for internal diseases, and scientific educational research center of Bila Tserkva National Agrarian University.

The material for the study were 90 broiler chickens cross Cobb-500. During conducting investigation, birds were divided into three groups (control and two experimental) of 30 each.

Chickens of all groups were fed a mixed fodder provided by technological map using cross-country birds, which included starter (1–14 days), developer (15–28) and fattening periods (29–42 days). Livestock of the first and the second tested groups, twice on the 8–14 and 25–31 days were given Dekavit drug in doses of 1 and 2 ml/l of water, respectively.

Clinical studies of broiler chickens 16-days of age found that the bird is mobile and active, has good fatness. The average weight of chicks in groups was as follows: in control – 384±7,15 g, in the first and the second tested group – 443±6,24 and 492±5,53g. The bird had strongly developed skeleton. The cornea is transparent, conjunctiva is pink. Surveying nasal openings set their permeability to air; leakage characteristic for Newcastle disease, infectious laryngotracheitis, rhinitis of noninfectious etiology were absent. The mucous membrane of the tongue, hard palate were pink, without layers. Crop was oval, content was of mushy consistency. The abdomen was not enlarged. The mucous membrane of the cloaca was pink, integral, without layers.

Results of clinical and biochemical studies showed that use of the drug Dekavit in poultry of the first experimental group (receiving 1 ml) signs of Peroz were detected in 6,6 %, of conjunctivitis – 6,6 %, symptoms of A-vitamin deficiency and Peroz were detected only in 3,3 % of chickens. In the control group, combined form of conjunctivitis, apteriozes in the back area and signs of Perozreestruvaly were registered in 13,3 %. Positive effect on metabolism and protective effect of vitamin complex at the recommended dose of 1 ml is explained by the increased content of vitamin A in the blood serum of chickens of the first experimental group on 16,8 and Vitamin E – 17,7 % compared with the control. At the same time at the dose of 2 ml (experimental group 2) concentration of retinol in the blood serum of chickens and its deposition in the liver were increased by 23,1 and 24,6 %, respectively.

Vitamin metabolism in 33-days-old broiler chicks compared with a 16-days, has undergone some changes. Thus, vitamin A significantly increased only in the blood serum of the birds from the second experimental group and was 78,6±5,24 mg/100 ml (+ 21%; $p < 0,05$). This indicates that the prevention of A-vitamin deficiencies in older birds must be observed at a dose of 2 ml. This is confirmed by the significantly higher (1,4 times, $p < 0,05$) deposition of vitamin A in the liver of experimental group 2, the content of which was 55,1±5,18 mg/g (Lim 30,5–70,2). Vitamin E increased (19,5 %) to 0,92±0,07 vs 0,74±0,04 mg/100 ml in the control group ($p < 0,05$).

Prospect for further research is to study the influence of the drug Dekavit on protein and lipid metabolism of meat type poultry.

Key words: vitamins A, E, broiler chickens, Dekavit, metabolism.

Prophylactically efficiency tocopherol in gastroenteritis pigs

S. Petrovsky, M. Macaruc, A. Matsinovich, S. Razuvanov

Among the pigs contained in a pig-breeding complexes, widespread inflammatory disease of the stomach and intestines - gastroenteritis. They are diagnosed in pigs of all groups, but most often detected in young animals – suckling piglets and piglets after weaning. This applies to both infectious gastroenteritis (infectious and parasitic) and noninfectious gastroenteritis. Gastroenteritis in piglets often occurs during suckling content (14-21 days). They have a relationship with changes in the body associated with the development of the 2nd age of immunodeficiency and in the first days after weaning from sows. After weaning of piglets from sows they arise 3rd immunodeficiency.

Given listed, as well as drawing on the literature data, the aim of our research was to study the prophylactically efficiency of tocopherol during gastroenteritis of pigs through the systems "sow - litter" and "pig-feed."

Work carried out on pig-breeding complex and at the department of internal non-contagious animal diseases EE "Vitebsk State Academy of Veterinary Medicine."

Since september 2013 on the complex held preventive measures to age of immune deficiency and gastroenteritis of pigs. For this part in the animal feed were introduced premixes, containing vitamin E in an amount greater than the standard value (Table 1).

Table 1 - The content of vitamin E in the feed, mg/kg

Mixed fodder	Group of swine, which used mixed fodder	Standard content*	Actual content
SC-1	pregnant sows	70	95
SC-10	lactating sows	70	100
SC-11	suckling piglets	40	120

Efficacy was evaluated change morbidity and preservation of suckling piglets and piglets post weaning.

Studies have shown that digestive diseases rank first among non-contagious disease of pigs on the farm. Among them, the most common gastroenteritis of pigs occupying the structure of non-communicable diseases 40-42%.

With the aim of prevention of gastroenteritis in pigs developed a new premix. This premix content of vitamin E for pregnant sows exceeds the standard value by 35,7%, for lactating sows - by 42,9%, and for piglets - 3 times. This change was accompanied by a vitamin feeding and change the overall picture of disease (Table 2).

Table 2 - Morbidity and mortality in piglets gastroenterite

Period of research	Morbidity,%		Mortality,%	
	suckling piglets	weaners	suckling piglets	weaners
before introducing the premix	24	13	7	6
after premix introduction	20	10	5	3

As can be seen from Table 2, after the introduction of the new premix morbidity and mortality of suckling piglets and weaned piglets decreased (incidence of 4% and 3% respectively, and the mortality rate - 2% and 3%, respectively).

This demonstrates the prophylactically efficiency using vitamin E during gastroenteritis of pigs.

The results showed widespread gastroenteritis among young pigs. Conducting preventive measures for gastroenteritis among piglets using a premix with a high content of vitamin E can reduce the number of patients and their death, which indicates that the effectiveness of this scheme. This was facilitated by a hepatoprotective effect of tocopherol and stimulation of the body's metabolism of sows.

Key words: pigs, sows, prophylactic efficacy, gastroenteritis, vitamins E, dietoprofilaktyka.

Indicators of lipid metabolism in blood serum of the dogs with hepatic lipidosis

O. Timoshenko, A. Zemlyanskiy

Hyperlipidemia, a term used to describe an increase in plasma concentrations of cholesterol, total triacylglycerol, or both, is caused by defects in the metabolism of the lipoprotein classes that may be either genetic in origin or, more commonly in dogs, secondary to diseases. Primary hyperlipidemia also occurs but is infrequent. Hyperlipidemia is characterized by hypercholesterolemia and/or hypertriacylglycerolemia, dyslipoproteinemias which are frequently associated with several metabolic complications in primates as well as pets. In the dog, hyperlipidemia is generally associated with ingestion of lipid-rich diets or diseases such as nephrotic syndrome, hypothyroidism, hepatic lipidosis with cholestasis, diabetes mellitus, pancreatitis, hyperadrenocorticism, ophthalmopathy, and obesity. In addition, dyslipoproteinemias may be a manifestation of metabolic syndrome, which is associated with the early development of atherosclerosis and diabetes mellitus in humans and dogs.

Lipoproteins are very large noncellular conglomerations (micelles) of lipids and proteins, which are suspended in plasma or lymph. Their main function is to transport most lipids (steroid hormones and LCFA being notable exceptions) among tissues. Another function of lipoproteins is the esterification of cholesterol. Lipoproteins have a micellar structure in which the least polar molecules (triacylglycerol and cholesterol) occupy the center and more polar molecules (proteins and phospholipids) coat the exterior. Lipoproteins are synthesized almost exclusively by liver and the small intestine.

The objective of the present study was to characterize and compare the lipid profiles and plasma lipoprotein fractions in healthy dogs (n=15). The group consisted of 5 sexually intact females and 10 males. All of the dogs were client owned. All dogs were assessed as healthy on the basis of findings of physical examination and routine serum biochemical analysis (Serum glucose, total and conjugated bilirubin, total protein, albumin, ALT, AST, α -amylase, urea, creatinine). All biochemical tests were performed by collaborators V. I. Levchenko and colleagues. Lipids (the plasma concentrations of total cholesterol and total triacylglycerol – TAG) and different fractions of lipoproteins were determined by the detailed explanation of the methods in handbook by V. S. Kamishnikov. In canine plasma lipoproteins with the physical and chemical characteristics of very-low-density lipoprotein (VLDL), low-density lipoprotein (LDL) and high-density lipoprotein (HDL) were identified.

The second group consisted of 24 dogs with hepatic lipidosis, between 3 and 7 years old, the diagnosis was verified by clinical, echosonographic and biochemical methods. All of these dogs were client owned also. All animals were kept on a mixed diet.

There are concentration of total cholesterol – 4,16-5,26 mmol/l, triacylglycerol 0,57-0,91 mmol/l, cholesterol in HDL fraction - 3,26-4,32 mmol/l, cholesterol in LDL fraction - 0,45-0,71 mmol/l, cholesterol in VLDL fraction - 0,21-0,39 mmol/l. Hyperlipidemia with increases in plasma triacylglycerol and cholesterol levels have been noted in sic dogs with hepatic lipidosis and cholestasis. The increase in cholesterol can be explained in part by the inability of the liver to remove and catabolize cholesterol. However, there is evidence of production of an abnormal LDL, called lipoprotein-X, which is rich in cholesterol. Compared with lean control-group dogs, hepatic lipidosis-group dogs had significantly higher concentrations of cholesterol in total plasma (in 1,5 times) and in VLDL (in 3,8 times), LDL (in 8,1 times), concentrations of triglycerides in total plasma (in 1,3 times) and concentrations of cholesterol in HDL fractions had significantly lower (in 2,7 times). Considering the animals in

this study, it was determined that the dogs with hepatic lipidosis differed significantly from the healthy dogs regarding the metabolism of cholesterol and TAG, as well as their VLDL and HDL fractions.

Treatment of animals was carried out as follows: hepatoprotector «Dyvoprade» at a dose of 1 tablet per 5 kg body weight dog twice a day before eat – 30 days. Solution «Hepavikel» for injections at a dose of 1 ml / 10 kg body weight subcutaneous 1 times in a week (4 injections in a month).

Sick animals were fed with water use without restrictions Used as feed homemade food: buckwheat and / or rice porridge, vegetables (carrots, beets), boiled beef and boneless chicken, boiled sea fish. Control analyses were performed after 30 days of the treatment.

When compared with the healthy and hepatic lipidosis groups before and after treatment, dogs with hepatic lipidosis had a significant decrease in the total concentrations of TAGs, total cholesterol and cholesterol the low and the very low-density lipoprotein (VLDL) fractions. In addition, the level of the high-density lipoprotein (HDL) – cholesterol was significantly higher in dogs with hepatic lipidosis after treatment than in the sic dogs before treatment.

These dates will be used for study of the pathogenesis of hepatic lipidosis and for the diagnostic performance of lipids and lipoproteins at another internal diseases.

Key words: dogs, hepatic lipidosis, diagnostic, blood serum, biochemical tests, lipidogram, treatment.

Features of carbohydrate and lipid metabolism in the body of oak silkworm depending on forage plant

V. Trokoz, V. Karpovskiy, A. Trokoz

The results of the studying of features of carbohydrate and lipid metabolism in the body of oak silkworm depending on forage plant are shown in the article. Feeding insects with new forage plant is immediately displayed on the process of accumulation of reserve substances in the body. The more reserve substances are accumulated before diapause, the deeper is the rest of insect and it is better adapted to environmental factors that are unfavorable for active vital functions.

Many of the researchers have observed that the content of carbohydrate in plant determines the level of fat and glycogen accumulation in insects: the more carbohydrates are in the plant, the greater is store of energy compounds deposited by organism. When the amount of carbohydrates in forage plant increases the weight of insect herbivores larvae reaches the largest size. This factor affects the fertility of insect herbivores: the relationship between the weight of larvae, pupae and fertility was established in many researches.

