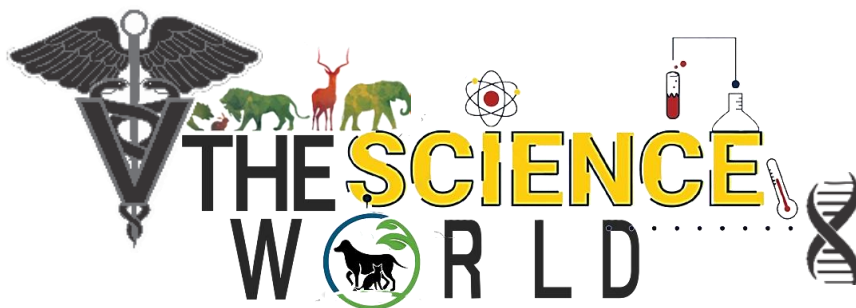




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Popular Article

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Newcastle Disease: The Silent Threat To Poultry Farming

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Abstract

Newcastle disease (ND) also known as Ranikhet disease in India, is a highly contagious viral disease of poultry caused by Avian Paramyxovirus Type-1. It affects the respiratory, digestive and nervous systems and remains a major economic threat to poultry production.

Keywords: Contagious, Newcastle disease

Introduction

Among the many diseases affecting poultry worldwide, Newcastle disease (ND) remains one of the most devastating known as Ranikhet disease in India, ND is a highly contagious viral infection capable of causing severe illness, dramatic reductions in productivity and mortality approaching 100 per cent during severe outbreaks {3}. The disease continues to threaten commercial poultry farms as well as backyard flocks resulting in substantial economic losses.

What is Newcastle disease?

Newcastle disease is caused by Avian Paramyxovirus Type-1 (APMV-1), a single-stranded RNA virus {3}. The virus primarily affects the respiratory, digestive and nervous systems of birds. Depending on virulence, ND viruses are classified into velogenic (highly virulent), mesogenic (moderately virulent) and lentogenic (mild) strains {2}.

Why Poultry Farmers Should Be Concerned

ND spreads rapidly within flocks and can affect birds of all ages. Losses occur through mortality, decreased egg production, poor growth, increased treatment costs and trade restrictions {3}. The disease is recognised internationally as a significant poultry health concern.



Newcastle disease in India

Outbreaks are reported regularly across multiple Indian states. Commercial poultry farms and backyard poultry populations serve as important reservoirs of infection. The virus's continuous circulation highlights the need for strong surveillance and vaccination programs.

Clinical Signs: Recognizing the Disease

Clinical signs vary according to the strain involved. Respiratory signs include coughing, sneezing, gasping, and breathing difficulty. Nervous signs include tremors, paralysis, circling, seizures, and twisted necks {2,3}. Digestive signs include loss of appetite and diarrhoea. Laying birds may show reduced egg production and poor egg quality {1}.

Post-mortem findings: Inside the Bird?

Post-mortem examination frequently reveals hemorrhages at the proventriculus-gizzard junction, intestinal lesions, lymphoid tissue damage, tracheal congestion, lung hemorrhages and reproductive tract abnormalities {3}. These findings are especially prominent in infections caused by velogenic strains.

Diagnosis: Why Laboratory Testing is Essential

Newcastle disease can resemble Avian influenza and other poultry diseases; hence, laboratory confirmation is essential. Common diagnostic methods include RT-PCR, real-time PCR, virus isolation in embryonated eggs, haemagglutination tests {3} and pathotyping procedures such as F-protein cleavage site sequencing and ICPI testing.

Control and Prevention

Effective control requires strict biosecurity, regular vaccination {1,3}, serological monitoring, visitor control, equipment disinfection, rapid reporting of suspected cases and safe disposal of dead birds. Community-based vaccination programs are particularly important for backyard poultry.

Future Challenges

Despite decades of vaccination, evolving virus genotypes, uneven biosecurity standards and the continued presence of infection reservoirs create ongoing challenges. Integrated farm-level and national-level disease control programs remain essential.

Conclusion

Newcastle disease remains one of the greatest biological and economic threats to poultry production. Strong vaccination programs, surveillance, laboratory confirmation, biosecurity and farmer awareness can significantly reduce the impact of this devastating disease.



Quick Facts Box

- Cause: Avian Paramyxovirus Type-1 (APMV-1)
- Common Name in India: Ranikhet disease
- Major Systems Affected: Respiratory, digestive and nervous systems
- High-Risk Birds: Young and unvaccinated birds
- Mortality: Can reach 100% in severe outbreaks
- Prevention: Vaccination and biosecurity

References

1. Viral Pathogens of Domestic Animals and Their Impact on Biology, Medicine and Agriculture.
2. World Organisation for Animal Health (WOAH).
3. MSD Veterinary Manual.

