Effect of experimental infections of various Tembusu virus strains isolated from geese, ducks and chickens on ducklings

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Abstract

In order to compare the pathogenicity of different Tembusu virus (TMUV) strains from geese, ducks and chickens, 56 5-day-old Cherry Valley ducklings which were divided into 7 groups and infected intramuscularly with $7 \times 10^5$ PFU/ml per duck of six challenge virus stocks. The clinical signs, weight gain, mortality, macroscopic and microscopic lesions, virus loads in sera of 1, 3, 5, 7, 11 and 14 dpi and serum antibody titers were examined. The results showed that these viruses could make the young ducks sick, but the clinical signs differed with the different species-origin strains. All the experimental groups lose markedly in weight gain compared to the control, but there were no obvious distinctions in weight gains, as well as macroscopic and microscopic lesions of dead ducks between the infected groups. However, the groups of waterfowl-derived strains (from geese and ducks) showed more serious clinical signs and higher relative expressions of virus loads in sera than those from chicken-derived. The mortality of waterfowl groups was 37.5%, and the greatest mortality of chicken groups was 12.5%. The serum antibodies of the geese-species group JS804 appeared earlier and were higher in the titers than others. Taken together, the pathogenicity of waterfowl-derived TMUV was more serious than chicken-derived TMUV and JS804 could be chosen as one TMUV vaccine strain to protect from the infection.

Key words: goose-derived, duck-derived, chicken-derived, Tembusu virus, pathogenicity