The type and quality of feed affects not only biological, but also the technological characteristics of cocoons and threads. According to the views of many researchers, the efficiency of utilization and usage of feed by insects depends on the ratio of the major nutrient groups. Because the high nutritional value of leaves compensates any negative effects associated with the presence of secondary metabolites.

It should be noted that researches describing the impact of forage plants on the accumulation of biologically active substances in tissues of oak silkworm are insufficient. Thus the similar researches are highly relevant both from a theoretical and a practical point of view.

The objective of the research – to study the level of carbohydrate and lipid metabolism in the body of oak silkworm depending on forage plants and its composition.

Researches were carried out at the National University of Life and Environmental Sciences of Ukraine and at the selection and fattening farm in Kivertsivskiy State Forestry in Volyn region. In experiments the oak silkworm *Antheraea pernyi* G.-M tassar of Polyssia breed was used. Forage plants for oak silkworm were *Quercus robur* (*Quercus robur* L.), European beech (*Fagus sylvatica* L.), hornbeam (*Carpinus betulus* L.) and birch (*Betula pendula* Roth). The content of water, dry matter, soluble carbohydrates and total lipids in leaves by decade of vegetation were determined in order to investigate the influence of the chemical composition of forage plant on physiological processes in the body of the oak silkworm.

At the end of each age in larvae and after cocoons spinning in female and male chrysalises and oak silkworm grain the total lipids were determined, and in female and male pupae, as well as grain – glycogen.

Researches were conducted in five replications. Statistical analysis of results was performed by the data analysis package of Microsoft Excel.

The type of forage plants has little effect on the water content in oak silkworm pupae. However, the increased content of lipids in the birch leaves leads to higher accumulation of reserve substances in the body of the pupae. Thus, the lipid content in pupae obtained at the birch, was greater than at the oak to 7.26% ($p < 0.05$), and glycogen – to 23.09% ($p < 0.01$). More lipids and glycogen compared with oak pupae was found in the body of pupae obtained at the hornbeam, but the difference was smaller than in case of oak silkworm pupae from the birch.

The most significant consumption of nutrients during diapause was observed in pupae of the hornbeam feed lines: dry matter content in its body has decreased by 8.27%. In the oak and birch chrysalises this reduction constituted 3.43% and 6.14%. Consumption of dry matter during the wintering mainly is associated with the consumption of high-energy substances, which are glycogen and lipids. Last suffered less quantitative changes than glycogen which content decreased in the oak, hornbeam and birch pupae respectively 65.5%, 48.73% and 52.55% from baseline (September). Changes in the amount of lipids for these feed lines were respectively 2.08%, 7.58% and 9.2%.

Increase of glycogen accumulation in the birch and hornbeam chrysalises during the fattening period and early diapause (September) leads to greater consumption of this metabolite, especially in pupae obtained at the birch. Oak pupae had more intensive consumption of glycogen, but the consumption of lipids was much less than in other feeding groups. Obviously, this is due to the close relationship of carbohydrate and lipid metabolism in the body of oak silkworm, which is a general biological phenomenon. Significant consumption of protein and vitamins in the body of pupae were not observed during the wintering, although the tendency to decrease these substances concentration was noted.

Key words: insect, oak silkworm, metabolism, forage plants.

Efficacy of "FOZ-BEVIT" in the treatment of subclinical ketosis cows

L. Ulko

The article presents the results of a study of biochemical blood parameters of cows for subclinical ketosis and dynamics of change for a new drug application "Foz Bevit." Studies have shown that metabolic abnormality, including ketosis is common among cows in the first phase of lactation. In some animals the disease is complicated by hepatodystrophy and osteodystrophy. It was established that the level of ketone bodies in the blood increased significantly - up to 50 mg% at a rate of 1,0-6,0 mg%, while reducing the amount of glucose was recorded. The content of hemoglobin in the blood of cows for subclinical ketosis lower than in healthy 11.6 g / L (P <0.05). The number of red blood cells decreased (P <0.05), while the number of white blood cells did not differ significantly. In sick cows compared with clinically healthy animals the number of band neutrophils was increased on 3.4%. (P <0.05).

Results of the study of content of protein and protein fractions in the blood serum showed that in cows with subclinical ketosis the level of total protein decreased on 9.16 g / L (P <0.05) compared with clinically healthy animals. Due to reduction to content of gamma globulins that was less on 46,1% ((P<0,01), alpha - globulin fraction increased (P <0.05). Beta-globulin fraction was within normal limits.

Results of the study of non-specific resistance of healthy and sick animals have shown that the level of lisocim activity of blood serum of ketosis cows is on 8.23% below (p<0,05), compared with clinically healthy animals. Bactericidal activity of serum from healthy and sick animals did not change significantly.

Analyzing these data it should be noted that in the blood of sick animals indices of total calcium and inorganic phosphorus were significantly reduced, indicating the development of secondary osteodystrophy on the background of subclinical ketosis.

Milk samples had a faint smell of acetone and bitter taste, acidity averaged 20,1 ± 0,4 T at a rate of 16-18 T. The content of ketone bodies in cows milk at ketosis was 3,23± 0,12 mmol / L (in healthy animal 1,02-1,36mmol/L), milk fat content was 3,0 ± 0,3 % , protein - 2,7 ± 0 3 mg /%.

Laboratory testing of urine samples showed that the pH is 8,2 ± 0,5 at a rate of 8.6. The level of ketone bodies – 3,4 ± 0,07mmol / L, which is significantly higher than normal (1,03-1,70mmol / L). pH of rumen contents decreased to 6,2 ± 0,2 at a rate of 6,5-7,2. The number of microorganisms in the rumen 0,85 ± 0,3 million / ml at a rate of 0.5-1.2.

After investigating the mechanism of development and manifestation of clinical signs of disease it was found that ketosis in most studied animals in the experimental farm had subclinical (latent) form, and some animals had chronic atypical symptoms, as evidenced by common clinical signs. At the beginning of the disease in dairy cows was noted variable appetite, taste distortion and reduce in milk production. Total body temperature was on average limits of physiological norm (37,9 - 38,4 ° C), unchanged throughout the period of disease and treatment. Most animals showed - tachypnea (more than 30 breath movements per minute), tachycardia (80 - 90 contractions of the heart per minute), cardiac impulse weakened, muffled heart tones. In some animals periodically sweating, increased reflex excitation were noted. In addition, the visible mucous membranes were pale pink shade with only a slight yellowness. Contractions of rumen were sluggish, loose an average contraction of 4 per 5 minute, rumination was not regular.

Use of the drug "Foz Bevit" in the complex therapy of ketosis in cows is effective. Cows from the first group had significantly shorter period of recovery, while the other cows (control group), where a solution of glucose and sodium bicarbonate was used recovery periods were significantly longer. In experimental animals milk production was restored and morphological, biochemical and immunological parameters were stabilized.

Research has found that during 14 days of testing the content of hemoglobin and number of red blood cells in the blood of animals from the experimental group gradually restored to the physiological norm. After the studying of the content of ketone bodies in the blood of cows it was found their decreasing to normal on the 14th day of the experiment in the blood of animals from the first research group to 1,1 mmol/L. Indicators of reserve alkalinity increased and on the 15th day (45,7 % CO₂) – animals from the experimental group. The content of protein in the blood serum of animals from the experimental group increased to 70 g / L.

Key words: subclinical ketosis, cows, drug "Foz Bevit", biochemical blood parameters.

Investigation outbreak of lower respiratory tract infections in foals and their prophylaxis in stud

E. Brusko, V. Nedosekov

Research conducted over 3 years in stud Millennium, which specializes in breeding of thoroughbred horses (Donetsk region). Every year observed loss of young foals from diseases of the lower respiratory tract, which clinically manifested as purulent bronchopneumonia. Within three years observations we mark the age dependence of morbidity and mortality foals from bronchopneumonia. Peak of foals mortality was in 7 - 10 weeks of age.

Clinical signs of the disease appeared in foals starting at 4 weeks of age. Disease in foals ranged from mild to severe. The first clinical signs of bronchopneumonia in foals was intermittent fever, which later passed into the permanent fever. Body temperature was higher at night, and in some foals reached 40,6 °C. As a result of our observations, the presence of cough and nasal discharge was not characteristic feature of bronchopneumonia in the early stages of development.

Foals with severe bronchopneumonia shows signs of respiratory failure - tachypnea, expiratory dyspnea, and as a result, the presence of abdominal type of breathing, which is manifested in the form of "inflammatory cove". Coughing in these foals was infrequent, however, periodic, deep and loud. Auscultation of the lungs was observed pathological noise - rattles of various kinds, crackling. In some sick foals was not wiretapped noise in some areas of lung field during auscultation, which indicating a swelling of lung tissue or abscess formation in the relevant area. Foals with severe course of disease often lay and not actively suck the mares which subsequently displayed on the lag in growth and development.

In the dead foals, during autopsy, observed changes in lung tissue in the form of purulent bronchopneumonia and hyperplasia of regional lymph nodes, sometimes with formation abscesses on the surface of the lung. Bacteriological studies of pathological material identified culture microorganisms of *Rhodococcus equi* and *Micrococcus flavus*.

During period of study in 2014 observed disorders of gastrointestinal tract in 60% of lactating foals which clinically manifested as diarrhea. Diarrhea in these foals started at 7 - 10 days after birth, some foals first time observed on 30 day of life. Feces were rare, not fetid, from yellow-green to dark brown colored. During diarrhea fever were not observed, except foals with development of bronchopneumonia. In some foals diarrhea periodically arose several times up to two-month old. Typically, intestinal disorders disappear within a few days. Complications or death from the gastrointestinal tract disorders in foals were not observed. We were not determining the cause of recurrent diarrhea in foals, but we believe they have multifactorial character and as the result of adaptive processes foals to changes in microbial flora of intestine, so it maybe intestinal form manifestations of *Rhodococcus equi* infection. To determine etiology of diarrhea in the foals by laboratory methods was not possible in the farm.

Analyzing the situation in the stud with respect to mass illness and death of foals, based on research conducted there were assumptions about the presence of *Rhodococcus equi* infection of horses as the main reason outbreaks of respiratory disease in foals. It was proposed in 2014 for experimental purpose use commercial hyperimmune plasma to all foals this year birth. As a result the mortality rate of foals from bronchopneumonia in 2014 was 10%, which is on 9% lower than in 2012 and on 26% lower than in 2013.

Key words: foals, bronchopneumonia, *Rhodococcus equi*, hyperimmune plasma.

Evolution of the tense epizootic process bovine tuberculosis in the countries of the world

V. Busol, V. Shevchuk, V. Mazur, L. Kovalenko

The study of spreading the mycobacterial infection among cattle in space and time, experimenting with the use of the method of epizootic investigation can indicate panzootic and dynamic tension epizootic process within continents and other countries in the study period - during 1880-2013 years.

The first steps of implementation of tuberculin led to a second phase of evaluation of the epizootic situation of tension and patterns of infection in time and space. Selected new diagnostic test studies have shown that in the last years of the nineteenth century and in the early years of the twentieth century investigated infection of cattle reached: France - 50-80%; UK - 26.6%; Austria - 25-40%; Hungary - 12,6-26,8%; Belgium - up 48,8%; Switzerland - 40-50%; Norway - 5.9%; Sweden - 30,7%; Finland - 13,7%; Germany - up to 75,36% of cows and 35,2% of young cattle. The high intensity of epizootic process studied infections were recorded in other European countries and parts of the world.

In the USSR in 1925 - 1926 years in some areas showed 24,2-68,0% reacting to tuberculin animals, and in the early 30's infection has decreased in the country to 4.1%. In Ukraine in 1927 this figure in some herds of calves was 1,5 - 7,2%, and older animals to 34.4 - 56.9%.

