

Pathogenicity of Salmonella enteritidis phage types 6A and 7 in experimentally infected chicks

ABSTRACT

Pathogenicity of Salmonella enterica serovar enteritidis (S.E) phage types (PTs) 6A and 7 were determined in orally inoculated newly hatched specific pathogen free (SPF) chicks. Clinical signs and mortality were observed daily. Body weights, bacterial isolation, gross lesions and histological lesions were recorded on days 1, 3, 5, 7, 14 and 21 post inoculations (pi). Out of 15 newly hatched SPF White Leghorn chicks, five chicks were randomly separated to confirm the SPF status of the chicks before inoculation. The remaining chicks were divided into three sacrificed groups (A, B and C) of 30 chicks each and their respective three mortality groups (MA, MB and MC) of 20 chicks each. Groups A and MA, and groups B and MB were inoculated orally with 0.1mL containing 10⁷ cfu of SE PT6A (UPM-0527) and SE PT7 (UPM-0530), respectively. The un-inoculated groups C and MC served as negative controls. Chicks in groups A and B showed clinical signs of depression, anorexia, ruffled feathers, vent pasting and diarrhea starting from day 1 pi. Lifting of wings from thorax was observed in group A and B from day 1 and 5 pi, respectively. There was significant difference ($p < 0.05$) in body weight gain among the inoculated and the control groups on days 14 and 21 pi. Growth index values were 0.035, 0.036 and 0.037 for groups A, B and C, respectively. Mortality of 20% was recorded only in MA group. Gross lesions of unabsorbed yolk, airsacculitis, fibrinous pericarditis, fibrinous perihepatitis, enlarged kidneys, splenomegaly and dehydration were observed in about 15% of sacrificed chicks in group A and 10% in group B. Mild to moderate lesions were observed under microscope. Salmonella was isolated from the cultured samples of group A and B throughout the experiment period with the individual variation of chicks and samples. It was concluded that newly hatched SPF chicks are susceptible to PT6A and PT7 infections. These SE PTs are mild to moderately pathogenic for SPF chicks. SE PT6A is more pathogenic than SE PT7.

Keyword: Salmonella Enteritidis; SE PT6A; SE PT7; SPF chicks; Colony forming units; Pathogenicity