

NEWCASTLE DISEASE

SUMMARY

Newcastle disease (NCD or ND) is a very infectious disease and is caused by specified viruses of the avian paramyxovirus type I (APMV-I) serotype of the genus Rubulavirus belonging to the family Paramyxoviridae. Chickens, Turkeys, quails, doves, ostriches, canaries and parrots are susceptible for the disease. Clinical signs are sudden death, respiratory signs, gastro-intestinal problems (for example diarrhoea), nervous signs. The severeness of the disease depends on the the pathogenity of the NCD virus and the susceptibility of the birds.

Diagnosis

Identification of the agent: Suspensions in an antibiotic solution prepared from tracheal and cloacal swabs (or faeces) obtained from live birds, or of faeces and pooled organ samples taken from dead birds, are inoculated into the allantoic cavity of 9-11-day-old embryonating fowl eggs. The eggs are incubated at 37°C for 4-7 days. The allantoic fluids of any egg containing dead or dying embryos as they arise, and all eggs at the end of the incubation period, are tested for haemagglutinating activity. Serological tests: The haemagglutination inhibition test is used most widely in ND virus serology, its usefulness in diagnosis depends on the vaccinal immune status of the birds to be tested and on prevailing disease conditions.

When investigations of NCD are the result of severe disease and high mortality in poultry flocks, it is usual to attempt virus isolation from recently dead birds or moribund birds that have been killed humanely. Samples from dead birds should consist of oro-nasal swabs, as well as samples collected from lung, kidneys, intestine (including contents), spleen, brain, liver and heart tissues. These may be collected separately or as a pool, although intestinal samples are usually processed separately from other samples.

Samples from live birds should include both tracheal and cloacal swabs, the latter should be visibly coated with faecal material. Small delicate birds may be harmed by swabbing, but the collection of fresh faeces may serve as an adequate alternative.

Therapy/Vaccins

Live viruses of low virulence (lentogenic) or of moderate virulence (mesogenic) are used for the vaccination of poultry depending on the disease situation. Inactivated vaccines are also used.

Live vaccines may be administered to poultry by various routes. They are usually produced by harvesting the infective allantoic/amniotic fluids from inoculated embryonating fowl eggs; some are prepared from infective cell cultures.

Inactivated vaccines are given intramuscularly or subcutaneously. They are usually produced by the addition of formaldehyde to infective virus preparations, or by treatment with beta-propiolactone. Most inactivated vaccines are prepared for use by emulsification with a mineral or vegetable oil.

Caution:

Live NCD virus vaccines may represent a hazard to humans. NCD viruses, both virulent and of low virulence for chickens have been reported to have infected humans, usually causing acute conjunctivitis following direct introduction to the eye. Infections are usually transient and the cornea is not involved.