Extensive use tuberculin diagnostics method of detection of infection *M. bovis* has allowed a new stage not only to assess the true epizootic situation, but also improve the efficiency of anti-TB measures in some countries. In the 50s of the last century began the second wave of activation of anti-TB activities. During these years, infection with *M. bovis* animals remained high: in Germany - to 17 - 18%, France 8,10% Germany - 25%, Austria - 9,8%, Belgium - 13,8%, Spain - 12% , Indopakistan - 25%, US - 4,1%, Yugoslavia - 16% in Czechoslovakia - 18,9%. In Poland in the 1952-1957 years at slaughter points, was diagnosed with tuberculosis in 39,2% of examined carcasses.

Panzootic signs of bovine tuberculosis were kept in the late twentieth and early twenty-first centuries. In terms of overall assessment of intensity of the epizootic situation in 174 countries, we have divided them into four groups: first - 13 countries (7,5%), where tuberculosis has never been registered; second - healed from mycobacterial infections - 48 (27,6%); third - the disadvantaged concerning tuberculosis - 87 (50.0%); fourth group - 26 countries (14,9%) of uncertain epizootic status.

In Europe of 41 analyzed countries the disease in only one country (2,4%) has never been registered, 16 (39.0%) of successfully cured from infection, and 24 (58.6%) remain underdeveloped; according to this - 47 countries in Asia are divided into several groups: 4 (5,0%), 16 (34,0%), 19 (40,3%); in America - 33 countries: 0, 9 (19,6%), 22 (47,8%); Australia and Oceania - 7 countries, 4 (57,3%), 1 (14,3%), 1 (14,3%).

There are 8 countries with unexplored epizootic situation in Asia, in America - 2, Africa - 15, Australia and Oceania - 1. Countries with such status do not exist in Europe. However, 23 countries remained unfavorable to cure from tuberculosis at the end of 2013, including some countries with developed livestock, such as - Belgium, France, Germany, Italy, Poland, Russia, UK, etc. This year for the first time in the history of TB in cattle performance achieved widespread TB health measures - the number of recovered exceeded the number of unfavorable countries.

The analysis of the patterns of spreading the bovine tuberculosis in the world leads to the conclusions: firstly, the mycobacterial infection platted confidently a "strong nest" on the territory of each continent. Secondly, the scientists from the whole world must unite in order to establish the true causes of stationary disadvantages concerning productive cattle breeding all over the world and the development of effective vaccines against mycobacterial infection.

Key words: bovine tuberculosis, *M. bovis*, epizootic situation of the world.

Antibiotic therapy during *Aeromonas* In Fisheries of Ukraine

T. Mazur, I. Harcusha

In infectious disease of fish in aquaculture, often the main place is taken bacterial diseases, and therefore the development of measures to deal with them has always paid special attention. To allow the use of antibiotics for therapeutic needs in the future, requires strict epidemiological and microbiological control, directed against the emergence of resistant organisms to drugs.

Bacterial etiology of disease, more than half of pond fish causes the constant use of antibiotics in fish farms to control them epizootic situation. However, the high efficiency of these activities will be achieved only when the use of antibiotics, which have not yet established the resistance of the microflora.

Such preparations are almost the only means of eliminating fish diseases by helping you quickly eliminate the threat of outbreaks. The antibiotic substance in ichthyopathology used not only for therapeutic purposes, but also as means of control and regulation of the bacterial population during the time required for response of the immune system.

The study conducted in farms of Zhytomyr, Sumy and Donetsk regions. Investigations were carried out from October 2013 to March 2014. In work used 50 carp of different ages, 15 samples of mixed fodders with addition of antibiotics, the water from the ponds. Were processed statistics ichthyopathological laboratory at the Department of Fisheries.

In the study we have found that the mixed fodders on various fish farms were identified pre-emptive use of chloramphenicol and erythromycin.

In fish farms Zhytomyr region in the mixed fodders added chloramphenicol (55% of all mixed fodders), erythromycin (35%) or nitrafurazon (10%). Mixed fodders with antibiotics are fed to the fish farms in April and May, as well as newly introduced by individuals regardless of the season. In order to prevent the formation of resistant strains to the antibiotics specialists of farms resorted to receive the alternating use of various antibiotics. Shelf life of each drug is not more than 5 years. Against the background of such alternations of antibiotics there is an increase the content of their in the mixed fodders. However, it was observed that the use of mixed fodders with addition of the oxytetracycline marked slowdown in growth and fatness of carp fingerlings, as well as a decline of fish body resistance. For example, the use of chloramphenicol leads not only to a decrease in the immune response of the fish, but also the destruction of the symbiotic intestinal microfloramake room for the pathogenic microorganisms, which leads to negative consequences.

In addition to feeding and antibiotics bacteriostatics in fish farms, which are permanently disadvantaged by haemorrhagic septicemia are also used by therapeutic baths with neomycin and nitrofurazone.

In the Sumy region to control the aromonozis mainly used amoksilin, erythromycin, neomycin, and nitrofurazone. In the Donetsk region as of 2013 for the prevention and treatment of haemorrhagic septicemia based on studies of the sensitivity of microorganisms to antibiotics is used amoksilin, erythromycin, neomycin and less frequently, oxytetracycline.

In 2007 in the fish farms Stepnoe of Yasinovatskiy area in the event of outbreak of haemorrhagic septicemia in a pond with the carp fingerlings when using erythromycin and neomycin have not been respected recommending concentration and intervals of the use of antibiotics, which has led to the appearance of a superinfection. Therefore, it was decided that a complete stop of the system and a two-year the estivation of the ponds.

As the conclusion I want to say that is necessary to strictly adhere to the standard operating procedures and guidelines regarding the use of antibiotic drugs.

And also conduct annual monitoring to identify the susceptibility of microorganisms to the drugs what will be used in the fish farms. But at the same time and should be consider the possible side effects of drugs on the organism of the fish.

Key words: the antibiotic, bacterial disease, superinfection, Infectious diseases of fishes, ichthyopathology.

Features of the specific prevention gumboro disease in broiler chickens of Cobb-500 cross

T. Mazur, N. Sorokina, O. Gal'chinska

The optimal timing of vaccination and a certain level of protective antibodies IBD that provides an effective vaccination and ensures stable epizootic situation and warns of possible economic losses from death and disease of poultry.

Poultry is the most dynamic sector of agriculture in Ukraine, which could in the short term to increase the volume of production and provide the population with high-quality dietary products - meat and eggs of birds. Gumboro disease spread mainly in poultry farms of industrial type. [1, 6]

Vaccination is the most important element of prevention measures IBD. Use of vaccines involves consideration levels of maternal derived antibodies (MDA). Accounting for MDA conducted using different serological tests, including ELISA (enzyme-linked immunosorbent assays). These methods are used to assess stress immunity in vaccinated poultry epizootic monitoring and retrospective diagnosis of infectious bursal disease (IBD, Gumboro). [5]

In recent years, it was accumulated extensive experience in dealing with the morbidity of poultry on infectious bursal disease in Ukraine. During this time, legal documents for the diagnosis and prevention IB were developed and implemented in practice, including the rules in keeping livestock and poultry farms. Foreign registered vaccines have been successfully used for the prevention of Gumboro disease. [1]

The main aim of our research was to study the characteristics of specific prevention Gumboro disease (infectious bursal disease), establish the interaction between the level of antibodies in chicken parent stock and the level of maternal antibodies in young broilers, establish the optimal timing of vaccination in poultry farm conditions PVKSP "Agrocapital", determine the level of IBD protection antibodies.

Material and methods of research. Material to research served as poultry parent stock cross Cobb-500, the final hybrid cross Cobb-500 (broilers), which was obtained from the parent's stock birds.

After determining the levels of MDA, using the method and computer program Deventer Biochek determined date of vaccination of broilers. In the study of parent stock for the titles against IBD used ELISA was found that chicken parent stock formed 100% protective immune background. Average titer antibodies in poultry IBD age 211 days was 7115, and the birds under 316-day antibody titre was 6062, indicating a gradual decrease in antibody IBD with age. In the studied birds decreased antibody titers against IBD 14.8%, but this reduction does not lead to infection because titles are within the protective provisions.

MDA rate in young broilers derived from parent flocks aged 211 days was slightly higher than that of the parent flock age 316 days.

The date of vaccination of young chickens against IBD calculated accurately, which is very important given the fact that vaccination is carried out in an earlier date will result in the neutralization of vaccine virus maternal antibodies, and thus will not take chickens cellular and humoral immunity. This can lead to infection of poultry pathogen of IBD and outbreaks of disease.

The level of protective antibodies to IBD after the vaccine was determined by ELISA.

Calculating the date of vaccination was providing by Deventer formula was consignment of broilers high levels of protective antibodies, which allowed grow healthy bird.

Key words: Gumboro disease, specific prevention, vaccination, the Deventer formula.

Serum method of inactivated antirabic vaccine immunogenicity testing

A. Nikitova

In the article, there is listed a method of antirabic vaccine testing. This method is based on research results of specific antibodies in white mice blood serum after they were vaccinated with antirabic vaccine.

Research set up assumed immunization of white mice with reference-vaccine in different dilutions. Reference-vaccine was diluted on NSS to immunogenic activity: 1 IU/dose, 2 IU/dose, 2.8 IU/dose, 3.9 IU/dose and 5.59 IU/dose, and after, diluted 1:5 (in analogy with the classic test NIH) held immunization of mice. Animals were vaccinated intraperitoneal with dose 0,5 cm³. There were used 10 white mice for each of the vaccine variant. On 14th day since the immunization was held, there were a blood samples taken from all of the animals. Received blood serum and determined antibodies level with the help of ELISA. As part of the study, we have found the minimal level of specific antirabic antibodies, which must meet the vaccine with immunogenicity 1 UI/dose – 0, 7±0,001 IU/cm³, because in Ukraine it is acceptable to use inactivated antirabic vaccines for animals with immunogenicity not less then 1,0 IU in dose.

Maximal level of antirabic antibodies (1,84±0,002 IU/cm³) was observed in the group of animals, which were vaccinated with 5,59 IU/dose immunogenic activity vaccine.

On the base received results (white mice blood serum tests for active antirabic antibodies) we built a curve of calibration – the proportional dependence of antibodies level from immunogenic activity of antirabic vaccines. This curve in further researches of antirabic vaccine immunogenic activities we used as a stencil.

The next stage of our experiment was consisted in research with serological immunogenic activity test of researched vaccine groups. For test, there were chosen 3 vaccine series with different immunogenic activity (4,4, 7,2 and 9,1 IU/dose). Additionally, to demonstrate in serological method the vaccine series, which should not be licensed and used in animals, we prepared the dilution of antirabic vaccine (immunogenic activity 4,4 IU/dose) to immunogenicity 0,7 IU/dose. In analogy with reference-vaccine, we diluted research vaccines 1:5. After this, we held intraperitoneal immunization of white mice with a dose of 0,5 cm³, using 10 mice for each of the variant. On 14 day there were blood samples taken in all of the animals to detect the level of antibodies in blood serum with help of ELISA.

As a result of experiments there was found, that first 3 vaccine series meet the required quality standards, the middle value of antibodies level in white mice blood serum was 1,62±0,05 – 3,15±0,10 IU/cm³, which corresponds the immunogenic activity in 4,4 – 5,59 IU/dose. The antibodies number in animals, which were vaccinated with 4th group of vaccine, was ≤0,25 IU/cm³, which shows discrepancy of vaccine to immunogenic activity (<1 IU/dose).

For verification of correspondence, the serological method was tested in direct correlation with test NIH (r=0,95), which confirms its usage as an alternative test. Further, with the help of our serological method with calibration curve, it is necessary to use only 10 mice, which makes this method cheaper.

