OPEN ACCESS Freely available online

Poultry, Fisheries & Wildlife Sciences

Perspective

Threats of Newcastle Disease: A Poultry Pandemic

Kari Marit*

Department of Cell Biology, Hedmark University, Hedmark, Norway

DESCRIPTION

Newcastle Disease (ND) stands as one of the most significant and economically devastating viral diseases affecting poultry worldwide. Named after an outbreak in newcastle upon Tyne, England, in 1926, this highly contagious ailment has the potential to decimate entire flocks of birds, impacting the poultry industry and food security [1].

Understanding newcastle disease

Newcastle disease is caused by the Avian Paramyxovirus Serotype 1 (APMV-1), a member of the Paramyxoviridae family. The virus has various strains, ranging from mild to highly virulent, with the latter causing severe outbreaks. While primarily affecting domestic poultry, wild birds can also act as carriers of the virus, contributing to its widespread dissemination [2].

Symptoms of newcastle disease

Newcastle disease presents itself with a wide range of symptoms, which can vary depending on the strain of the virus and the affected bird's age, immunity, and overall health [3].

Respiratory symptoms: Birds may exhibit sneezing, coughing, nasal discharge, and gasping for breath due to respiratory distress [4].

Digestive problems: Affected birds often show signs of diarrhea, greenish feces, and a drop in egg production for laying hens [5].

Nervous system disorders: Newcastle disease can lead to neurological symptoms, such as twisting of the neck, paralysis, or circling behavior [6].

Swelling of the head and neck: Lumpy and swollen heads, wattles, and combs are common signs, leading to the disease's nickname, "fowl pest."

Transmission and spread

Newcastle disease spreads primarily through direct contact with infected birds or their secretions. It can also be transmitted indirectly through contaminated feed, water, equipment, clothing, or by wild birds and pests that carry the virus. The virus can persist in the environment for extended periods, making proper sanitation and biosecurity measures crucial in preventing its spread [7].

Economic impact

The economic consequences of newcastle disease are staggering. Outbreaks can lead to severe losses in the poultry industry [8].

Loss of livelihood: Small-scale poultry farmers, particularly in developing countries, often rely on their flocks for income and sustenance. ND outbreaks can devastate these communities.

Reduced poultry production: Infected birds experience a decrease in egg production and growth rates. In severe cases, entire flocks may have to be culled to prevent further spread.

Trade restrictions: Outbreaks of newcastle disease can result in trade restrictions for affected regions, impacting international poultry trade and causing financial losses [9].

Prevention and control

Preventing newcastle disease is a multifaceted approach that includes vaccination, biosecurity measures, and surveillance.

Vaccination: Vaccination is a primary tool in preventing newcastle disease. Both live and inactivated vaccines are available, with vaccination schedules tailored to the specific needs of the poultry population [10].

Biosecurity: Implementing strict biosecurity measures is essential to prevent the introduction of the virus. This includes maintaining clean facilities, controlling access to farms, and limiting contact with wild birds and other potential carriers.

Surveillance: Regular surveillance for newcastle disease is crucial to detect outbreaks early and contain them before they spread. Infected flocks should be isolated, and strict quarantine measures enforced.

Education and training: Farmers and poultry workers should receive training on recognizing the signs of newcastle disease and reporting suspected cases promptly.

Correspondence to: Kari Marit, Department of Cell Biology, Hedmark University, Hedmark, Norway, E-mail: kmarl@uib.no

Received: 28-Aug-2023, Manuscript No. PFW-23-26616; **Editor assigned:** 31-Aug-2023, PreQC No. PFW-23-26616 (PQ); **Reviewed:** 15-Sep-2023, QC No. PFW-23-26616; **Revised:** 22-Sep-2023, Manuscript No. PFW-23-26616 (R); **Published:** 29-Sep-2023, DOI: 10.35248/2375-446X.23.11.245

Citation: Marit K (2023) Threats of Newcastle Disease: A Poultry Pandemic. Poult Fish Wildl Sci. 11:245.

Global efforts

Internationally, organizations like the World Organisation for Animal Health (OIE) and the Food and Agriculture Organization (FAO) collaborate with governments and stakeholders to control newcastle disease. These efforts include research, capacity building, and the development of guidelines for prevention and control. Newcastle disease remains a persistent threat to poultry worldwide, with the potential for catastrophic economic and food security consequences. Prevention through vaccination, robust biosecurity measures, and vigilant surveillance are essential in controlling and mitigating the impact of this viral menace. As global efforts continue to combat newcastle disease, it is vital to raise awareness among poultry farmers and the public about the significance of early detection and reporting. Only through a coordinated and proactive approach can we hope to protect the poultry industry and ensure a stable and secure food supply for future generations.

REFERENCES

1. Nelson CB, Pomeroy BS, Schrall K, Park WE, Lindeman R. An outbreak of conjunctivitis due to Newcastle Disease Virus (NDV) occurring in poultry workers. Am J Public Health. 1952;42(6):672-678.
2. Kim SH, Samal SK. Newcastle disease virus as a vaccine vector for development of human and veterinary vaccines. Viruses. 2016;8(7):183.
3. Macpherson LW. Some observations on the epizootiology of Newcastle disease. Can J Comp Med Vet Sci. 1956;20(5):155-168.
4. Reichard KW, Lorence RM, Cascino CJ, Peeples ME, Walter RJ, Fernando MB, et al. Newcastle disease virus selectively kills human tumor cells. J Surg Res. 1992;1;52(5):448-53.
5. Kuruppu D, Tanabe KK. Viral oncolysis by herpes simplex virus and other viruses. Cancer Biol Ther. 2005;4(5):524-531.
6. Csatary LK, Bakács T. Use of Newcastle disease virus vaccine (MTH-68/H) in a patient with high-grade glioblastoma. Jama. 1999;281(17):1588-1599.
7. Mullen JT, Tanabe KK. Viral oncolysis. Oncol. 2002;7(2):106-119.
8. Csatary LK, Moss RW, Beuth J, Torocsik B, Szeberényi J, Bakács T. Beneficial treatment of patients with advanced cancer using a Newcastle disease virus vaccine (MTH-68/H). Anticancer Research. 1999;19(1):635-638.
9. Berry G, Parsons A, Morgan M, Rickert J, Cho H. A review of methods to reduce the probability of the airborne spread of COVID-19 in ventilation systems and enclosed spaces. Environ Res. 2022;203:111765.
10. Ganar K, Das M, Sinha S, Kumar S. Newcastle disease virus: Current status and our understanding. Virus Res. 2014; 184: 71-81.