Retrospective Study on the Occurrence of Infectious Bursal Disease and Newcastle Disease in Orlu, Imo State

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Abstract

Incidences of both Newcastle Disease (ND) and Infectious Bursal Disease (IBD) are common in Nigeria, leading to high morbidity and mortality, high treatment costs, loss of genetic resources and reductions in egg production in affected flocks. This study investigates factors that influence the incidences of ND and IBD in Orlu, Zone, Imo State over a one year period from September 2011 to August 2012. A total of 68 cases were recorded from retrospective analyses of data from farm records and from questionnaires. The incidence of ND was 56% while IBD was 44%. Both diseases showed seasonal variations with higher occurrences recorded during the rainy periods of the year. Management factors also affected the rate of occurrence for both diseases with farms using deep litter system recording the highest occurrence for both diseases. Educational background of farmers were also factors that affected incidence of both diseases with First School Leaving Certificate (FSLC) holders recording the lowest cases for both ND and IBD, while farmers with higher education recorded more. Farmers generally showed preference for veterinary intervention than for self medication and other forms of interventions including consulting friends and other farmers. Again, FSLC holders were the ones that most frequently consulted veterinarians. Thus, the incidence of Newcastle disease and infectious bursal disease outbreaks vary according to seasons, management practices and educational background of farmers. Therefore a consideration of these factors must be integral for any control and monitoring measures for both diseases to be effective.

Keywords: Newcastle disease, infectious bursal disease, farmers, veterinary intervention

Introduction

Newcastle Disease (ND) and Infectious Bursal Disease (IBD) represent two of the commonest and most dreaded avian diseases encountered by poultry farmers in Nigeria (Oluwayelu et al., 2014). Losses due to both diseases can be enormous with far reaching consequences to the farmer’s investments. Routine vaccination programmes remains one of the strongest control measures for both diseases (Elankumaram et al., 2006). However, even with these instituted vaccination programmes, occurrences and results of control measures for both ND and IBD can be varied and sometimes unpredictable especially without good quarantine and proper biosecurity (Elankumaram et al., 2006).

This study seeks to investigate possible factors that influence the occurrences of both ND and IBD in Nigeria using farms in Orlu zone of Imo State as a case study.

Materials and Methods

This study was carried out in 12 Local Government Areas of Orlu Imo State (latitude 4°45’N and 7°15’N, and longitude 6°50’E and 7°25’E) from September 2011 - August 2012. Five farms in each Local Government Area were randomly sampled. Questionnaires were distributed in each farm. Oral Interviews was conducted with veterinarians, farm managers, staff and attendant in each farm. Farm record books were also studied.

Results and Discussion

A total of 68 cases were recorded from retrospective analyses of data from farm records. The incidence of ND was 56% while IBD was 44%. Analysis of the results showed how different factors seem to affect the frequency of occurrence of Infectious Bursal Disease (IBD) and Newcastle Disease (ND). The variations in monthly occurrence observed for both diseases (Figure I) over the study period is perhaps to be expected considering the ambient changes in weather that takes place over 12 months. Changes in weather will affect the overall microbial environment and will also put a strain on the management system of the farms as they try to adapt. This is
particularly so as the housing system used in all the farms is the open house type that expose birds to the vicissitudes of the weather.

The peak occurrence for both diseases over the 12-month study period was in the rainy season (Figure II). The wetness and high humidity of the environment that goes with the rainy periods of the year supports the burden of microbes and other parasites, and this would have increased the challenge on the immunologic system of the birds. This is similar to observations of peak prevalence during early rainy season by Saidu et al. (1994). However, Nwanta et al. (2006) reported highest prevalence during the dry season attributing it to peak movement of birds for sale during festivities.

The high incidences recorded for deep litter management system (Figure III) over Battery cage and other management styles could also be due to exposure of birds to increased microbial load in the litter. Poor litter management create favourable environment for active proliferation of ND and IBD (Okwor and Eze, 2010). Elevated ammonia levels, accumulated litter materials and high relative humidity were observed in some flock houses with deep litter management system during farm inspection.

It is interesting to note that the study revealed lowest frequency of occurrence for both diseases among first school leaving certificate (FSLC) holders and highest with graduates (Figure IV). This could be because unlike their counterparts with higher educational exposure, FSLC holders are less likely to differentiate diseases in birds. It could also be that they are less likely to rely on self-medication and more inclined towards professional (veterinarians) advice in the prevention and control of diseases. Nwanta et al. (2008) reported that manifestations of ND is affected by the socio-economic status of owners.

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The fact that farms with flock sizes above 1000 birds had significantly less incidences of disease occurrence than those with flock sizes less than 500 (Figure V) is perhaps to be expected. Farm sizes of over 1000 birds represent significantly higher investments than smaller farms of less than 500 birds and are thus more likely to afford and adopt stricter preventive measures such as strict vaccination programmes and tougher bio-security protocols.

Fig. III: Management systems used by farmers in Orlu in Imo state and the frequency distribution of IBD and ND in the zone. (NB: Others include semi-intensive, free range, etc.)

Fig. IV: Educational background of farmers in Orlu in Imo state and the frequency of occurrence of IBD and ND in the zone.
Conclusion and Recommendations

The study showed that outbreaks of Newcastle Disease and Infectious Bursal Disease is affected by other factors such as time and season of the year, management system in use as well as educational level of farm owners. Thus, for any control and surveillance measures aimed at combating both diseases to be very effective, these factors has to be taken into consideration.

References


