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Incidence of Infectious Bronchitis Disease in and around Hyderabad

Zaibun-Nisa Memon, G. S. Gachal, M. Yousuf, M. A K. Arian* A. H. Soomro* and M. Khaskheli*

Department of Zoology, University of Sindh, Jamshoro

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Abstract

The study was conducted to determine the incidence of infectious bronchitis a viral disease at different broiler farms of Hyderabad district from 1999-2001. The survey was made at regular intervals for the presence of IBV disease and from the official record of the Disease Diagnostic Laboratory of Directorate of Poultry Production Hyderabad, Sindh. Among the 25 surveyed farms a total of 463100 birds examined out of which 982 birds were affected. Whereas the total mortality recorded was 0.16%. The highest mortality rate (0.19%) was recorded from commercial broiler farms of Hala , while lowest mortality rate was from T. Allahyar (0.13 %). Whereas it was observed that highest number of birds infected were in Hala (0.25%) and lowest in Tando Allahyar (0.18%). It was also recorded that the highest percentages of birds survived the infectious bronchitis virus disease were from Tando Allayar (23.95%) whereas lowest were from Tando Muhammad Khan (17.97%).

Keywords: Incidence, infectious bronchitis, broiler farms, Hyderabad

1. Introduction

The Commercial broiler farming is widely practiced in Pakistan and has made the considerable contribution in the economy of country. Until 1964 poultry production was a cottage industry in Pakistan. The management and production on modern scientific lines was not known and disease control measures were also not sufficient. Due to the insufficient marketing system and unhygienic conditions the poultry industry is facing different problems including the incidence of various viral and bacterial diseases.

Infectious bronchitis (IB) is an acute, rapidly spreading, highly contagious respiratory disease caused by infectious bronchitis virus (IBV), which belong to corona virus group is worldwide in distribution and has numerous serotypes. It is an enveloped, single stranded RNA virus. The virus is fairly labile (fragile) being easily destroyed by disinfectants, sunlight, heat and other environmental factors. IB virus is spread by the respiratory discharges and feces. Spread of the disease through a flock is very rapid and transmission from farm to farm is related to the airborne droplets, ingestion of contaminated feed and water, and contaminated equipment and clothing of persons handling birds and movement of vehicles from farm to farm. Following infection, chickens may remain carriers and shed the virus have been found in several countries (Cook *et al.*, 1996). Earlier reports indicated that IB was primarily a disease of young chicks. However, it was later observed to be common in semi-immature and laying flocks (Broadfoot *et al.*, 1956). Many times, the IB virus may spread through the flock without producing obvious clinical signs of disease except a mild cough. However, the disease is characterized by respiratory signs including gasping, coughing, sneezing, tracheal rales, and nasal discharge. In young chickens, severe respiratory distress may occur. In layers, respiratory distress, decrease in egg production, and loss of internal egg quality and eggshell quality are reported. In broiler chickens, IBV infection is a major cause of poor feed conversion, reduced growth rate, and condemnation of meat at processing. Nephropathogenic strains can produce interstitial nephritis with high mortality (up to 60%) in young chickens. In most outbreaks, however, mortality rate is 5%.

* Faculty of Animal Husbandry and Veterinary Sciences, Sindh Agricultural University, Tando jam.

The incidence is not constant through out the year, being reported more often during the cooler months. Vaccines were first used in the 1950s to reduce the losses. Prevention of IB is best achieved through an effective vaccination program modified live vaccines to provide immunity to the flock.

The objective of this work deals with outbreaks of avian IB that occurred among commercial broiler flocks in Sindh during 1999-2001.

2. Materials and methods

1. Experimental material and source of data.

Three years data from 1999-2001 was collected from 25 commercial broiler farms of district Hyderabad. Five farms each were randomly selected from Hyderabad, Hala, Tando Mohammad Khan, Tando Allahyar and Tandojam to record the incidence of infectious bronchitis. The data was collected by regular survey of these farms and from the official record of the Disease Diagnostic Laboratory of Directorate of Poultry Production Hyderabad, Sindh. This data was statistically analyzed to study the year wise occurrence of Infectious bronchitis virus disease in commercial poultry farms for following parameters.

1. Number of birds examined for Infectious bronchitis disease
2. Number of birds affected with Infectious bronchitis diseases
3. Number of birds died due to Infectious bronchitis diseases
4. Number of birds survived from Infectious bronchitis diseases

The following formula for calculating percentage, number of birds affected, died, and survived according to the method suggested by Halpin (1975) to document the incidence of infectious bronchitis among the farms surveyed.

No: of birds affected

1-Percentage of birds affected =---------- X 100

No: of birds Examined

No of birds died

2- Percentage of birds died = ----------X 100

No of birds affected

No of birds survived

3-Percentage of birds survived = --------- X 100

No of birds affected

3. Results and discussion

The Table 1 revealed that during the present investigation a total of 463100 birds were examined for infectious bronchitis virus disease in five different cities of Hyderabad district. According to these results highest mortality rate (0.19%) (Fig-1) was recorded from commercial broiler farms of Hala city, while lowest mortality rate was from Tando Allahyar (0.13 %), (Fig.1) while highest number of birds were infected in Hala city (0.25%) and lowest was recorded in Tando Allahyar city (0.18%), (Fig.1). The highest percentages of birds were survived from infectious bronchitis virus disease from Tando Allayar city (23.95%) while lowest were from T.M Khan (17.97%). (Fig.1). These results are in agreement with the findings of Wang *et al.*, (1996), they isolated seven strains of infectious bronchitis virus from 5 broiler farms in Taiwan during 1992; the signs of disease recorded in broilers were respiratory distress, renal urate deposition and death.

