

Molecular studies on Newcastle Disease virus isolated from chicken farms of Suez Canal Area in 2015

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Abstract

Specific pathogen free (SPF) chicken eggs were used for the isolation and propagation of the circulating NDV strains in Suez Canal Area governorates (Ismailia, Suez and Port Said). A total of 532 swabs and tissue suspensions from different organs of diseased chicken were used to isolate NDV strains. The inoculated embryos were hemorrhagic and smaller in size 3 days post inoculation (3dpi). Identification of NDV in tissue samples and Seroprevalence of NDV in Suez Canal Area using Hemagglutination inhibition (HI) test. Our results indicated that many virulent (velogenic) strains of NDV are currently circulating. In this study, 20 farms were represented for a molecular studies on Newcastle disease virus isolated from chicken farms of suez canal area in 2015 (ND-Ismailia-2015, ND-suez-2015)isolates from lung, trachea and proventriculus samples of broiler and layer farms exhibiting some clinical and postmortem signs. Nucleotide and amino acid sequence analysis and blast indicated that Ismailia and Suez isolates have relationships with china 2011 and they are clustered together (with 99% identity) while other vaccine strain (lasota) was in another group (with 91% identity).The nucleic acid sequences of the isolated virus detected in this study are closely related to those from known strains of velogenic virus circulating globally from GenBank at its cleavage site and clustered with class II genogroup VII lineage of NDV. The Ismailia 2015 isolate strain has amino acid (a.a.) Threonine (T) differ than Suez 2015 strain Alanine (A).

Key words: Newcastle disease virus, vaccine, chicken

Introduction

Newcastle disease virus (NDV) one of the most important livestock disease affects chickens, causes a major disease problem of poultry in many countries of the world especially Africa and Asia (**Spradbrow, 1992; Awan *et al.*, 1994 and Oladele *et al.*, 2005**). Newcastle disease (ND) is a highly contagious avian disease that affects poultry, other domestic and wild bird species, over 250 species (**Alexander and Senne, 2008; Cattoli *et al.*, 2011**).

The causative agents of ND are virulent strains of ND virus (NDV) that known as APMV-1 (avian paramyxovirus serotype 1) of the *Avulavirus* genus and Paramyxoviridae family which is an enveloped, negative-sense, single-stranded RNA