An Inactivated H5N2 Vaccine Reduces Transmission of Highly Pathogenic H5N1 Avian Influenza Virus Among Native Chickens

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Received 4 November 2008; revised 18 February 2009; accepted 24 February 2009

Abstract

Vaccination against H5N1 highly pathogenic avian influenza in endemically affected areas is a potentially attractive option for local prevention and control. In Indonesia the majority of local outbreaks have occurred in back yard flocks with native chickens, and it is therefore of interest to determine whether these birds can be protected against infection by vaccination. To this end two transmission experiments were carried out with H5N1 virus (A/chicken/Legok/2003) in vaccinated and unvaccinated native chickens. The vaccine contained an inactivated heterologous H5N2 strain (A/turkey/England/N28/73 H5N2). Birds were vaccinated at 4 and 7 weeks of age and challenged at 10 weeks of age. During 10 days post-challenge tracheal and cloacal swabs were taken for virus isolation, and serum blood was collected regularly to measure haemaglutinin inhibiting (HI) antibody responses. The results show that transmission of H5N1 virus was rapid and efficient in unvaccinated birds, that infection and transmission were completely prevented in vaccinated birds, and that vaccinated birds that were exposed to unvaccinated inoculated birds were still protected from infection. These findings indicate that vaccination with a heterologous H5N2 vaccine is able to prevent virus transmission in flocks of native chickens.

Keywords: Avian influenza; Native chicken; Vaccination; H5N1; Transmission