

Oral administration of hyperimmune IgY: an immunoecological approach to curbing acute infectious bursal disease virus infection

Ausama A Yousif¹, Walaa A Mohammad, Mohammad H Khodeir, Abo Zeid A Abo Zeid, Ahmed A el-Sanousi, Mohammad S Saber, Ismail M Reda

Department of Virology, Faculty of Veterinary Medicine, Cairo University, Giza, Egypt.

PMID: 18689274

Infectious bursal disease (IBD) is one of the most important viral diseases of poultry. Hygienic management and proper vaccination are currently the only economic approach for control of this disease. Attempts have been made to control the disease after the onset of an outbreak using parenteral administration of hyperimmune IgY preparations. Such attempts are usually cumbersome and time consuming with an overall reduced economic return. We investigated the use of oral administration of hyperimmune chicken IgY to control IBDV outbreaks early after their discovery in poultry farms. Our approach attempted to change the environmental viral load around susceptible birds and, to modify the host's initial immune-contact with the virulent virus and the subsequent balance of the immune response to that virus. An experimental exposure/protection model that simulates a natural infection in susceptible populations was developed. IBDV hyperimmune yolk was orally administered to a group of IBDV-exposed susceptible layer chicks via drinking water. Disease patterns and mortality rates were monitored up to 10 days post exposure and compared to that in the exposed-untreated group of the same breed and age. Mortality rates dropped by 66.6% in the exposed-treated group compared to the control exposed-untreated group. Similarly, the morbidity shifted towards a milder syndrome in the exposed-treated group as compared to the control exposed-untreated group. To our knowledge, this is the first report of a successful control of an experimental IBDV infection in susceptible poultry populations using oral administration of hyperimmune yolk preparations.