

Fowl adenovirus in chickens: diseases, epidemiology, impact, and control strategies to the Malaysian poultry industry – a review

ABSTRACT

Fowl adenovirus (FAdV) infection is a major threat in commercial poultry farms which exerts serious economic impacts on the poultry industry. At the end of 2018, it was reported that a decrease of 9.0% in revenue to RM692.9 million was due to high mortality and low broiler production volume as a result of inclusion body hepatitis (IBH) outbreaks in Malaysia. Fowl adenovirus is a double-stranded DNA virus made up of 5 genotypes and 12 serotypes. The potential danger posed by this virus to the Malaysian poultry industry is hereby discussed. Fowl adenovirus serotype 8b has been reported to be predominant in Malaysian chicken where it causes IBH. It predominantly affects 3 to 7 weeks old broiler chickens as well as layer chickens. Inclusion body hepatitis has been reported in farms in the states of Perak, Johore, and Malacca in Malaysia with a mortality range of 9.6-30%. Morbidity is low and infected chickens may present crouching position with ruffled feathers and die within 48 hours or may recover. Recovered chickens usually indicate low feed intake, feed conversion, and weight gain. Typical IBH lesions include friable, and inflamed liver, petechial hemorrhages on the musculature, and microscopic basophilic/eosinophilic inclusion bodies in the hepatocytes. Fowl adenovirus can be transmitted vertically from hen to offspring through the eggs and cause disease conditions to chicks especially those with no or low maternal antibodies. It is also transmitted horizontally through contact with feces and fluids from infected birds or humans as well as contaminated fomites. Although adequate biosecurity measures could reduce the incidences of this infection, some strains are resistant to disinfectants. Therefore, the major form of control is vaccination which makes the development of live attenuated and potent inactivated vaccines imperative. To avoid a crisis in broiler meat production in the country, regional cooperations among major stakeholders in the Malaysian poultry industry are advised to eradicate this disease. Inclusion body hepatitis in Malaysia could cause a significant reduction in broiler meat production and therefore is a potential danger to the Malaysian poultry industry.

Keyword: Broiler chicken; Fowl adenovirus; Inclusion body hepatitis; Serotype 8b; Vaccine