Evaluating the efficacy of recombinant HVT-H5 vaccine in commercial broiler chickens carrying maternally derived antibody (MDA) to AI under field condition in Egypt

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The protection of broiler chickens vaccinated in the hatchery with a rHVT-H5 vaccine expressing the HA gene from a H5N1 strain was evaluated against challenge with two different Egyptian HPAI “antigenic variant” H5N1 isolates. The chickens were reared in an industrial farm and at six weeks of age randomly selected chickens were challenged with the antigenically divergent A/chicken/Egypt/1709-6/2008 isolate in BSL3 facility. The results demonstrated 100% clinical protection and significant reduction viral shedding. Good humoral immune response was detectable from the 4th weeks post-vaccination. In another trial, broilers vaccinated either with the rHVT-H5 alone or in combination with inactivated reassortant H5N1 vaccine were challenged with the 2008 isolate at four weeks of age. Challenge of chickens from the rHVT-H5 vaccinated group with a H5N1 isolate from 2010 (A/Chicken/Egypt-63/2010) was performed at 5 weeks of age. For comparison, birds vaccinated only with the inactivated vaccine at one or 7 days of age were also tested. rHVT-H5 alone or in combination with the inactivated vaccine gave high level of protection both against the 2008 (93-100%) and 2010 (80%) isolates. The inactivated vaccine applied alone either at day old or at 7 days of age gave significantly lower protection (26.7% or 40%, respectively). The lowest level and shortest period of shedding were obtained in those groups that received rHVT-H5 either alone or in combination with inactivated vaccine, these vaccination regimes induced good humoral immune-response from 4th weeks of age. The immune response to inactivated vaccine was impaired by MDA.