Consequently, the serological method, which we have developed, successfully passed the test on its ability to veracious determination of inactivated antirabic vaccine immunogenic activity.

Key words: antirabic vaccine, antirabic antibodies, immunogenic activity, NIH test, ELISA.

Levels of immunoglobulins in the blood serum of calves at carrying out specific prophylaxis of pneumococcal disease

Y. Storchack

Protection of the young stock's health is one of the most urgent problems of animal breeding in Ukraine. In Ukrainian farms up to 15% of all calves die during the first 8 weeks of life. This happens due to their low resistance level resulting from insufficient and inadequate feeding, poor conditions of cows' maintenance during pregnancy that lead to disorders of embryonic development as well as reduction of immune competent cells and immunoglobulines.

The animal immune system is the first one to respond to the influence of various biotic and abiotic factors. First and foremost, it is responsible for removal of antigens out of the body. One of the mechanisms of antigen removal is the formation of immune complex which describes the humoral immune response to infection development and largely determines the intensity of the antigen load on the immune system. Antigen load is necessary for the correct functioning of the body and its immune system.

The use of immune stimulating drugs in animal vaccination increases the intensity of specific immunity to infectious diseases excitors. A situation around the use of adjuvants in Ukraine is very disturbing since they are not effective in terms of animal immune deficiency especially in young animals with the immune suppression syndrome. Therefore the use of immune stimulators by early age calves is an important measure of increasing resistance providing rapid formation of a complete immune response.

Presently immunomodulatory substances are in a rich supply on the veterinary drugs market. An overwhelming majority of them is of a chemical nature and frequently exerts a suppressing effect on immune system in this case or the other. Considering this fact, a bee-glue was selected as a vaccine adjuvant while a drug based on organic selenium and iron was used as immune system stimulator.

The article describes the results of researching calves blood humoral immunity indicators during a specific prevention of pneumococcal infection along with the use of inactivated vaccine against streptococcal and staphylococcal infections; self-vaccination made of local strain of the *Streptococcus pneumoniae* pathogen; self-vaccination with the addition of immune stimulating drug containing organic selenium - seleferum.

The study was conducted on 16 two-month calves of Ukrainian black and white breed that were divided into 4 groups (1 control and 3 experimental). The animals of the first experimental group were injected an inactivated vaccine against streptococcal and staphylococcal infections produced by JSC "NDP" Veterinary Medicine", the city of Kharkiv. Experimental animals of the second group were injected the vaccine made from the local strain of the *Streptococcus pneumoniae* pathogen with the bee-glue as adjuvant. The third experimental group of animals was injected the vaccine with the addition of seleferum,

the immune stimulating drug. Vaccines were injected intramuscularly two times at an interval of 14 days at a dose of 3 ml for the first injection and 5 ml for the second one. Blood samples were taken from the jugular vein 7, 14, 21, 45, and 60 days after vaccination.

Blood serum immunoglobulines were determined with the aid of a radial immune diffusion method by Mancini.

Conducted studies found that calves vaccinated with inactivated vaccine against streptococcal and staphylococcal infections, experienced a credible increase of IgA level at the 45th and 60th day after vaccination from 1.65 to 1.92 and 1.90 g/L respectively. The increase of IgM levels is observed starting from the 14th day after vaccination from 0.90 to 1.04 g/L at the 45th day after vaccination. IgG level reaches its high from 13.82 to 14.42 g/L at the 14th day after vaccination.

Calves vaccinated with autovaccine made from local strain of *Streptococcus pneumoniae*, experienced the credible increase of IgA level during all study span from 1.65 to 1.92 g/L at 45th and 60th day after vaccination. The level of IgM increases from 0.90 to 1.26 g/L at the 45th day after vaccination. The level of IgG hits its maximum at 21st, 45th and 60th day after vaccination with the meanings of 14.72, 16.59 and 17.74 g/L respectively compared with the control group.

The level of IgG in calves vaccinated with inactivated vaccine containing immune stimulating drug seleferum, increases during all the research period from 13.82 to 18.35 g/L, reaching credible changes at the 45th and 60th day after vaccination. A credible increase in the level of IgA from 1.65 to 1.94 g/L and IgM from 0.90 to 1.03 g/L was detected at the 60th day after vaccination.

The obtained results show that the inactivated vaccine against streptococcal and staphylococcal infections causes an increase in the level of studied immunoglobulines at different periods after vaccination, namely IgA increases at the 45th and 60th day, IgM increases at the 21st and 45th day and IgG increases at the 14th and 21st day.

Calves vaccinated with autovaccine of *Streptococcus pneumoniae* strain experienced the increase in the level of IgA, IgM and IgG from the 21st to 60th day after vaccination. Autovaccine with immune stimulating drug seleferum credibly increases the level of all investigated immunoglobulines at the 60th day after vaccination.

Key words: pneumococcal infection, calves, immunoreactivity, blood, blood serum, vaccination, immunoglobulines.

Complex biosecurity of modern type pig farm

R. Tyrsin, T. Tsarenko, B. Yarchuk, O. Dovhal, Y. Tyrsyna

Agricultural enterprises, including those operating in "closed" mode, are in constant exchange with the internal microflora, which is in the environment. Animal feed, veterinary products are imported to these enterprises and they export products of animal origin, animals. Staff and transport, due to production and other needs, move on the farm, and sometimes beyond. Live-stock facilities may be attended by the experts not involved directly in the production process. In addition, personnel of the enterprise moves daily both within the enterprise and beyond.

Therefore, regulation and compliance measures of biosecurity for various agricultural enterprises that are in danger of spreading of infectious diseases become a topical problem. In the biological shield is to be understood - the state of security of farm animals from the dangers caused or those that can be caused by various pathogens. Pig-breeding enterprises operate under very tight flowsheet. Animals constantly exposed to stress, increases resistance to disease pathogens of various disinfectants and antimicrobial agents. All this leads to growth, changing forms of old and new diseases. In this regard, the role of bio-sharp production, including the reduction of adverse microbial background within the enterprise and the prevention of infection from outside.

The results of the research found that death of pigs of different age groups from various causes in 2012 was significant and amounted to 81 cases. In our opinion, it was because at this time pigs were still kept in poor conditions at the pig farm which used a traditional system of cultivation. The reasons animal deaths were many, including deaths occurred of infectious diseases. Thus the results of section of 81 dead animals infectious diseases caused death in 9 cases, including: dysentery -3 haemophilosis polyserositis - 4, edema disease -1, erysipelas - 1. That is, the old technologies of pig husbandry place obstacles to create adequate biosecurity of pig farm. As a result cases of infectious diseases are recorded in the farm despite the implementation of appropriate preventive veterinary and sanitary measures.

The introduction of modern innovative technologies in pig husbandry dramatically increases biosecurity of pig farms. In our case, by 2013, for various reasons at the pig farm died only 14 pigs, of which only 1 case of infectious origin (haemophilosis polyserositis).

On the basis of the investigation, we believe that the basis for such a program should be based on the following key preventive measures:

- beforehand preparation of pig premises for the introduction of a technological group of animals. It should be based on mechanical cleaning, remove residual organic dirt with advanced technology, disinfection of the premises with modern disinfectants and preparation of system of watering animals;
- ensuring proper sanitary hygienic status of the pig farm as a whole. The implementation of this status should be made towards health facilities, feed, water, personnel and animals, and performing veterinary treatments;
- impossibility of infection from the outside, which should include the handling of vehicles, construction of sanitary inspection rooms, carrying out disinfestations;
- epizootic monitoring of infectious disease of pigs, which aims to prevent the entry of pathogens of any infectious diseases in the economy with imported, purchased livestock.

On the basis of these studies it must be concluded that only the introduction of stringent rules on the regulation mode of the people, machines, development and implementation of preventive measures to prevent the entry of infectious agents into the territory of livestock farms can ensure biosecurity of pig farm of modern industrial type.

Key words: biosecurity, pig farm of modern type, constituting antiepzootic protection, infection, hygienic status of programs for integrated biosecurity.

Results of commission trials kit for detecting yersinia enterocolitica dna by polymerase chain reaction

A. Ushkalov, A. Golovko, O. Deryabin

In connection with the signing of the Economic Association Agreement between Ukraine and the European Union, changes in domestic food legislation in order to harmonize it with European, the need of implementation in Ukraine European model of product conformity assessment requirements of technical regulations to veterinary medicine as one of the most important links in obtaining high-quality and safe products possible if animals debugging proper control at all stages of production with identified critical points of possible contamination, including biotic factors.

One of the potentially hazardous representatives of optional (transit) microflora of different biotypes of animal organism is the causative agent of intestinal yersiniosis *Yersinia enterocolitica*.

According to the literature major source of yersiniosis infection for human are agricultural products - both animal and plant origin. In *Yersinia* carrier of cattle indicates numerous reports of false-positive reaction for brucellosis during the execution of national programs to combat the disease (including cross-reactions were found to *Yersinia enterocolitica* serotype O: 9).

The level of contamination yersiniis food according to EFSA ranged from 0 to 83%, and it is most often were contaminated pork tongue (83%), liver (73%), heart (71%) and kidney (67%). Vishnubhatla co-authors found high levels of contamination with minced beef yersiniis. There is evidence of contamination iyersyniyamy of oysters, mussels, shrimp, crab, fish, salads with chicken, stewed mushrooms, cabbage, celery, carrots, etc. [5].

Diagnosis of yersiniosis conducted integrated with the epizootic data, clinical and pathological changes and necessary laboratory tests that are hard and entail a great time. The main diagnostic methods yersiniosis include: 1) bacteriological method, 2) biological method, 3) serological method 4) polymerase chain reaction (PCR).

The most rapid and highly specific method for diagnosis of yersiniosis is polymerase chain reaction (PCR).

Given the diversity of biotypes of bacteria species *Yersinia enterocolitica*, as well as numerous types that are not cultivated for their detection has been developed test system based on "nested" version of PCR. As the target was selected gene encoding subunit 16S [6].

Test system «*Yersinia enterocolitica* - PCR Test" conducted by the algorithm:

1. Definition of the exterior components of the test system;
2. Determination of the specificity of the test system;
 - 2.1.1. Preparation for analysis;
 - 2.1.2. Setting PCR;
 - 2.1.3. Electrophoresis analysis of PCR products;
 - 2.1.4. Accounting of results;
3. Determination of sensitivity;
4. Determination of the reproducibility of the results.

Benefits of yersiniosis detection by PCR: 1) high specificity, due to the fact that the experimental material showing typical only for *Yersinia* DNA fragment; 2) high sensitivity, PCR makes it possible to detect DNA of *Yersinia* biotypes that are not cultivated; 3) high speed of result, the analysis does not require selection or accumulation of the pathogen, the study 1 sample takes an average of 6-8 hours.

The use of laboratory practice modern methods of diagnosis improves the performance of early diagnosis and epidemiological surveillance for yersiniosis.

Key words: *Yersinia enterocolitica*, polymerase chain reaction, DNA of bacteria, diagnostic kit.

Dynamics of some indicators of natural resistance and antioxidant defense system during the application of polcarbonate inactivated vaccine "PARCELS PARCEL DILUVAC FORTE" (*PORCILIS PORCOLI DILUVAC FORTE*)

N. Kharchenko, V. Ushkalov

Among many animal diseases - infectious - cause the most serious economic losses, and the disease of newborn animals with symptoms of disorder of the gastrointestinal tract, remains one of the thorniest problems of industrial livestock around the world. Prevention of animal diseases caused by pathogenic effect esherihy primarily must be aimed at forming a viable offspring in utero and increased resistance in newborn animals, so it is necessary to use scientific-based complex preventative measures, including vaccination that takes a leading position.

