

Висновки. 1. Проведений аналіз літератури свідчить про широке розповсюдження метапневмовірусної інфекції птиці у світі та про значні економічні збитки, які вона може завдати птахівництву, особливо в асоціації з бактеріальними збудниками.

2. Уперше було проведено епізоотологічний моніторинг метапневмовірусної інфекції птиці та отримано інформацію про наявність цієї хвороби на території України. З 455 проб сироваток крові та екстрактів жовтків яєць відібраних нами від курей та індиків промислових та присадибних птахогосподарств 56 % були позитивними (середній титр – 3417).

3. За результатами вірусологічних та молекулярно-генетичних досліджень у двох зразках наданого нами матеріалу було знайдено геном РНК метапневмовірусу птиці та позначено як AMPV/Lugansk/67-11 та AMPV/Donetsk/UA/72-11.

4. Проведена нами робота підтвердила необхідність створення вітчизняних засобів діагностики, а саме: набору для виявлення антитіл до метапневмовірусної інфекції птахів імуноферментним методом.

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EPIZOOTOLOGICAL MONITORING OF METAPNEUMOVIRUS INFECTION OF BIRDS IN UKRAINE, DIAGNOSTICS AND SPECIFIC PREVENTION

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The paper presents data on metapneumovirus infection in poultry, pathogen characteristics, clinical features, pathological-anatomical changes. The data on the study of the epizootic situation concerning metapneumovirus infection in chickens in the poultry industry and in household farms in different regions of Ukraine by the results of monitoring conducted for the 2009-2011 is presented in the paper.

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MYCOBACTERIAL MASTITIS

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Atypical mycobacteria are known as facultative pathogens of mastitis since the beginning of last century. The attention is paid to this causes with the increasing need for eradication of tuberculosis, and in the following way:

– clinical and laboratory diagnosis is urgently needed to distinguish between infections caused by agents of tuberculosis and infections caused by nonspecific mycobacteria;

– clarify paraallergic reactions in tuberculin skin test;

– in human medicine, to attach greater importance to human mycobacteriosis.

Cases of disease in cattle are relatively widely separated. So we can talk about changes in the lungs of cows, lymph node disease, dermatitis nodosa, especially the chronic, sporadic and enzootic infections of the udder.

Etiology causes of diseases known as belonging to the genus Mycobacteriaceae mycobacteriosis in terms of its importance as a cause of disease and its different behavior separated from the cause of tuberculosis, and are referred to as atypical mycobacteria. Runyon, on the basis of biochemical properties and cultural characteristics (not taking into account their importance as a cause of infection) divided into 4 groups. Most of the mycobacteria, which is considered the current mastitis pathogens belonging to group IV. They are referred to as the fast-growing mycobacteria. As the causes of udder infections can specify the following:

• *Mycobacterium smegmatis*;

• *Mycobacterium fortuitum*;

• *Mycobacterium phlei*;

• *Mycobacterium avium*.

Atypical mycobacteria appear as ubiquitous. They belong to the normal flora of soil and per gram of the country is 102-105 microorganisms present. As a result, they can be found in surface water, wastewater and drinking water, different types of food, litter, dung of various animals, particularly cattle, and the outer skin of animals.

Microbiological evidence of rapidly growing mycobacteria from milk samples obtained by incubation at 37 ° C and 25 ° C on blood agar, or special media for tuberculosis (Ogawa egg yolk) after the incubation period 2-5 days.

Although mycobacteria are considered highly resistant to external influences, and to kill them proper pasteurization of milk is needed (short-term heating at 71-74oC, 15-40s). Causes resistance to disinfectants varies. Formaldehyde solution (5%) is considered to be effective, also the solutions of peracetic acid to be > 1% and a chlorine disinfectant in the solution effective at a concentration > 5%. This

confirmed that disinfectants based on chlorine, which are applied in practice are not effective.

Drug resistance is expressed in atypical mycobacteria. From a wide range of applied drugs, streptomycin and oxytetracycline only proved effective in vitro.

Pathogenicity of atypical mycobacteria can be generally considered low. It is obviously more specific environmental conditions rather than the cause itself. Guinea pigs infected with the difficult, but requires extremely high doses, and *M. smegmatis* *M. phlei*. The mice responded to intravenous application *M. fortuitum* changes in the kidneys. In sheep and cows intracysternal applications rapidly growing mycobacteria caused the apparent infection if infectious medium added fats or oils.

Pathogenesis. In the occurrence of udder infections caused by rapidly growing mycobacteria has been shown very clearly expressed effect of predisposing factors. Of them depends on whether the agents who get into the udder populate in the parenchyma or in the cistern and teat chanal, and whether to adapt and proliferate (latent infection) or will cause clinically manifested galactophoritis or mastitis in chronic or acute form.

As the route of infection, the focus is galactogen transmission of infection. In support of this not only speak of ascending widespread changes in the interior of the udder tissue, but also multiple experimental infection (104-106 organisms). Oral route can not be completely ruled out, since the disturbances of digestion in the digestive tract and the introduction of oral agents is no evidence of antibody production in the body. Since a large number of predisposition to infection of the udder, especially to emphasize the following:

– stimulating and pathogenicity of infection by antibiotic ap the udder, and antibiotics to the general and especially those with oil solvent. In this indirect positive effect on mycobacteria have damage in the udder with competitive agents, particularly macrophage phagocytosis of mycobacteria action;

– tissue damage in the interior of the udder. The contents of cells in milk is an indicator of this phenomenon;

– the excretion of pathogens in the environment directly through the animal droppings or holding area that is contaminated with substances that contain the ground, keeping long-term carriers of the herd and inadequate disinfection of the means of chlorine, especially during milking. These factors created a very strong infectious pressure.

