

Continuous Evolution of Respiratory viruses in mixed infections in chickens demonstrating mortalities strike the poultry industry in Egypt

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Continuous evolution of H5N1 avian influenza viruses have been reported since 2008 till now. From the early months of 2011 frequent incidences of avian influenza H9N2 viruses infections have been observed in the commercial flocks in Egypt. Evolutionary analysis in 2014 revealed the continuous evolution of the H5N1 and H9N2 Egyptian strains where predominant strains belongs to the classical genetic cluster of the 2.2.1 H5N1 viruses (group V) and group B of G1 lineage H9N2 with divergence of at least four distinct genetic clusters were characterized . Interspecies transmission of avian influenza viruses from avian species to mammalian hosts does occur in some countries and becomes of public human interest. Possible reassortment may occur between these avian viruses and human H1&H3 influenza viruses leading to the emergence of new influenza viruses like those recently reported in China in which it was proved that the origin of human H7N9 AIV during 2013 was H9N2 AIV. On the other hand, the co-circulation of variant strains of Infectious bronchitis virus (IBV) with other respiratory viruses including NDV and AIVs caused a major problem in the Egyptian poultry industry. Phylogenetic analysis of chicken tracheal samples collected in different Egyptian governorates during 2012 to 2014 proved the co-infection of IBV and other respiratory viruses (NDV, H5N1 and H9N2) with contentious evolution of variant 2 group of IBV of great similarity with Israeli IB strains (IS/1494/06- and IS/885/00). We reports the co-circulation of different IB strains in mixed infections with Chinese VIRD of NDV and/or H5N1 and/or H9N2 viruses in broiler sectors demonstrating variable levels of mortalities reached in some flocks to 60%. The study highlight the importance of regular monitoring for evolution and epidemiology of field strains for detecting the emergence of new variant strains as well as evaluating the existing control strategies for such viruses.

Key words: Quasispecies; Serotypic; Genotypic; Co-circulation; Evolution.

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