Analysis of recent research and publications. Domestic scientists proposed associated vaccine "Pasak" for the prevention of certain factorial diseases including colibacillosis. Production research confirmed the effectiveness of preventive expressed subunit vaccine against colibacillosis based on pathogenicity factors of the pathogen, and the possibility and feasibility of its use for specific prevention of infection in young animals of different species. However, the application of vaccines in addition to positive action (acquired immunity) may be negative effects in a variety of side effects, in particular, the emergence immunosupresornogic syndrome and increased intensity of lipid peroxidation, which may result in destructive processes at the cellular level, what we decided to concentrate its attention.

The objective and the tasks of the research – studying of the dynamics of changes of natural resistance and antioxidant defense system in the application of inactivated vaccines "Portsylys Porkoli DB» (*PORCILIS PORCOLI DILUVAC FORTE*) on the body of pigs.

The object of research – sows of two-, three years old of Large White breed. They were vaccinated with "Portsylys Porkoli» DF against colibacillosis intramuscularly in the neck at a dose of 2 ml / head for (8-12) weeks before farrowing. It is widely immunization scheme, which includes two, triple vaccination to pregnant animals against esherihioz, the latter introducing immunogenic produced by 14-21 days before the anticipated birth. This arrangement provides a vaccination maximum

accumulation of immunoglobulins (specific antibodies) in colostrums of animals and their transmission to the newborn offspring.

Two groups of animals were formed to conduct our experiment: control and experimental ($n = 10$). Control animals were injected intramuscularly 2 ml of 0.85% sodium chloride solution. Blood samples were taken in the morning three times: before vaccination, 14 and 28 days after inoculation. Vaccinated and control animals were kept in pre-peeled, washed and disinfected areas. Daily clinical examination was performed with thermometry.

Serum was obtained by conventional sludge. Tubes with the blood were placed in an incubator at $37 \pm 1^\circ \text{C}$ for 2-3 hours and after defending the serum tubes were placed in the refrigerator at a temperature of $4-8^\circ \text{C}$ for 1-2 h. Transparent serum aseptically poured into sterile tubes and kept at a temperature of minus $18,0 \pm 0,5^\circ \text{C}$.

During the experiment, the changes in the clinical status of the sows as the experimental and control groups were observed. It is established that in animals of both groups during the experiment, the clinical condition was satisfactory, the body temperature averaged $38,9 \pm 0,06$ and $39,3 \pm 0,09^\circ \text{C}$, respiratory rate - $17,0 \pm 1,4$ and $16 \pm 1,6$ breathing movements / min.

Summarizing the results of the research, it should be noted that the drug is not toxic and has good immunogenic properties. Proof of this is increasing the amount of globulin by 9.2% in the 28-day of study compared to the beginning of the experiment and 20.7% of the control group of pigs ($P < 0.05$); lizotsymic activity, respectively, 6.8 and 11.2%; and circulating immune complexes in the blood serum of sows from experimental group. Especially note the number of CIC, the level of which the 14-day of study increased by 20.0% compared with the original data, which is evidence of activation of complement and B lymphocytes.

The absence of a toxic effect of the drug is confirmed by the relatively constant value of the index AOC experimental animals that were close in value to the values of the control group of sows on the 28th day of the study. After the third selection in the blood of animals in the control group level of seromuroid increased by 50% from baseline when experimental sows it was close to baseline values throughout the study period, confirming the positive effect of the drug on the body of experimental animals. Obviously, these positive indicators are also associated with an aqueous solution of α -tocopherol acetate, which is part of the vaccine and helps to reactivate the enzymes of the antioxidant system and reduction of the intermediate products of lipid peroxidation. We believe that the regulatory documentation does not include changes in lipid peroxidation - AOC that are very informative.

Thus, the results of our own studies confirm the efficacy and safety of this vaccine under the standard documentation (industry standard).

Key words: total protein, globulins, CEC, seromuroid, immune reactivity, the safety of vaccines.

Complex method of recovery of cattle from leukemia in farms of Ukraine

B. Yarchuk, R. Tyrsin, A. Dovhal, S. Bilyk

Leukemia is diagnosed all over the world – in the USA, Australia, Asia and some countries in Central Europe.

Due to the high level of organization and measures to combat the disease in Belgium, Ireland and Norway livestock capita do not suffer from leukemia. National programs to combat the disease implemented successfully in European countries: Germany, Poland, Bulgaria, the Baltic countries.

In Ukraine, the main measures of prevention and control of bovine leukemia marked by a "Plan of action for recovery of cattle from leukemia in Ukraine" in 1985–1990, 1991–1995, 1996–2000, 2001–2005, 2006–2010.

High levels of prophylactic measures and fight against leukemia of cattle in farms of Ukraine confirmed a significant decrease in intensity of epizootic process and practical recovery of most of the territory of Ukraine.

In 1995 with 11552 households leukemia recorded in 7777, or 67,3%, in the following years the number of these farms is decreasing and in 1996 – 61,5%, 1997 – 53,2%, 1998 – 42,2%, 1999 – 33,1%, 2000 – 23,3%, 2001 – 20,9%, 2002 – 19,7%, 2003 – 22,9%, 2004 – 21,9%, 2005 – 22,7%, 2006 – 26,3%, 2007 – 18,2%, 2008 – 18,0%, 2009 – 11,2%, 2010 – 8,4%, 2011 – 7,4%, 2012 – 5,9%, 2013 – 3,8%.

These data indicate that in the dynamics of the epizootic process extinction phase is clearly observed, confirming the effectiveness of measures to combat leukemia.

Diagnostics of the disease influences on the efficiency of sanitary anti leukemia measures and control of epizootic situation. According to the existing instructions of 21.12.2007, legalized methods of diagnosis are immunodiffusion, ELISA and polymerase chain reaction (PCR).

Our analysis of long-term data of recovery of farms using ELISA diagnosis led to the conclusion that this method in the diagnosis of leukemia is a promising and justified, has high sensitivity and specificity, is valuable when dealing with controversial issues in setting ROD makes it possible to identify animals in the early stages and of latent infection. The method is valuable in the final stage of recovery at RID diagnostics can be used to control the epizootic situation for conducting monitoring studies. Using ELISA accelerates recovery of unfavorable farms.

In the system of diagnostics PCR deserves wider use as it can be effectively used for the distribution of calves infected and healthy at the age of 15 days, except as provided research of highly valuable animals and arbitration findings.

Conclusions. 1. Epizootic situation of bovine leukemia if farms of Ukraine for 1995–2013 is characterized by stationary and a clear tendency to decrease of tension.

2. The effectiveness of measures to combat leukemia based on knowledge of the epizootic situation, timely diagnosis and performance of complex organizational, economic, veterinary and sanitary and special laws. Sanitary anti leukemia measures in the farms of Ukraine are effective.

3. Large-scale application in the system diagnostics ELISA and PCR, except RID will recover cattle from leukemia and control the epizootic situation effectively.

Key words: leukemia, cattle, epizootic situation, anti leukemia measures.

Specific structure of Strongilit and the treatment of horses infected by Strongilosis

A. Antipov, V. Goncharenko, N. Avramenko, S. Ponomar, I. Golovacha, O. Babiy

Horse breeding is one of the main branches of animal husbandry, that's why the problem of it's revival is one of the most actual for today. Different diseases, especially parasitic, discourage of intensive development of horse breeding that in the most cases run chronic and cause significant damage. Among parasitic diseases of horses the special place take Nematodes of digestive tract, namely Strongilosis.

The objective of our investigations was studying and spreading Strongilosis of horses in the conditions of SSRC BNAU, to set the specific structure of Strongilosis and effectiveness of antihelmintics Nemasectin in this invasion.

The investigations were provided on the base of SSRC and also in laboratories of parasitic and pharmacy department of BNAU. For scatological investigations of horses there were used the general in veterinary practice method created by Darling in modification of G. Kotelnikov and V. Khrenov. There were investigated 25 samples of feces from horses of different breeds and age groups.

Due to the fact that to determine the specific affiliation of Strongilate eggs' anatomy almost impossible we conducted the culturing of eggs to invasive larvae with perfected method, using pigment.

The experiment in studying antihelmintic effectiveness of Nemasectin was conducted on horses from 1 to 8 years of age, that were spontaneously infested by Strongilit. With this purpose for experiment 12 horses were chosen and we also formed 2 groups of animals (6 heads in each) - experimental and control.

For animals of experimental group Nemasektin was used, which was given inside one time in a rate of 0,2 mg per kg of body weight (2 g of paste per 100 kg of body weight). Animals of control group didn't get the antihelmintics. Before giving the drug and also 12 days after the last application of antihelmintics investigations were conducted. All animals in both groups were in the same conditions of feeding and keeping.

In order to study helminthological situation in housekeeping were conducted feces investigations for availability of parasitic eggs. The amount of eggs in 3 drops of flotal liquid was from 34 to 154 samples. Eggs were found in 80 % of animals.

For differentiation of strongilit and determination the specific structure of parasites we used perfected by O. Sheremet diagnostic method with using pigment. On the results of differential diagnostic of Strongilit in horses in the conditions of SSRC of BNAU there were founded 6 species of parasites, family *Strongylidae*: *Strongylus equinus* (EI=32,0 %), *Strongylus edentatus* (EI=28,0 %), family *Cyathostomidae*: *Cylicocyclus nassatus* and *Cylicocyclus leptostomum* (12,0 %), *Cylicostephanus longibursatus* and *Cylicostephanus minutes* (8,0 %).

In this experiment all horses were infected for 100 % by Strongilit eggs with the intensity of invasion from 42,0 to 65,0 samples of eggs in 3 drops of flotal liquid.

On the 12th day after the last application of antihelmintic drug we took samples of feces again and defined that used drug has 100% effectiveness against Strongilosis.

Thus, we can say that affection of horses in SSRC of BNAU by Strongilosis was 80 %. Intensity of invasion was 65,4 samples of eggs in 3 drops of flotal liquid. Horses were affected by helminths of 2 families namely *Strongylidae*: *Strongylus equinus* (EI=32,0 %), *Strongylus edentatus* (EI=28,0 %) and family *Cyathostomidae*: *Cylicocyclus nassatus* and *Cylicocyclus leptostomum* (12,0 %), *Cylicostephanus longibursatus* and *Cylicostephanus minutes* (8,0 %). The antihelmintic Nemasektin is highly effective drug against horse strongilit. One time individual using of Nemasektin inside in a rate of 0,2 mg per kg of body weight (2g of paste per 100 kg of body weight) provides deliverance horses from Strongilit invasion for 100%.

Key words: strongilyaty intensity of invasion, extent of infestation, ekstens- and intens, nemasektin, family Strongylidae, family Cyathostomidae.

Efficiency and safety of application of oregopharm at oesophagostomosis of cattle

E. Bratushkina, A. Minich, A. Antipov

Intensification of livestock industries require conducting procedures to improve fodder base, labor organization, and planning scientific-based treatment and preventive measures. Despite wide antiparasitic action in the Republic of Belarus parasitic diseases still remain an important issue. Animals affected with helminths during examination seem relatively healthy, and the only special parasitic research methods allow to reveal their infection. One of the first places in their dissemination strongilosis take the gastrointestinal tract of cattle. Animals affected by parasites of the group reaches 100%. From the generic composition identified one of the greatest economic damage causing strongilosis gastrointestinal tract of cattle is oesophagostomosis, it's distribution according to our research reaches 23 % or more. Oesophagostomosis – a parasitic diseases caused by nematodes of the genus *Oesophagostomum* Molin, 1861 Sem. Trichonematidae, characterized by lesions of the small and large intestine, and dysfunction of the gastrointestinal tract. Measures against parasitic diseases of animals should be complex, taking into account the technology of animal keeping, biology of the pathogen, availability of effective drugs. Taking into account the urgency and importance of the problem of combating with helminths in cattle, we have been set the problem to determine the efficiency and safety of a new drug of plant origin „Oregopharmum” at oesophagostomosis of cattle. 1.0 g of the drug contains 100,0 mg of oregano oil (*Origanum Aetheroleum*) and filler (kaolin). Oregano oil is obtained from a plant of oregano (*Origanum vulgare*), which is a combination of phenols comprising more than 30 different components in different percentages, the main components are carvacrol (55–85 %) and thymol (0,5–10 %). Essential oils that are part of oregano oil have anthelmintic action affecting the central and vegetative nervous system of the parasite. To conduct the research two groups of young cattle were formed. One group of animals (infested oesophagostomy) was given oregopharmum individually inside during morning feeding at a dose of 400 mg / kg of live weight with the intervals of 24 hours. The control animals were not given the drug. The material for the study were samples of feces and blood.

