Serological surveillance of avian influenza virus and canine distemper virus in captive Siberian Tigers in Northeastern China

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Abstract

In order to understand infection of avian influenza A virus (AIV) and canine distemper virus (CDV) in the Siberian Tiger in Northeast China, 75 Siberian Tiger serum samples from three captive facilities in northeastern China were collected. AIV and CDV antibody surveillance was tested by using hemagglutination inhibition and serum neutralization methods. The results showed that the seroprevalence of H5 AIV, H9 AIV and CDV was respectively 9.33% (7/75), 61.33% (46/75) and 16% (12/75). In the 1< years <2 and > 5 year-old group, the seroprevalence of the H9 AIV was 24% and 80% (P < 0.01), and the CDV seroprevalence was 6% and 36% (P < 0.01), respectively. It was demonstrated that 3 (4%) out of 75 serum samples were AIV+CDV seropositive, with 2.67% (2/75) in H9+AIV and 1.33% (1/75) in H5+H9+AIV. To our knowledge, this is the first report of AIV and CDV seroprevalence in Siberian Tigers in China, which will provide base-line data for the control of AIV and CDV infection in Siberian Tigers in China.

Keywords: influenza A virus, canine distemper virus, serological, Siberian Tiger

Introduction

Infection with avian influenza A virus (AIV) and canine distemper virus (CDV) has been reported to threaten the survival of endangered tigers as a newly emerging disease. Influenza A virus infection in tigers was first reported in 2002 (Xia et al. 2003), and H5N1 AIV was then identified from tigers that had died of respiratory distress in zoos (Mushtaq et al. 2008, Fukui et al. 2013, He et al. 2015). Furthermore, some cases of canine distemper in captive and wild tigers had been reported (Myers et al. 1997, Seimon et al. 2013).