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ANALYSIS OF THE LITERATURE ON THE ETIOLOGY OF PASTEURELLOSIS AND OTHER INFECTIONS IN SHEEP

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Abstract
In this article, scientific literature and in-depth analysis of the causes of sheep pasteurellosis, followed by colibacteriosis and salmonellosis are given. It is written in detail about the biological characteristics, serotypes, microscopic indicators and ways of entering the body of pathogens. The forms of these diseases and their occurrence in other species of animals, even in poultry, are written in the scientific literature.

Keywords: Mixed infection, gram-negative bacteria, gram-positive bacteria, spores, pasteurellosis, colibacteriosis, salmonellosis, etiology, vaccine, coronavirus, diarrhea, septicemia.

Introduction

Today, as a result of more frequent occurrence of mixed infections among sheep, mother ewes give birth or young lambs are killed more often. For this reason, in order to prevent the occurrence of mixed infections in sheep, to diagnose and treat the disease, we need to know the etiology of mixed infections in depth.

Literature Information

The analysis of the literature in the study of the etiology of infectious diseases shows that the economic damage caused by infectious diseases consists of the following indicators:

- Decrease in productivity as a result of animal death or disease;
- Reduction of raw material resources in the country (milk, meat, leather, eggs, etc.);
- Complete cessation of breeding work on the farm;
- A sharp decrease in the sale of animals and their products;
- In some cases, the costs of quarantine measures exceed the value of the dead animals, and this puts the farm in an economically vulnerable situation [2].

As a result of infectious diseases, in 2001 England suffered an economic loss of 11 billion pounds. The results of the study of infectious diseases and infectious processes show that the infectious process is caused by the mutual symbiosis of micro-macroorganisms and the antagonistic effect of infectious agents on each other, resulting in mixed infectious diseases. the clinical signs characteristic of the disease are not visible, and it creates a different pathomorphological picture. For this reason, the fight against mixed infections is considered urgent today.

Mixed infection is a disease that occurs when two or more pathogens enter the body. In sheep breeding farms of our country, there are many cases of secondary, spontaneous infection of causative agents of pasteurelliosis, salmonellosis, and colibacteriosis among sheep.

Pasteurellosis (hemorrhagic septicemia) is an acute infectious disease characterized by fever, general intoxication, inflammation of the skin and subcutaneous tissue, arthritis, osteomyelitis. Acute septic and zoonotic diseases in agriculture, wild animals and poultry. It is noted that it is characterized by septicemia, hemorrhagic inflammatory processes in internal organs, serous and mucous membranes [4].

Etiology

The causative agent of the disease is Pasteurella multocida, a member of the genus Pasteurella - a short oval bacillus with curved ends (length 0.3-1.5 μm and width 0.15-0.25 μm), gram-negative, inactive, does not form spores, 37-380 Good in GPA and GPBs with rN 7.2-7.4 in C, blood GPA, serum GPA or GPBs grows. It is bipolar stained by the Romanovsky-Giemza method. The microbe is resistant to the influence of the external environment, it quickly dies when heated, under the influence of ultraviolet rays, disinfectants. It was found that the microbe can be stored in the soil and manure for 3-4 days. 4 serotypes of pasteurellosis have been identified (A, B, D and Ye); some of them also have subtypes. Has the ability to produce exotoxin.

The infection enters the body often through the skin at the bite site or animal scratches. The pathogen can also enter through mucous membranes. In some cases, the spread of pathogenic microorganisms is observed with the formation of secondary foci in various organs (lungs, brain, joints, etc.). Septic forms can be accompanied by the development of toxic, toxic shock and thrombohemorrhagic syndrome. When the disease is acute in animals, it is characterized by pleurisy and watery edema in many parts of the body, when it is semi-acute and chronic - purulent necrotic pneumonia in the lungs, kerato-conjunctivitis, mastitis and hemorrhagic enteritis [1, 2,4].