The results of the study after application of oregofarmum at a dose of 400 mg / kg for three days show that on the 15th day of the study of eggs in the feces of calves oesophagostoma were not found. To study the effect of the drug on the body of cattle we studied the blood. The results allow to judge about the changes in the organs and tissues of animals that do not manifest clinically. It was found that as a result of the drug application restoration of hematological parameters of blood is taking place:

increases the number of red blood cells and hemoglobin level; reduces the number of leukocytes. In the serum a total protein concentration increases, decreases the activity of hepatic enzymes. The results showed that the drug „Oregofarmum” was highly effective (100 %) at oesophagostomosis of cattle and was minimum toxic.

Key words: ezofagostomoz, invasion, extent of infestation, the intensity of infestation, cattle, drug Oregofarm, feces, blood.

Postdeharmic changes in the pigs with metastrongilosis after deworming with univerm

N. Soroka, Z. Ponomar, S. Ponomar, A. Antipov

Metastrongilosis infestation in pig farms in Ukraine is widespread. Economic losses consist of animal deaths, a loss of a significant amount of pork that is the result of stunted growth of young pigs and weight loss of adult pigs. The death of animals from metastrongilosis ranges from 8-30 to 100%. According to scientific literature in pigs with metastrongilosis there were observed depletion, reduced body weight and after slaughter they utilized a significant amount of lungs affected with worms. Important measures against metastrongilosis invasion are the developing and improving methods of deworming according to the pigs' age and the special features of the enzootic situation.

Therefore, the main aim of the work was to develop efficient treatment schemes metastrongilosis on pig farms with the use of the univerm, given its metastrongilocidal properties.

Based on the clinical and research results there were selected 20 piglets 2.5 months of age, infested with metastrongiloides. The animals were divided into 2 equal groups. Piglets of experimental group were treated with 0.2% of univerm at a dose 0.0015 g of AM/kg twice with an interval of 24 hours. Animals in the control group did not receive antihelmintics. Clinical, hematological and biochemical blood tests were carried out before de-worming, as well as on 10, 30 and 60 day thereafter. Using standard methods there were determined the total number of red blood cells, white blood cells, hemoglobin in one erythrocyte, color index, and performed differential leukocyte count. Serum samples were tested for total protein refractometrically, protein fractions – by turbidimetric method, the number of antibodies – with colorimetric method, the activity of aspartate aminotransferase (AST) and alanine aminotransferase (ALT) – by the method of Reitman and Frankel.

Taking into account the results of helminthologic research of the pigs of different age and the spontaneous course of the diseases, mainly characterized by constant repeated invasions, we expected the deworming effect on animals in the control and in the experimental groups by metastrongilosis of varying degree of differentiation. During this period the state of the pigs' organism of both groups did not differ significantly in terms of the studied parameters. As the results of clinical investigations the following signs were observed in all pigs – tachypnea, mixed breathlessness, predominantly abdominal breathing, hollow, painless cough, thick white-yellow leakage from the nasal openings. During auscultation there were found small-vesicles moist rales, pathological bronchial breathing.

Postdeharmic changes in the body of pigs liberated from metastrongilosis were characterized by improved clinical status, liver function, hematopoiesis, reduced intensity of inflammation in the respiratory organs and the level of allergisation by metastrongilosis antigens and increased nonspecific resistance. On the 60th day after deworming there were found increased number of red blood cells (up to $6,5 \pm 0,18$ T/l), decreased hemoglobin (up to $111,0 \pm 1,45$ g/l), a trend to normalization of hemoglobin in one erythrocyte ($17,2 \pm 0,55$ PG) and color index ($1,15 \pm 0,04$), decreased white blood cell count (up to $15,8 \pm 0,46$ g/l), stab neutrophils (up to $6,8 \pm 0,63\%$), monocytes (up to $6,8 \pm 0,55\%$) and eosinophils (up to $4,0 \pm 0,42\%$), increased serum total protein (up to $69,0 \pm 1,7$ g/l), immunoglobulin (up to $19,5 \pm 0,77$ g/l) and albumin (to $28,6 \pm 0,7$ g/ml) and decreased activity of AST (up to $260,0 \pm 13,6$ mmol/l) and AlAt (up to $423,33 \pm 26,4$ mmol/l).

This indicated the development of body inflammatory response on infestation and stimulation of mononuclear system of pigs. The elevated levels of allergisation under the influence of metabolic action of metastrongilosis on the body of experimental and control pigs was indicated by eosinophilia ($6,2 \pm 0,55$ and $6,0 \pm 0,75\%$), since the number of eosinophils was increased and the neutralization of histamine level that was increased due to the development of an allergic reaction. We interpreted the results of the presented research, as evidence of the deterioration of the body of pigs in the control group due to the development of pathological process under metastrongilotic and dehelmintic influence on animals. After that there was noticed gradual rehabilitation of the body of affected animals. These clinical studies showed a gradual recovery of pigs fed with univerm. At the same time general condition and performance of the control animals noticeably deteriorated. Increased number of red blood cells, decreased hemoglobin, the trend towards normalization of hemoglobin in one erythrocyte and color index showed that the animals liberated from metastrongilosis in their body restored the blood functions. These, in turn, helped to improve lung function and respiratory supply of oxygen to the tissue. The opposite situation was observed in the body of control pigs. There was noted a tendency to increase the amount of hemoglobin concentration in one erythrocyte and color index. So, the effectiveness of anthelmintics depends on the correct choice of the scheme of its application. The appropriate aim for further research would be metastrongilotic properties that would allow to develop differentiated schemes of its application for pigs metastrongilotic invasion.

In conclusion, the feeding of 0.2% univerm, twice, with 24 h intervals at a dose of 0.0015 AM/kg leads to the recovery of the clinical condition, hematopoietic system, the functional state of the liver and the increase of nonspecific resistance of the pigs.

Key words: metastrongilosis, metastrongilotic pneumonia, univerm, postdeharmic changes in the body, nonspecific resistance, the liver condition.

Monitoring of biochemical control blood for epidural anesthesia in pigs

A. Melnikov, S. Rublenko

The results of studies on the influence of epidural analgesia on the level of lipid peroxidation (LPO) processes, glucose and the stress hormone cortisol by surgery.

The influence on the processes of lipid peroxidation local veterinary drugs. The data antioxidant status of amide local anesthetics (lidocaine, bupivacaine), tranquilizers on a number of phenothiazine derivatives (atsepromazyn), barbiturates (thiopental sodium). Thus, the results of studies to sedation level of MDA in serum of piglets was $10,1 \pm 0,69$ mmol/l. Trends in MDA after

anesthesia in different groups differently, but not likely accurate, show a tendency to increase postoperative level of malondialdehyde in the control and experimental groups first. He was the highest in the control group and were respectively 11,1±1,18 mmol/l.

This increase in MDA probably due to insufficient analgesia, because thiopental sodium no analgesic properties, but we know that this barbiturate has antioxidant action and thus able to reduce the level of lipid peroxidation products.

In the experimental group provide an adequate level of anesthesia epidural anesthesia, indicators of MDA were lower compared with the control, due to the antioxidant properties of amide local anesthetics. So in the second experimental group malondialdehyde levels lower than normal, and its rate of 8,5±1,25 mmol/l confirms that bupivacaine exhibits stronger antioxidant effect than with lidocaine.

Level of MSM as a marker of endotoxemia in serum of piglets before sedation was 0,12±0,007 g/l. After surgery in all groups of animals monitored tendency to a slight increase in the MSM. It was greatest in the second experimental group 0,15±0,018 g/l, in which the level of average molecular weight increased 1,2 fold compared with the rate for anesthesia. So unlike lidocaine and bupivacaine thiopental sodium showed long exposure time, which could cause a metabolic response from MSM. Minor fluctuations in the levels of MDA and the MSM is probably related to the use of anesthesia circuits atsepromazynu which shows antioxidant properties.

Indices of glucose (in whole blood) and cortisol (in syrovotssi blood) in the complex use of neuroleptics and local anesthetics for epidural anesthesia. Investigated limit increase cortisol levels at which the body of the pig does not undergo significant metabolic changes in the pain response.

The level of glucose in the blood of pigs before sedation was 6,0±0,43 mmol/l, which is hardly different from the index rules 6,0±0,37 mmol/l. After surgery monitored its growth trend, with a range from 1.4 (control group) to 1.3 (second experimental group) times, which was in accordance with the level of glucose 8,3±1,14 mmol/l to 7,6±1,45 mmol/l. However, in the second experimental group did not differ from the index to the operational level and amounted to 5,7±0,59 mmol/l. Dynamics of fluctuations in glucose is an indication that atsepromazyn not affect changes in blood glucose levels.

The level of cortisol in normal pigs was 137,6±17,98 nmol/l. After fixing the animal on the operating table index was significantly increased ($p<0,05$) by 1,7 times and amounted to respectively 240,4 ± 37,69 nmol/l. Blood glucose thus remained unchanged. Changes in cortisol indicates that pigs developing stress-response for fixation.

After surgery monitored its growth trend, with a range from 1,2 (the first experimental group) and 2,0 (control group) times, which was in accordance with the level of cortisol from 301,2±48,97 nmol/l to 474,8±112,06 nmol/l. However, significant ($p<0,01$) rate was the second experimental group and were respectively 443,3±51,93 nmol/l.

Manifestation of vocalizations and increased postoperative cortisol levels in the experimental group indicates that animals feel pain. After atsepromazyn and thiopental sodium did not possess analgesic properties, although barbiturates reduce the level of corticosteroids, including cortisol.

In the second experimental group experienced discomfort pig (nystagm, oscillatory movements of the head from side to side), and cortisol levels thus was 1,5 times higher than in the first experimental group and amounted to 443,3±51,93 nmol/l compared with 301,2±48,97 nmol/l. In this case, lidocaine better than bupivacaine because there is less fat soluble.

For epidural analgesia increase cortisol levels to an average of 450 nmol/l does not indicate pain sensation in pigs.

Given the less pronounced changes in the levels of MDA, MSM, glucose and cortisol in the blood, the most appropriate scheme anesthesia for surgery in pigs is atsepromazynum sedation and epidural lidocaine.

Key words: pigs, anesthesia, bupivacaine, lidocaine, cortisol, glucose, malonic dialdehyde, the average mass of the molecule.

Clinical and radiological characteristics of experimental fibrin gel application to optimization of reparative osteogenesis

M. Rublenko, V. Andriets, E. Lugovskoi, T. Platonova, T. Chernyshenko

Bones injuries in small animals occupy a significant place in the structure of surgical pathology. Such treatment requires of maintenance a stable fixation of bone fragments, and in case of bone defects formation - their replacement. The latter pay much attention while offering use as auto- or allografts and synthetic hydroxyapatite ceramic.

Many researchers suggest use biological materials that have osteoinductive or osteoconductive properties to optimize reparative process. Recently, this purpose in reconstructive orthopedics and traumatology have been widely implemented various compositions of autologous fibrin clot and platelet rich plasma.

