Infectious Laryngotracheitis Virus Vaccines: An Overview and Opinion

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Infectious laryngotracheitis viral infection of the respiratory tract of chickens which caused by ILT virus also called (\textit{Gallid herpesvirus 1}). It is a highly contagious disease characterized by severe respiratory distresses, conjunctivitis, coughing, expectoration of bloody mucus and drop in egg production. The name comes from the severe inflammation of the larynx and trachea. A diphtheritic membrane may form in the trachea, causing obstruction. Morbidity rate can reach up to 50-100% and mortality rate of 20-50% in unvaccinated flocks while the infected birds after recovery become lifelong carriers (latent).

The transmission of the ILT disease occurred by airborne spread either direct contact between healthy birds and the infected bird discharges or indirect contact with contaminated people, feed, water and equipments [1-4]. The Incubation period since entry of the virus till appears of the clinical signs varies from 5-12 days following natural exposure. Moreover, pathogenesis of the ILT virus replicates in upper respiratory tract of susceptible chickens without viremia.

The clinical signs of the diseases vary from gasping of air, dyspnea, lacrimation or ocular and nasal discharges, drop in egg production, sinusitis, conjunctivitis, coughing of mucus and blood on the walls of the farms [1, 2, 5]. Gross lesions are characterized with bloody clot occlusion of the lumen of trachea, caseous plugs, diphtheritic membrane on the trachea mucosa, by histopathology it is characterized by intranuclear inclusion bodies and formation of the giant multinucleated cells from fusion of epithelial cells (syncytia) [1, 6, 7]. The immunity to Infectious laryngotracheitis virus is mainly based on the cell mediated immunity (T cell immunity) and minor circulating and mucosal antibodies (Humoral immunity) [1, 8].

For controlling of Infectious laryngotracheitis virus can be achieved by application of sound bio-security measures and good management practices in the farm [1]. Furthermore, proper vaccination: there are conventional live modified vaccines and recombinant vaccines are available for ILT. The ILT live vaccines generated by multiple passages in either Chicken embryo/egg origin (CEO) vaccine applied by (eye drop or spray or drinking water) to chickens or tissue culture origin (TCO) vaccine applied by (eye drop) to chickens [1, 9, 10]. These kind of live vaccines have some limitation like:

- Post vaccinal respiratory reactions which can open the gates for other pathogens.
- REVERSION to VIRULENCE state from vaccinal strains (outbreaks).
- Latency/persistence in vaccinated birds (Carrier-Spread).
- Interference with other live respiratory vaccines (e.g Newcastle disease virus and infectious bronchitis virus).
- Revaccinations required in long lived birds.
The limitations of the live attenuated vaccines can be overcome by recombinant vaccines based on partial (glycoproteins) ILTV genes inserted in the herpes virus of turkey genome (HVT) or the recombinant vaccines are characterized with [1, 11]:

- Protects against MDV and ILTV (2 in 1) from day 1.
- No post vaccinal respiratory reaction (safe).
- No live ILTV (no reversion no latency no shedding).
- No interference with other live respiratory vaccines (e.g. Newcastle disease virus and infectious bronchitis virus).
- No re-vaccinations one single dose (long lasting protection).
- Convenient homogenous administration (Sub-cutaneous at hatchery day old or in-ovoby 18-d-old embryos) (Cost effective).
- Replacing ILT live vaccine by Innovax-ILT creates more room in vaccination program.

At the end live and recombinant vaccines both are valuable tools we need both of them you can use it according to the situation you face epidemiological, economical and according to the priority you may see.

References