European Journal of Agricultural and Rural Education (EJARE)
Available Online at: https://www.scholarzest.com
Vol. 3 No. 2, February 2022,
ISSN: 2660-5643

ABOUT THE DIAGNOSIS OF POULTRY NEWCASTLE DISEASE

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Article history:

Received: December 8th 2021
Accepted: January 10th 2022
Published: February 18th 2022

Abstract:

This article provides information about the Newcastle disease of birds, pathogen, epizootology, clinical signs, pathoanatomical changes that are important in the preliminary diagnosis of the disease, the importance of timely and accurate diagnosis in the prevention of the disease, and highlights that the final diagnosis is based on the results of laboratory tests. Information is provided on the use of serological diagnostics, IFT, PCR.

Keywords: Poultry, Newcastle disease, diagnosis, virus, paramyxovirus, prophylaxis, strain, infection, GATR, IFT, PCR.

INTRODUCTION.

Better satisfaction of the population's demand for meat, milk, eggs, honey, other livestock and food products depends in many respects on the further development of livestock, including poultry, which is one of its most lucrative industries, and increase production. 'liq. This will require reforms in poultry farms, as well as in other sectors, and further intensification of efforts to improve the provision of veterinary services in the public sector and in the public, private, peasant and farm sectors. Extensive work is being carried out in the country to ensure food security, as well as to develop poultry farming and further strengthen the feed base of the industry, as well as to support poultry businesses. Among the infectious diseases of poultry in the development of poultry is Newcastle disease, which causes their mass morbidity and mortality, causing great economic damage, its prevention and timely correct diagnosis, control measures -It is very important to hold events. Resolution of the President of the Republic of Uzbekistan "On additional measures for the development of poultry and strengthening the feed base of the industry" No PQ-5146 dated 14.06.2021 in the development of poultry in the country and Newcastle disease was programmatic in our research on

RELEVANCE OF THE TOPIC.

The problem of Newcastle disease control remains very relevant despite the availability and widespread use of specific preventive measures in industry and developing countries, as well as the implementation of strict quarantine and restrictive measures [1, 2, 3]. Chicken pox remains a serious problem both in unhealthy areas where it is common and in countries that have been free of it for decades. [5,6,7, 8, 9]. Many authors believe that the reasons for the emergence and spread of Newcastle disease are the migration of wild, exotic birds, the movement of sports pigeons, the movement of people and equipment, veterinary and sanitary regulations, and violations of poultry breeding and storage technologies. Uncontrolled sale of poultry products, feeding birds with contaminated feed, as well as long-term persistence of the virus in susceptible poultry are of great importance in the spread of this disease [3, 4].

To date, the causes of Newcastle disease in healthy farms, the mechanism of storage of the virus in the inter-epizootic period, the persistence of the pathogen in poultry and the periodic activation under stress, as well as the stability of stationary disease on the farm the reasons remain relevant [10, 11, 12, 13].

Timely and accurate diagnosis and follow-up preventive measures play a key role in the fight against infection. Diagnosis of the disease is based on a complex of epizootiological data, clinical signs, pathological changes and the results of laboratory tests. In the laboratory, the use of retrospective diagnostic methods - hemagglutination inhibition test (GATR), enzyme-linked immunosorbent assay (ELISA) is relevant.

Newcastle disease is a highly contagious disease of birds. Newcastle disease is most prevalent in chickens of all ages and breeds, including war chickens (gulangi, dakan), as well as turkeys, guinea fowl (sesarka), pheasants, and quail. The disease is also found in pigeons, geese, ducks, parrots and other species of birds.

The causative agent is a virus belonging to the RNA paramyxoviridae family and the paramyxovirus family. size 120-180 nm, appears in a circle under an electron microscope (Fig. 1) and hemagglutinates erythrocytes of chickens, pigeons, turkeys, guinea pigs, rams, cats.

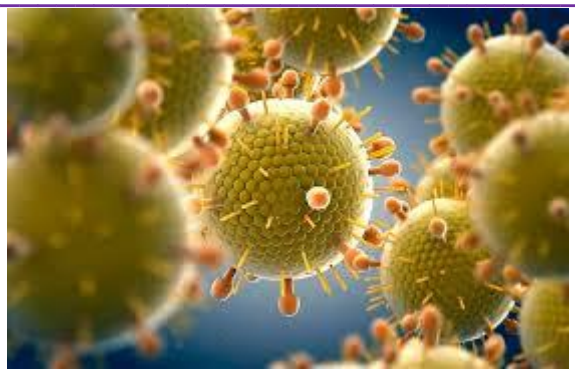

Figure 1. Newcastle disease virus

As the virus multiplies in the cells, it produces G-antigen and hemagglutinin (V-antigen). The virus kills the embryo when it is injected into the allantois and amniotic cavities of a 9-12 day old chicken embryo. In it the virus titer reaches 10-7 - 10-9 and the hemagglutinin titer reaches 1: 200 - 1: 2000. The virus develops well in 9-10-day-old chicken embryos. In nature, there are naturally weakened lentogenic strains of virulence: V1, La-Sota, Bor-74 and mesogenic strain - N. They are used in the manufacture of vaccines.

2-5% carbolic acid, formalin, 3% caustic soda inactivates in a few minutes. When the manure is biothermally disinfected, the virus is inactivated after 20 days. Chicken feathers are kept alive for 18 days, and eggs can live for years in refrigerated conditions.

Diagnosis of the disease is based on a complex of epizootiological data, clinical signs, pathological changes and the results of laboratory tests.