Thus, the hemostasis system plays a key role in the mechanisms of regenerative processes in tissues. This is primarily provided by activation of blood coagulation and clot formation at the site of damage, that in further is a matrix to form granulation tissue.

In the case of bone injuries presence of fibrin clot is equally essential for regenerative processes as organized fibrin between fractured bones is a ground for callus formation. At this time, spontaneous blood clot that forms immediately after bone damage usually breaks during bone fragments repositioning and osteosynthesis performs. To reconstruction this clot after osteosynthesis we proposed its restoration using autologous plasma, by its activation using ekamulin and application in the fracture area in experimental research on fractured rabbit's radial bone.

The aim of the study was clinical and radiological justification of fibrin gel application to optimize reparative osteogenesis in rabbits.

Materials and methods. Investigation performed at the Department of Surgery and Diseases of Small Animals of Bila Tserkva National Agrarian University. In experiment used clinically healthy rabbits (n=7) 8 months of age, weighing 2.5 kg.

A broken bone is reproduced by osteotomy in the region of diaphysis of the right radius. Then the wound and bone fragments dried and deposited in the fracture area activated autologous plasma in the early stages of fibrin polymerization. The wound skin sewn seams nodal one minute after application of fibrin gel.

According to the clinical and radiological data it was found that on the 3rd day after the osteotomy in all animals manifested signs of pronounced inflammatory reaction surgical wounds, including swelling, redness and pain of injured tissues. Animals are not relied upon the injured limb.

Radiological noted transverse fractures with a distinct line of Fraktur. Lysis edges of bone fragments were observed. Reactions from the endo- and peryosta were absent.

On the seventh day after injury in experimental rabbits was observed decrease in the intensity of manifestation of inflammation. Thus, significantly reduced swelling and pain of the soft tissues. In this case there was no erythema. Animals lightly leaned on the sore limb.

Along with that in control rabbits was a distinct swelling, pain and tissue were recorded signs of erythema. Animals lightly leaned on the limb.

18th day in the experimental group of rabbits was characterized by the absence of signs of inflammation were observed radiographically moderate periosteal reaction zone fracture callus formation of connective tissue with well-defined processes of mineralization. Animals fully relied upon the limb.

Instead, the animals of the control group noted a marked soft tissue swelling and moderate their tenderness. Radiological noted massive, irregular periosteal reaction that lokalizuvalasya outside the defect. There was mild Tissue-specific patterns in the area of the defect with the initial stages of mineralization.

After 35 days, the reparative osteogenesis in rabbits of experimental group noted the full consolidation of bone fragments that radiographically detected fully formed cortical bone layer and faint periosteal reaction. Bone regenerate was in the final stages of remodeling. In animals, noted the complete restoration of function of the injured limb.

In rabbits in the control group on a background no signs of inflammation noted on radiographs as full consolidation of fragments of bone, restoring the integrity of the cortical layer of bone, but the injured bone still had excessive periosteal reaction that goes well beyond the defect. In animals, noted the complete restoration of function of the limb.

Conclusion. The use of fibrin gel in places fracture optimizes the reorganization of tissue structures and mineralization of bone regenerate the 3rd stage of reparative osteogenesis, clearly localizes regenerative processes within the injured skeletal sites and helps accelerate bone repair.

Key words: reparative osteogenesis, fibrin gel rabbits.

Level of thrombinemia electrocoagulate ecsterpative breast tumors and depending on pharmacological correction homeostasis

M. Rublenko, D. Bely

The study of the mutual influence of the haemostatic system and cancer is an urgent problem nowadays. Especially the issue concerns tumors of the breast that the registration in second place, trailing only slightly neoplasia of the skin. And this applies to both humane and veterinary medicine. But, in the first case, such studies are conducted, and the results are reflected in the developed recommendations for the correction of the haemostatic system in oncologic patient, the second the available information indicates that some attempts to study the changes in hemostasis status in animals that are confined to a statement of facts without detailed analysis and explanation of possible pathogenetic mechanisms. Moreover, the information provided in the public press, especially given by veterinary scientists from foreign countries, a small number - neighboring countries; domestic developments on the issue largely absent. It should also be noted that in most cases a small number of patients, so there is no possibility of forming experimental group; studied individual values without a comprehensive assessment of their role in the pathogenesis neoplasia process.

On the other hand the relevance of this problem is due to the following factors. First, it is necessary to point out the positive dynamics of registrations of breast tumors in dogs (currently very close to 50% of tumors), and in view of promoting their causes, we can predict further deterioration. It is proved that the conduct of a surgical procedure does not ensure the expected results, but also adjuvant therapy did not significantly improve the effectiveness of treatment in combination with high risk of complications and even death of animals. Therefore, it is logically to search for alternative options general and local effects on the body and tumors that are characterized by efficiency, safety, simplicity and moderate cost.

For these reasons, we have the first phase of a study violations of the hemostatic system in the preoperative period and established their relationship with age, clinical features, dimensions. It is proved that the development of tumor accompanied hypercoagulation processes against the background of inhibition of fibrinolytic activity. In the future, the advantages of electrosurgical techniques extirpation of mammary gland neoplasia in comparison with the conventional technique, based on the degree of hemostatic system.

The third phase examined the effectiveness of pharmacological correction of hemostasis status of breast tumors in dogs against the backdrop of use electrocoagulator EC-150. The control group consisted of animals in which surgery was performed only in research dogs who were administered correcting scheme, which included ronkoleykin, tranexam combined with selizynom or low molecular weight heparin.

The presented paper deals with neoplasia in patients with bristle of soluble fibrin, which is a marker of the activity of coagulation processes in blood. These data indicate a high concentration at the time of its initial admission, regardless of the degree of malignancy, and after removal of tumors pronounced tendency to decrease in the content of soluble fibrin in all groups of animals. Statistically significant differences between the control and experimental groups ($p < 0.05$). In particular, benign tumors on the 3d day in the first case the average values were $5,39 \pm 0,54$ mg / 100ml, the second- $2,35 \pm 0,24$ and $2,81 \pm 0,43$ mg / 100 ml; 14 days- according $2,02 \pm 0,3$ and $0,32 \pm 0,21$ and $0,34 \pm 0,25$ mg / 100ml. Patients with malignant course of tumor recorded similar changes: in 3d day after a surgery in the control medium level of soluble fibrin was $7,18 \pm 0,47$ mg / 100ml, in animal experiments- $4,85 \pm 0,69$ and $3,23 \pm 0,16$ mg / 100ml ($p < 0.05$); the 14th day (at the end of observation)- according $19,98 \pm 1,40$ and $0,8 \pm 0,32$ and $0,94 \pm 0,47$ mg / 100ml ($p < 0.05$).

Summarizing the results it should be noted the high performance circuits post operative remedial therapy, including ronkoleykin and Tranexamin combination with NSAID or low molecular weight heparin. Its effects on hemostasis status is

characterized by normalization of soluble fibrin, indicating that the removal hypercoagulation state and, accordingly, worsening conditions for the implantation and development of cancer cells in the body.

Schemes of pharmacological correction of DIC in dogs with malignant breast lesions appropriate to recommend for practical implementation in veterinary oncology.

The perspective is the need for further work in this area in order to improve existing and develop new options for optimizing hemostasis conservative status.

Key words: dogs, neoplasia, mammary gland, hemostasis system, soluble fibrin, pharmacological correction.

Heart rate variability as a tool for monitoring anesthetized animals: indicators of its age variables.

S. Rublenko, V. Vlasenko, N. Rublenko, B. Pyryn

The article is dedicated to outcomes as for the method of analysis of heart rate variability (HRV) among dogs to improve evaluation of monitoring of anesthetized animals.

The statistical parameters of HRV are: Mo (distribution mode of RR-intervals, ms) – the description of the most repetitive values of RR-intervals; Amo (amplitude of distribution mode) – it is a percentage of RR interval that characterizes a proportion of distribution mode to the sample size, reflecting the stabilizing effect of centralization of the heart rate control, which is mainly caused by the degree of activation of the sympathetic division of ANS; SDNN, ms - standard deviation of the mean duration of RR-intervals for 5 min, describes the state of regulatory mechanisms, indicates the overall effects upon the sinus node sympathetic and parasympathetic divisions of ANS; Cv - coefficient of variation, which is a normalized estimate of SDNN; RMSSD, ms - standard deviation of the values of successive pairs of heart rate, and is a measure of the activity of the parasympathetic autonomic regulation level; PNN50,% - similar to RMSSD, the percentage number of pairs of successive RR-intervals that differ more than 50 ms, reflecting the degree of preference parasympathetic regulation of the sympathetic level.

Spectral analysis allows to divide into 3 main components of power spectral density of heart rate fluctuations: high-frequency waves - HF (0,15-0,4 Hz), determined by parasympathetic impact on the heart (vagal activity); Low-frequency waves - LF (0,04-0,15 Hz) mainly related to sympathetic and to a lesser extent – parasympathetic influences, as well as pressoreceptor reflex; waves of very low frequency - VLF (less than 0.04 Hz), reflecting the effect of many factors, including vascular tone, thermoregulation system and the rennin-angiotensin-aldosterone system (central energetotropic contribution). In addition to the amplitude of the components, determine the ratio of low frequency power to high power (LF / HF), which value indicates the balance of sympathetic and parasympathetic influences. This index within 0.85-1,15 indicates normotonia that is more than 1.15 - the sympathicotonia, and less than 0.85 - the parasympathicotonia.

According to the research the mode of the distribution (Mo) was highest among dogs older than 8 years, and lowest - of the age of 2 months ($p < 0.001$). That is, these dogs during the myocardium de- and repolarization significantly shorter. At this time excitement sinus node, the passage of nerve impulses and recovery potential of cell membrane attack faster. With age, Mo increases. Amo lowest index ($p < 0.01$) at the age of 4-6 months, that is, there is a significant variation of excitation, conduction and recovery in the myocardium, and from a clinical point of view - the instability of ANS.

The total effect of autonomic regulation of circulation (SDNN) was the lowest in 2-month-old dogs and over 8 years. The rest was significantly higher, indicating a wide variation limits in the processes of excitation in the heart of ANS. The coefficient of variation (Cv) is least among dogs over 8 years old ($p < 0.01$). But it average in size ($p < 0.05$) in the 3rd group animals, RR- intervals sufficiently stable. PNN50 index was the highest in the 2nd, 3rd and 4th groups, and in the 1st and 5th - lower ($p < 0.01$) than the other groups. RMSSD also was greater in the 2nd, 3rd and 4th groups, but the highest - in the 4-6-month-old and 5-7-year-old dogs. Thus, the level PNN50 and RMSSD suggest, their electrophysiological correlates significantly higher impact on the regulation of the parasympathetic component of heart rate in dogs found in the age range from 4 months to 7 years.

It is established that in dogs 5-7 years neurohumoral activity (VLF) in 1,3-2 times ($p < 0.001$) higher than in other age groups. The lowest level of VLF in 2-month-old dog indicates a shortage of energy and metabolic reserves to maintain stability of heart rate, while high at the age of 5-7 years - a state hyper adaptation. The activity of the parasympathetic modulation (HF) in 2-month-old dogs and over 8 years was lowest ($p < 0.01$). They found normotonia - 0.9, and the rest parasympathicotonia - 0.7.

Consequently, anesthesia requires the consideration of age features of ANS influence on cardiovascular activity in dogs.

Key words: heart rate variability, autonomic nervous system, normotonia, sympathicotonia, parasympathicotonia, dogs.

Clinical and biochemical characteristics of reparative osteogenesis at osteosynthesis of thigh bones comminuted fractures in dogs using Collapan

S. Semenyak

The objective - to determine clinical and biochemical criteria of reparative osteogenesis in dogs with comminuted fractures of thigh bone on condition of substituting of bone defects by osteotropic composite Collapan L.