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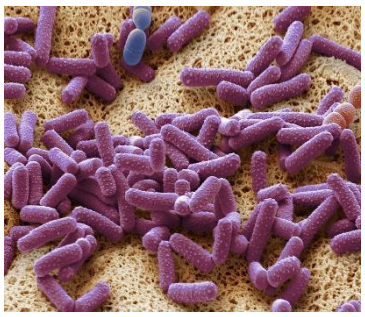
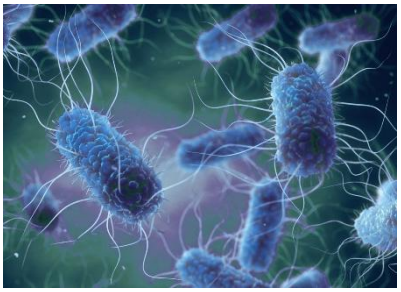
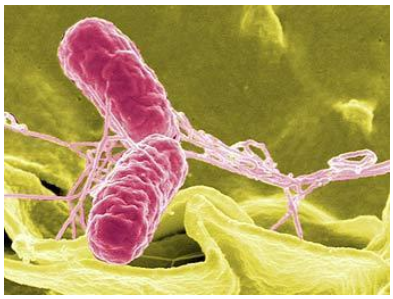
The disease has also been recorded among humans, and occurs epizootically among rabbits and poultry. Horses and carnivorous animals are more resistant to pasteurellosis.

Appearance of infectious agents in an electron microscope:


Pasteurella multocida.


Escherichia coli.


Salmonella abortus ovis.

Colibacteriosis

(Escherichiosis, colidia, coli sepsis) is an acute transient disease of young animals manifested by septicemia, toxemia and enteritis. The causative agent is Escherichia coli, belonging to the genus Escherichia, Gram-stained, gram-negative, rod-shaped, non-spore-forming, motile and non-motile prokaryote (bacterium). The disease is also called white Diarrhea, its infectious nature was identified by Obix in 1865. It grows well in nutrient media like Pasteurella.

Etiology

The causative agent of the disease is Escherichia Coli. Except for some strains of serogroups 08, 09, 0101, it is a gram-negative bacillus with rounded ends, size 2-3 x 0.4-0.6 μm, does not produce spores and capsules. The pathogen is stored in the soil, manure, water and livestock buildings for 1-2 months. All types of young animals are susceptible to escherichia. This disease is widespread in nature, it is registered in all countries of the world. It has been found that the disease is common in all seasons, especially during childbirth. Among cows, the disease usually begins in late summer and early autumn, when lambs are weaned from their mothers and fed roughage. The source of the disease is considered to be sick and recovered animals. They constantly pollute the environment, pastures, and water with their feces and urine. The disease is transmitted mainly by alimentary, and in some cases by aerogenous means. In affected areas, the death rate of young animals reaches 70-100% and great economic damage is seen [2,4].

Colibacteriosis should be differentiated from non-infectious diarrhea, salmonellosis, streptococcosis, pasteurellosis, adeno, rota and coronavirus infections.

Salmonellosis is an acute infectious disease of all types of young animals that manifests itself in a septic form and enters the human body with animal products. The name of the bacterium comes from the American microbiologist Daniel Salmon, who discovered it in 1885.

Etiology

The causative agent belongs to the family of Salmonella enterobacteria, Salmonella abortus ovis infects sheep of all ages. Different causative serovariants cause disease in different animals. S.enteritidis and S.typhimurium in calves, Scholerae suis, S.typhimurium in pigs, S.abortus equi in foals, S.pullorum (S.gallinarum) in poultry. Salmonella gets into the intestine and multiplies, where it causes inflammation. All are motile bacteria, except for S. pullorum, which is gram-stained and visible under a simple microscope, gram-negative, rod-shaped, and does not form spores or capsules. Endotoxins released by the pathogen enter the blood through the lymph and cause septicemia. Septicemia reduces the activity of phagocytosis, the lungs, brain, joints, uterus and fetus are injured in animals. The animal dies as a result of the multiplication of Salmonella in all internal organs and the effect of endotoxins released from them. Acute septicemia occurs mainly in lambs. The body temperature rises to 41-42°C, breathing becomes difficult, the pulse quickens, diarrhea, blood in feces is observed. In 1-day-old eyes, death is observed up to 100%, recovery is observed in 2-5 weeks, but the growth and development of the animal is determined to be slow [2,4].

As a result of the mixed symbiotic effect of these pathogens, the complexity of clinical signs in the animal organism and the fact that the pathomorphological picture is not specific to one disease means that the diagnosis and treatment of mixed infections is complicated. In the diagnosis of mixed infections, using laboratory methods, growing pathogens from pathological materials prepared from various organs of animals in artificial nutrient media, carrying out serological tests, preparing a suspension from pet materials and inoculating laboratory animals under the skin of white mice, in the abdominal cavity 0.5 ml under the skin of rabbits, and 0.3 ml intramuscularly in pigeons, chickens and ducks. If the result is positive, the animal will die.

Various vaccines and hyperimmune serums are used to prevent and treat mixed infections.

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