The study was conducted on 1,700 chickens and hens on various poultry farms.

The causative agent of the disease is the virus carriers of the patient and the patient (2-4 months). The virus is excreted from sick birds with all secretions, excretions and eggs. The virus begins to spread during the latent period of the disease, 24 hours after the bird is infected. The virus is transmitted by poultry, eggs, feathers, feathers, slaughtered meat, bedding, food, water, inventory, and transportation. When an infected egg is incubated, septicemia develops in the embryo and kills it. The dead embryo becomes red, swollen, and bleeding from the head and legs. The virus, which escapes through a fan from a building where sick birds live, travels 3-5 km with the wind.

Under natural conditions, the virus enters birds mainly through the respiratory tract and digestive mucosa. The virus enters the body through the respiratory tract, enters the bloodstream through the mucous membranes, and then causes disease. The disease can be transmitted mainly from imported poultry, feathers or eggs from unhealthy farms. The disease is transmitted through direct contact and through infected objects.

Food stored on unhealthy farms is also a factor in the spread of the disease.

On the farm, the virus is transmitted mainly through aerogenesis, water and eggs. Wild and synanthropic birds, ducks and geese serve as reservoirs of the virus. The disease is observed mainly in the absence of epizootics. The disease can occur at any time of year. However, it is more common in summer and autumn. It depends on the intensity of the business. In the summer, the disease is manifested by more injuries to the nervous system. The emergence of a stationary unhealthy epizootic outbreak in large poultry farms is due to the fact that the virus stays in the environment for a long time and continues to carry the virus. The disease has been reported to spread from one village to another or to the yard when it occurs on private farms. Morbidity is 100% and mortality is 60-90%.

CLINICAL SIGNS.

In chickens and hens, the incubation period is 3 to 10-12 days, depending on the age and immune status of the birds, the virulence of the virus, the dose, and the route of entry. Outbreaks appear to be exacerbated during the first 2-3 days of life, with unvaccinated poultry infecting all poultry on the farm. Poultry with low or no immunity to Newcastle disease are more likely to develop the disease. This is especially true for young chicks. They become completely weak, breathing becomes difficult. When he breathes in, he opens his mouth and stretches his neck, making a peculiar sound.

Sick birds become weak, lose their appetite, hang their heads, wings and tails with feathers fluttering, walk aimlessly or crowded, and have difficulty breathing.

Initially, the appetite is maintained, but the beak does not reach the food in the manger, then refuses to eat, and becomes comatose. Diarrhea is noted, the chicks sit with their heads and wings down, and mucous fluid flows from the mouth (Figure 2). Up to 90-100% of birds die within 2-3 days after the onset of clinical signs.

Figure 2. A sick bird sits with its head and wings down and leaks mucus from its mouth.

Timely and accurate diagnosis and follow-up preventive measures play a key role in the fight against infection. In semi-acute predominance of nervous symptoms, the birds experience increased agitation, impaired coordination of movements, walking like a mother hen, circling, and loss of balance. Frequent tremors of the head, convulsions, the neck of the bird is bent back and forth, the legs are stretched. The birds fall and cannot get up (Figure 3).

Figure 3. Nervous symptoms in sick birds

The disease is accompanied by diarrhea (diarrhea), green watery stools. The swallowing reflex is impaired, which is accompanied by paresis or paralysis of one or both legs.

PATHOLOGICAL CHANGES.

Pathological changes were also observed depending on the course of the disease.

The crown is blue and there is bleeding on the skin of the toes.

Acute septicemia is characterized by symptoms. Spotted hemorrhage was found between the pancreas and the stomach, in the small intestine, and in the rectum. Bleeding was detected in 100% of cases at the base of the appendix, in 98.2% of cases in the anterior part of the rectum, and in 60% of cases between the glandular and muscular stomach. Bleeding is also observed in the epicardium and ovaries. There is severe bleeding in the mucous membranes, swelling of the subcutaneous tissue of the head, neck and chest.

Figure 4. Bleeding between glandular and muscular stomach

In chronic cases, cachexia and feathers around the cloaca are contaminated with feces. Diphtheria ulcers, hemorrhage are observed in the intestine. The lungs become swollen with blood, there is less swelling, and pneumonia develops. The cerebral blood vessels swell and bleeding into the brain is observed. Exacerbation of the disease is necrotic hepatitis, fibrinous peritonitis, aerocystitis, ovariosalpingitis.

The final diagnosis is based on laboratory tests. To do this, in the acute phase of the disease in the laboratory quickly (within 1-2 hours) fragments of the lungs, heart, liver, brain and other organs through a specialist with a referral letter, thermojomo-danda, putting ice around it, in summer, the pathological material is conserved in 50% glycerin.

Patmaterial is sent to the allantois cavity of a 9-12-day-old chicken embryo, and in 48-96 hours the allantois fluid is tested for the presence of the virus in GAR, NR, GATR. Sterile pathological material for biosinov is injected into the muscle of a 2- to 4-month-old chick in the form of a suspension of 0.5-1 ml. After 3-5 days, the chicks become ill and die, and if the virus is weak, the chick's blood is tested for antibody titers on days 5 and 15 in GATR, PR, and CBR. In one of these reactions, an increase in the antibody titer in the second serum of at least 4 times compared to the first serum is indicative of Newcastle disease. Viral antigen is detected in the pathological material by IFT. Antibodies to this disease in poultry serum are detected in IFT or IDR. PCR is used to determine the type of virus antigen in the material.

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