Materials and methods of the research. Dogs with comminuted diaphyseal fractures of thigh bone were divided into control ($n = 7$) and experimental group ($n = 7$). In the experimental group after the imposition of a plate the defect was additionally replaced by granules "Collapan L".

Results of the research and discussion. In dogs with fractures of thigh bones set dynamics of content in blood markers of connective tissue molecules of average weight, soluble fibrin, fibrinases, nitric oxide and glucose.

The content of total hexose increased to 3rd day in the experimental group in 1.2 times, and in control in 1.3 times ($p < 0,001$) compared with the preoperative period. This was due to an increase ($p < 0,05$) content of glycoprotein (GP) to $0,98 \pm 0,07$ g / l in the experimental and $1,0 \pm 0,08$ g / l in the control group. After 7 days, in the control group there was a decrease in the concentration of G 1.3 and GP 1.4 times ($p < 0,05$). However, in the experimental group contents GP remained elevated. That is, after the application of Collapan phase of inflammatory resorption slightly elongated.

The concentration of molecules middle mass (MMM) at fractures of thigh bone was increased in 1.4 times ($p < 0,001$). This is connected with catabolic processes due to injury and the inflammatory response. In the dogs of the control group after the 60th day, the second peak observed increasing of their content in the blood to a level of $0,77 \pm 0,02$ g / l ($p < 0,001$). This is due to the larger volume resorption of bone regenerate in control dogs.

In dogs with fractures of the thigh bone concentration of soluble fibrin (SF) was in 1.7 times ($p < 0,05$) more than in clinically healthy animals. In dogs of the control group concentration of SF continued to increase on the 3rd day to $31,7 \pm 3,3$ mg%, which was in 1.4 times higher ($p < 0,05$) than in research group. This is because in the experimental animals bone defect was filled with Collapan, which contributed to the mechanical stop of bleeding. In the control group on the 7th day, the SF concentration tended to decrease, and in the experimental increased to $27,2 \pm 3,1$ mg%. Such strengthening of trombinemia most likely is due to the reaction of cattle on collagen, which is a part of Collapan.

In dogs with fractures of the thigh bone, FXIII activity increased to $122,5 \pm 5,8\%$, ($p < 0,01$). On the third day after osteosynthesis tendency to further increase of its activity in experimental dogs was marked, while in the control it, on the contrary, decreased in 1.3 times ($p < 0,01$). On the 7th and 14th day, its activity remained high ($p < 0,05$) in both groups, with no significant difference between them, followed by a tendency to normalization, starting from the 30th day after osteosynthesis.

Consequently, the filling of the bone defect with composite promotes mechanical stop of bleeding, accompanied by less expenditure of FXIII to stabilize the blood clot.

In dogs with fractures of thigh bone the level of nitric oxide decreased to the 7th day. In the control group on the 30th day, the decrease in its level was noted in 1.5 times ($p < 0,05$). In the experimental group the level of nitric oxide did not differ from the rate of clinically healthy dogs to the 60th day. That is, use of Collapan indirectly reduces the level of endothelial dysfunction at reparative process due to smaller changes in local hemostasis at osteosynthesis.

The level of glucose in the blood serum of dogs with fractures of the thigh bone increased to $6,92 \pm 0,27$ mmol / l, which is in 1.3 times higher ($p < 0,001$) than in clinically healthy dogs. Approximately at this level its indices in both groups were the same on the 3rd day after osteosynthesis, which is associated primarily with pain reaction in response to bone injury.

Conclusions 1. Application of Collapan for replacing bone defects in dogs with extracortical osteosynthesis is accompanied by a mechanical stop of bleeding, which leads to less expressed changes in the hemostatic system and endothelial function and reduces catabolic processes in the area of the fracture.

2. Replacement of bone defects by Collapan has no effect on the level of post-traumatic stress, but the presence in its composition alien for dogs collagen causes elongation stage of inflammatory resorption.

Prospects for further research is to establish clinical and biochemical criteria complicated course of reparative osteogenesis by using Collapan in dogs with comminuted fractures of tubular bones.

Key words: dog, bone fractures, glycosaminoglycans, glycoproteins, soluble fibrin, glucose, nitric oxide, Collapan.

Study on impact deoxynivalenol on chicken cross adler silver and preventive action mikosorb

D. Ostrovsky, A. Melnik, M. Utechenko

Problem. Deoxynivalenol (DON, vomitoxin) - tryhotetsenovyy mycotoxin group B, producing some fungi of the genus *Fusarium*, is one of the natural contaminants cereals. Due to frequent contamination of grain, especially during the distribution of *Fusarium*, DON is an important issue for many countries in Europe and America. Thus, according to the Committee of Experts FAO / WHO Don pollution at a concentration of 0.001 to 5.7 mg / kg installed in 68% of samples of oats, 59 - barley, 57 - 41% and wheat - corn.

Analysis of recent research and publications. Information on the distribution of DON in grain in Ukraine is still too limited. However, in our neighboring North Caucasus region is constantly observed high levels of contamination of wheat (70%) lower corn (4.5%), barley (2%) and rye (1%) [3]. In addition, in 1977 with a significant spread *Fusarium* grains in Ukraine was in a lot of "few toxic *Fusarium* wheat", which mainly fed to cattle for fattening. With samples of wheat were allocated several strains of the fungus *F. graminearum*, which were found later, were producers DON and zearalenone. Especially active are strain 195/1 was used by us in these studies.

The aim - to study the effect of the toxin on health, weight and installation chicks changes in serum myocardium, liver and kidneys and protective action mikosorb.

Materials and methods research. In the experiment used the May 30-week-old broiler meat and egg breeds Adler silver, which was formed three groups of 10 each. Poultry kept in metal cages and consumed feed for broiler production "Ukrzoovetprompostach." Chickens first group once daily orally asked deoxynivalenol at a dose of 70 mg / kg body weight in 2 ml of 5% ethanol and complete feed. Chickens second group received the toxin in the same dose and consume feed supplemented with 2% mikosorb; chickens third group served as a control, consumed only full feed and received neither toxin and mikosorb.

For chickens have been continuously clinical observation into account their general condition and body weight were determined weekly. At the end of each week for three chickens from each group were sacrificed by decapitation and blood were taken for biochemical research and material (pieces of heart, liver and kidneys) - for histology. Serum samples were overall activity of alkaline phosphatase (ALP) and its bone and intestinal isoenzymes method of Wagner, Putilin and Harabuhy; acid phosphatase (EC) - the reaction of 4-nitrofenilfosfatom, the content of total and ionized calcium - a reaction with Glyoxal bis-2 hidroksyanilom, inorganic phosphorus - reaction with ascorbic acid, total magnesium - from kalmahitom.

For histological examination of selected pieces of the heart, liver and kidneys were fixed 10% neutral formalin solution, dehydration and fill carried out by conventional methods, histozrizy stained with hematoxylin-eosin.

Deoxynivalenol adversely affect the development of chicks and caused weight loss in the experimental birds feed and feeding of mikosorb completely leveled the negative impact of the toxin. The toxin also affects the biochemical parameters of blood serum of chickens by changing the activity of enzymes and micronutrients. DON adversely affect the tissues of the heart, liver and kidney organs noted in granular protein and fatty degeneration.

Key words: дезоксиниваленол, ДОН, вомитоксин, *Fusarium graminearum*, токсин, цыплята, микосорб.

Influence zearalenone on metabolism protein index with prolonged intake in chickens organism

E. Popova

The purpose of the conducted researches was to define the changes of biochemical indexes of whey of blood on condition of the protracted receipt of zearalenone to the organism of chickens. This paper presents data on changes in indices of protein metabolism under the influence of zearalenone.

For the purpose of the experiment was set up four groups of chicks: three experimental and one control to 15 goals each. Chickens first experimental group received for 30 days in addition to the basic diet zearalenone in a dose of 0.5 mg / kg of feed, second and third - 1.0 and 2.0 mg / kg of feed, respectively. Poultry fourth group was the control, receiving basic diet without adding mycotoxin. In the experiment conducted surveillance on the clinical condition of the bird. On the 7th, 14th, 30th day of feeding zearalenone birds were weighed, then spent decapitation of chickens after previous light chloroform anesthesia, in five chapters with each group. Then, blood samples were taken for determination of biochemical parameters.

In the blood plasma were determined biochemical parameters: including the contents of total protein, albumin, protein fractions, immunoglobulins, aspartate aminotransferase and alanine aminotransferase activity.

Analyzing the results of biochemical studies of serum we found out that the level of total protein was increased in the blood of chickens research groups throughout the period of the experiment. In the blood of chickens treated with 2.0 mg zearalenone in addition to 1 kg basic diet observed the greatest increase of this index relative to the control. So, on the seventh day of the experiment increase amounted to 42.2%, the fourteenth and thirtieth day - 21.4% and 8.9% respectively.

During the experiment, marked changes in the level of albumin in the blood of chickens research groups have been identified, however the analysis of the globulin proteinyohramy on the seventh day been identified marked increase of α -globulins and γ -globulins. The level of α -globulin on the fourteenth day of the experiment fell to the benchmark, and on the thirtieth day - slightly reduced relative to controls. The level of γ -globulin in the blood of chickens two and three experimental groups significantly exceeded the benchmark on the fourteenth and thirtieth day the experiment. The content of β -globulin during the experiment had no significant changes compared with the control.

Content analysis hamahlobuliniv in the serum of chickens suggests that increased hamahlobuliniv was due to immunoglobulin M (Ig-M). On the seventh day of the experiment in the first of the experimental group was higher than the control by 63.1% in the second group - by 69.5%, and the third - by 70.5%. On the fourteenth day of the experiment excess of Ig-M in the first group constituted 73% of the control, the second and the third - 78% and 81% respectively. Determining the level of Ig-M after thirty days from the beginning of the experiment, found that in chickens the first group, this figure was increased by 55%, while in chickens the second and third groups, the difference with the control was 58.3%.

Probable increase in activity of aspartate aminotransferase (AST) levels in broiler research groups observed on the seventh day of the experiment, the activity of AST was increased gradually over time. The level of activity of alanine aminotransferase (ALT) on the seventh day of receipt to zearalenone body chicks did not differ significantly from the benchmark. On the fourteenth day of the experiment increased ALT activity in chickens of the second and third groups at 46.1% and 30.1%, respectively, staying slightly increased in the first group.

Determination of live weight of birds at the end of the experiment revealed that in chickens the first experimental group gain was 117.9% of the weight at the beginning of the experiment. In the second group of chickens treated with 1.0 mg / kg zearalenone to the basic diet, increase in body weight was 68.93%. The lowest growth rate was observed in the third group of chicks, where the figure was 45.46%. Chickens in the control group increased their initial weight at 215.4%.

On the basis of the conducted researches it is possible to do the followings conclusions: 1. Admission zearalenone for 30 days to the body of chickens at doses of 0.5; 1.0; 2.0 mg / kg of feed without causing clinical manifestations of toxicity.

2. Zearalenone prolonged intake leads to an increase in total serum protein: maximum (by 42.2%) - in chickens treated with zearalenone at a dose of 2.0 mg / kg of feed. Albuminosis develops due to increase in the content of globulin fraction, particularly Ig M.

3. Increased activity of ALT and AST indicates toxic effects of zearalenone on the liver, which shows a violation of the permeability of the cell membrane of hepatocytes.

4. Additions to zearalenone chicks body leads to lower rates of weight gain. The smallest increase (45.5% of body weight at the beginning of the experiment) was registered when receiving zearalenone at a dose of 2.0 mg / kg of feed.

Key words: zearalenone, mycotoxicity, chickens, serum of blood, biochemical indexes.