THE EFFECT OF INFECTIOUS BURSAL DISEASE AND HEMORRHAGIC ENTERITIS VIRUSES ON IMMUNOCOMPETENCE OF TURKEYS

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ABSTRACT

THE EFFECT OF INFECTIOUS BURSAL DISEASE AND HEMORRHAGIC ENTERITIS VIRUSES ON IMMUNOCOMPETENCE OF TURKEYS

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This study was undertaken to ascertain the effects on turkeys of combined infection with hemorrhagic enteritis virus (HEV) and infectious bursal disease virus (IBDV) and the effect of single or combined infection with these viruses on subsequent infection with an otherwise non-pathogenic strain of avian influenza A virus. The first part of the investigation involved infection of groups of 5-week-old turkey poults with either IBDV or HEV or the two viruses combined. The effects of infection with these viruses were followed by histological examination of bursa and spleen from birds sacrificed at intervals post infection (PI) by measuring cellular immune response by whole blood blastogenesis assay with PHA stimulation and by measuring antibody response to IBDV and HEV in infected turkeys.

No clinical or pathological manifestations of infectious bursal disease were observed; however, poults infected with either IBDV or IBDV + HEV developed specific neutralising antibody to IBDV from day 6 PI. No clinical signs of hemorrhagic enteritis were seen in the turkeys infected with HEV or HEV + IBDV

but intranuclear inclusion bodies were observed in sections of enlarged spleens, mainly from days 6 through 14 PI. Occasional intranuclear inclusions were observed in the liver, but not in the bursa or the intestines. Infected poults developed specific precipitating antibodies to HEV by day 12 PI.

In the second part of the investigation, birds infected with IBDV or HEV singly or together were subsequently infected with a non-pathogenic avian influenza A virus. Attempts were made to isolate influenza A virus from selected organs harvested from birds at intervals post infection. Specific HI antibodies to influenza A virus infection were measured, as were cellular immune responses by whole blood blastogenesis with influenza A virus stimulation.

The results indicate that single or combined infection with IBDV and HEV did not exacerbate the invasiveness or clinical expression of influenza A virus in the turkey poults. IBDV and HEV individually or together caused a transient depression of cellular immune responses early in the infection but did not significantly affect the humoral immune responses of the turkeys when the two viruses were administered separately or together.