The clinical picture and course of illness. The clinical picture of the udder mycobacteriosis depends on the type of inflammation, type of pathogen, predisposition, and functional status of mammary gland. In addition to clinical latency, which in *M. smegmatis* infection is up to 40% and about *M. fortuitum* 25% of cases, chronic form is a major form of diseases. Acute inflammation are expressed only in 1-2% of cases with *M. fortuitum*. Chronic mastitis is reflected in the following:

– small, painless changes in tissue form of lumps or larger hard surfaces in tanks gland, a common occurrence enlargement of the udder or the affected districts in lactating cows and of dried cow or heifer;

– lymph nodes on udder enlarged individually;

– alternating appearance supurou-fluffy-watery discharge and macroscopically unchanged milk during lactation, and the striking of dried cow fibrous sediment.

In acute mastitis, in addition to common general health disorders, there are gross changes in tissue and relatively rapid cessation of milk production. In addition, it is mostly affected by more than one-fourth per animal. The secretion is serous and flaky, supurous. Weight and frequency of these changes is more pronounced in infections with *M. fortuitum* than other atypical mycobacteria, and mainly affects the dry cows and lactating cows in the new lactation.

The increase in loss of milk is the result of processes of advanced chronic inflammation and irreversible. The disease often lasts longer than 2 weeks and be followed by occasional periods of improvement, but eventually leads to compulsory slaughter. Clinically latent carriers of infection can, under favorable conditions surrounding the release agent from the udder. The herd must be reckoned with, in addition to sporadic disease, during infectious diseases especially when it comes to *M. fortuitum*.

Pathomorfology. The revised clinical udder quarters, often with increased macroscopic states can be seen, many nodes the size of hazelnut, a section was covered with a hint of brown. Histopathological conspicuous alveolar granulomas, whose periphery is surrounded by a ring-lymphocytes, histiocytes, giant cells, plasma and Langerhans cells, and fibroblasts. A thin, acid microorganisms can be observed in stained sections by Ziehl Neelsen (Fite-Modifications by Farac) as single or in pairs, and within or between fagocitovanih cell granuloma. The cause may well be seen in preparations stained with Gram stain (blue) and Grocott (fawn).

The differential diagnosis: Clinical and pathological-anatomical picture of the udder mycobacteriosis is very nonspecific, so it is necessary to apply microbiological and histopathological methods for differentiation of infections of tuberculosis, nocardiosis infection by streptococci, and yeasts.

Diagnosis. The diagnosis is justified, based on clinical suspicion, microbiological and histopathological reading of the findings. Immunological Methods of test currently have no practical application here, although in some countries in the differential diagnosis of wide application. In clinical trials there were significantly under-specific. Aseptically taken from a sample of secretions (the first stream from the fourth) in a smear stained by Ziehl Neelsen method can be very reliably prove the cause of acid. However, it should be noted that the secretion causes secretion across the discontinuous or repeated finding in latent infection is missing because the cause, meanwhile, eliminated from the udder or the effect of milking. From increased amounts of sediment often clinically altered secretion may be established by finding the cell (lymphocytes, cells that resemble macrophages and polymorphonuclear leukocytes less) regarded as nonspecific. Cultural testing is considered that the presence of fast-growing mycobacteria positive if in the course of five days of incubation at 25°C the appearance of typical colonies of microorganisms which show tinktorial resistance to acid and alcohol.

Histologically visible granulomas are so similar granulomas in nocardiosis that differentiation is possible only with further study of growth and coloring agents.

Diagnosis "Mycobacteriosis udder" was confirmed when:

- present the clinical changes of secretion and / or bodies and when they confirm the presence of pathogens in pure culture;
- is atypical mycobacteria excreted in the secretions of the udder for longer than three days, and no other changes;
- the granulomatous mastitis associated with the detection of bacteria;
- to establish the presence of only the specific causes related to tissue.

Prognosis. Chronic cases of mastitis are associated with irreversible changes in organs that tend to lead to deterioration of the udder, where the animals further evaluation is based only on economic reasons. Acutely sick animals much earlier due to this position. Forecast for cattle herds where the infection is present in the udder largely depends on the predisposition to the infection and the severity of the

disease.

Therapy. Opportunities for successful causal treatment of mastitis in the udder mycobacteriosis is not currently known.

Prophylaxis: The objective of these measures is to protect the animals from the udder infections, and infected cows as soon as possible to eliminate from the herd. In this context the importance of prophylactic measures is indisputable:

- the focus of these measures consists of the following activities;
- to maintain hygiene and prevent the pollution of land, food, rooms for holding and a husbandry;
- implementation of effective disinfectants;
- Early diagnosis of diseased cows and heifers and their elimination from the herd;
- strict adherence to the rules for the application intracisternalnih antibiotics;

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МИКОБАКТЕРІАЛЬНИЙ МАСТИТ

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У статті розглядаються проблеми щодо етіології, патогенезу, діагностики та профілактики мікобактеріального маститу.

Атипові мікобактерії відомі як факультативні збудники маститу з початку минулого століття. Більшість мікобактерій, які вважаються збудниками маститу, є швидкозростальними мікобактеріями, що належать до IV групи за класифікацією Раньона.