The Effect of Vaccinated and Unvaccinated Bridles Flocks on Identification of *Avian Metapneumovirus (aMPV)* and *Ornithobacteriumrhinotracheale (ORT)* in the Middle Euphrates Region in Iraq

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Abstract

The swollen head syndrome is one of the most upper respiratory problems in poultry that causing high economic loss in poultry,SHS is infected of all ages mainly 4-6 weeks old with morbidity may reach to 10% and mortality about 2%, Avian metapneumovirus (aMPV)Is one of the most important etiological factors that causing swollen head syndrome (SHS), (aMPV) is a member of sub family Pneumovirinae under the family Paramyxoviridae, also this family characterized by RNA non segmented negative sense genome, Ornithobacteriumrhinotracheale (ORT) It is one of most important etiological factor of (SHS) is one of a contagious disease that capable to infect avian species, primarily in turkeys and chickens, causing marketable respiratory distress, decreased growth, and mortality will be depending on many factors like combination with viral infection like aMPV. Study the effect of vaccinated flocks with (ND, IB, IBD) with identification of *Avian metapneumovirus (aMPV)* and *Ornithobacteriumrhinotracheale (ORT),* in middle Euphrates region in Iraq.

Keywords: *Vaccine; Avian metapneumovirus; toxicity; bridles.*

Introduction

Swollen head syndrome is a disease of chickens of all ages mainly 4-6 weeks old with morbidity may reach to 10% and mortality about 2%.[1] The affected birds show depression, decrease the feed intake, nasal exudate, sneezing, coughing and conjunctivitis then many progress to facial edema which start around eye extending over the head and descending to submandibular tissues also, nervous signs may be seen like the etiology of SHS is uncertain and it is torticollis, opisthotonos, and incoordination[2].

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O. rhinotracheale is one of Gram-negative, pleomorphic rod-shaped bacterium causing upper respiratory disease in the commercial poultry industry[3], belonging to superfamily VrRNA and it is one of the family of Flavobacteriaceae also it is from the Cytophaga_ lavobacterium_Bacteroides descending genetic line. ORT[4], first time isolated in Germany in 1981 from five-week old turkeys showing nasal discharge, facial edema and fibrinopurulent airsacculiti[5], and first isolation in united states was in 1989, In 1993, it was formally characterized. In 1994, after isolating and evaluating 21 strains associated with various respiratory tract infections, Ornithobacteriumrhinotracheale was given its current name[6].

Avian metapneumovirus, also recognized as turkey rhinotracheitis, is a part of the subfamily Pneumovirinae[7] in the family Paramyxoviridae, induces widespread turkeys, and chicken flocks and many other bird species such as pheasants, Muscovie duck and guinea fowl.

Geese, most other ducks and potentially pigeons are suggested to be disease[8]. The infection with aMPV is characterized by an inflammation of the high respiratory tract in poultry and also considered a known risk factor for triggering swollen head syndrome (SHS) in broiler and broiler breeders also loss of egg production in layers had been reported[9], as it is well known as main etiological factor in chickens that have secondary bacterial infections complicate the development of the typical SHS by organisms like ORT[10].

Present study amide to identify the effect of vaccinated flocks with (ND, IB, IBD) with identification of *Avian metapneumovirus (aMPV)* and *Ornithobacteriumrhinotracheale (ORT),* in middle Euphrates region in Iraq from typical infected flocks with swollen head syndrome .

Material and Method

The collection of samples was carried out during the period from the beginning of September 2018 till end of August 2019 on 67 poultry farms them ages ranged between (3-6) week old, three to four typical SHS cases were taken from each farm and pooling together in one it have been preserved on transport media and uploaded on FTA cards in the same time[11].

The fields that were surveyed were distributed in the middle Euphrates region and from several governorates as shown in table (1).

Table number (1) That show number of infected farms in middle Euphrates region

Government	Samples number	Samples code
Baghdad	2	B
Wasit	10	W
Karbala	14	K
Al Muthanna	7	M
Najaf	13	N
Al-Qadisiyyah	21	Q

The samples were divided in to two groups the first one that put in transport media (indirect method) then carry to laboratory for culturing and detection, the second group put on FTA card (direct method)[9] to saving genetic materials for microorganism and detection by using RT-PCR, each FTA cards that have four wells each well capable to save four samples, so (2-4) samples were uploaded on each well of FTA cards.

Data statistical analytic and presentation: Data were analyzed and presented using PRISM Graphpad 8, numbers application for MAC 11, SPSS 16.0 and Microsoft exile 2010 the obtained data was checked for normal distribution by using Shapiro□Wilk test. A mixed-model analysis of variance (T-test) was used to compare the differences of mean among variable groups; the significance was tested using A mixed model (T-test) value less than 0.05 were considered statistically significant. Our data were presented as stander error mean ± (SEM).

Calculation of percentage rate: The equation for percentage calculation was used to calculate the percentage of infection and mortality rate in this study .

$$percentage = \frac{part\ of\ sample}{all\ sample\ numbers} \times 100\%$$

Result and Dissection

There is no vaccinated for *Avian metapneumovirus* & *Ornithobacteriumrhinotracheale* in Iraq at this moment so, Therefore, the common vaccinations of broiler flocks as (ND, IB, IBD, Avian flu vaccinations) were relied upon to study their effect on the isolation rate for aMPV and ORT, the results were no significant difference between vaccinated flocks and non-vaccinated[12].

The reason due to there is no matching between the etiological local strain and commercial vaccine strain, which leads to a high probability of infection of the broilers flocks with infectious respiratory diseases or diseases that suppress the immune system, then leading to their susceptibility to infection with *Avian metapneumovirus* or *Ornithobacteriumrhinotracheale*[13].

On the other hand, poor storage of vaccines and the wrong vaccination method leads to the ineffectiveness of the vaccine, which causes a high probability of infection the flocks with virus diseases to be vaccinated against it[14].

Conclusions

In infected poultry flocks that infected with ORT and aMPV were no significant different between vaccinated and no vaccinated flocks agents ND,IBD and IB this retarn to bad vaccination program in Iraq also due to un matching between the local strain and commercial vaccine that available in Iraq .

Ethical Clearance: The Research Ethical

Committee at scientific research by ethical approval of both MOH and MOHSER in Iraq.

Conflict of Interest: None

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