Infectious bronchitis is a highly infectious viral disease characterized by respiratory symptoms increased mortality and decreased egg production (Butcher *et al.*, 1990). This could occur at any stage

of the chicken's life and during any season of the year. However, it was found to be more prevalent (35.7 %) in 7 days to 5 weeks of age with special reference to its higher incidence (66.6%) in the winter.

Name of city/ Town	No. of birds examined	No. of birds affected	(%) of Birds affected	No: of birds died	No. of birds survived	(%) of Birds survived	Mortality (%) on total no: of birds examined
Hyderabad	127100	260	0.20	201	59	22.6	0.15
Hala	66800	167	0.25	128	39	23.35	0.19
T. M. khan	83300	178	0.21	146	32	17.97	0.17
T. Allayar	96200	182	0.18	133	49	26.92	0.13
Tando Jam	89700	195	0.21	148	47	23.95	0.16

Table 1. Number of birds examined, affected, died, survived and over all percentage of mortality

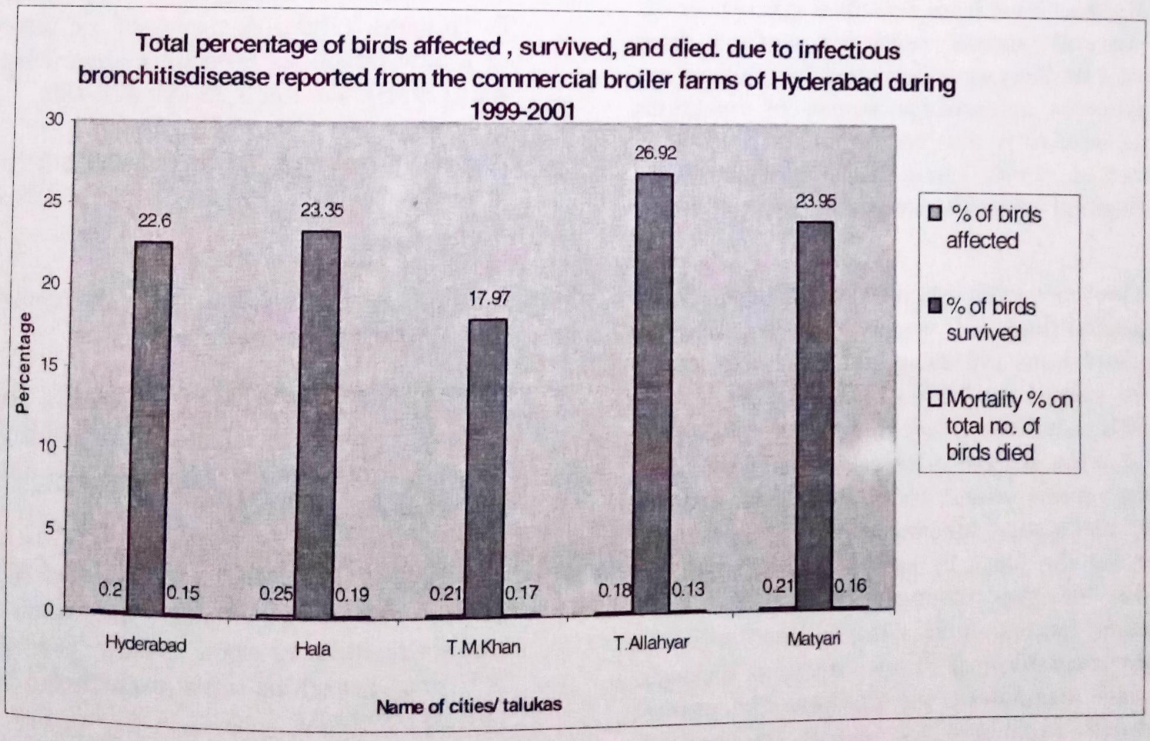

Fig.1. Rate due to infectious bronchitis reported from the commercial broiler Farms of Hyderabad during the 1999 - 2001.

The higher incidence in young chicken was attributed to poor immunity development during the first few weeks of life. Similarly, winter conditions could have also favored the incidence of infectious bronchitis because of stressful conditions; however the maintenance of a healthy environment would further reduce the incidence of the disease. As a second line of defense, chickens in infectious bronchitis problem areas should be vaccinated with modified live vaccines to provide protection. The multiplicity of serotypes identified in the field presents a challenge in designing an effective vaccination program. To be successful in protecting chickens against challenges it is essential to determine the cross- protective potential of available vaccines.

In Australia, two genotypically distinct groups of strains have been described, some of them exhibiting nephro-pathogenicity (Sapats *et al.,* 1996), in Japan, infectious bronchitis virus strains with additional tropism for tissues other than the respiratory tract have been described (Ostsuki *et al.,* 1990). Several variant serotypes isolated from commercial broilers were described by (Gelb *et al.*, 1991), whereas enterotropic strains of infectious bronchitis virus have also been reported in the U.S. (Karaka *et al.,* 1990; Lucio and Fabricant, 1990), and in England (Ambali and Jones 1990; Ambali, 1992).

However, even when IBV is detected in an IBV-suspected flock, it is important to exclude other possible (infectious and non-infectious) causes of the disease to minimize the risk of confusing a sub-clinical IBV infection or long-term recovery with the real cause of the disease. A permanent monitoring of circulating strains would be advisable in order to adapt the vaccination scheme to the field situation. However, on the basis of past experience and the complexity of the interactions between these predisposing factors, it is virtually impossible to predict the emergence of future infectious diseases. Despite this uncertainty, we do have the current technological capability to rapidly respond to emerging infectious diseases in terms of identification and diagnostic techniques and, to a lesser degree, with vaccines and therapeutic agents.

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