ISSN 1682-8356
ansinet.org/ijps

INTERNATIONAL JOURNAL OF

POULTRY SCIENCE

ANSInet
308 Lasani Town, Sargodha Road, Faisalabad - Pakistan
Mob: +92 300 3008585, Fax: +92 41 8815544
E-mail: editorijps@gmail.com

International Journal of Poultry Science 7 (9): 913-916, 2008
ISSN 1682-8356

Impact of Avian Influenza in Some States of Nigeria

L. Saidu[1], A.M. Wakawa[2], P.A. Abdu[1], D.F. Adene[2], H.M. Kazeem[2], K.C. Ladan[3], M. Abdu[3], R.B. Miko[1], M.Y. Fatihu[2], J. Adamu[2] and P.H. Mamman[2]
[1]Veterinary Teaching Hospital, Ahmadu Bello University, Zaria, Nigeria
[2]Faculty of Veterinary Medicine, Ahmadu Bello University, Zaria, Nigeria
[3]National Veterinary Research Institute (NVRI), Vom, Plateau State, Nigeria
[4]Veterinary Division, Ministry of Agriculture, Jigawa State, Nigeria

Abstract: Cases of Avian Influenza (AI) outbreaks reported and confirmed were extracted from the records of control committees on AI in Kano and Katsina States, Veterinary Teaching Hospital of Ahmadu Bello University, Zaria, Pan-African Control of Epizootics (PACE) project office at Kaduna. Information on AI outbreaks in Jigawa State were obtained through a questionnaire. A total of 480,378 birds were lost in 34 outbreaks in the four states under study between the period of January and March 2006. Chickens accounted for more than 99% of all the birds affected followed by guinea fowls and turkeys. More than 60% of the birds affected were adults. The concentrations of poultry farms in Kano metropolis particularly along Gwarzo road where the epidemic was first noticed might have been responsible for the fast spread of the disease within Kano metropolis. It is a common practice to find geese, muscovey ducks and turkeys in one farm in the study area. This practice makes the chickens and turkeys more prone to the disease. From the tract of outbreaks It is possible that the disease spread from Jigawa State to Kano state and from Kano State to other States in the study area and other parts of the country through trade in live birds and poultry by products. For proper diagnosis and control of AI in Nigeria, poultry farmers should be educated on the necessity for prompt disease reporting to veterinarians and appropriate authorities.

Key words: Avian influenza, chickens, Turkeys, geese, guinea fowls

Introduction

Avian influenza is a viral disease of all domestic and wild birds characterized by respiratory, digestive and in some cases nervous signs and high morbidity and mortality. Incubation period ranges from a few hours to 2 weeks depending on the virus dose, route of infection and species of birds. An important feature of the avian influenza (AI) epidemic and the virus is the wide range of species of birds infected (Perkins and Swayne, 2003). AI is world wide in distribution (Alexander 2003; Senne, 2003; Alexander, 2004; FAO, 2005) with a negative socio-economic impact apart from the public health significance of the disease. In the Asian epidemic (1997-2005) all species of domestic poultry were affected (Alexander 2004; FAO, 2005). In countries with mixed populations of birds, village chickens and ducks were the principal focus of clinical disease (FAO, 2005). Highly pathogenic avian influenza (HPAI) is a devastating disease in poultry; it is associated with a high death rate and disrupts poultry production and trade and can be transmitted to humans. The dreaded Avian Influenza (AI) was first reported at a farm in Kaduna, Nigeria on the 14 January 2006 (Adene *et al*., 2006) and confirmed by the OIE world reference laboratory at Padova, Italy on the 7th February, 2006. This outbreak in Nigeria was the first reported outbreak of the H5N1 Asian strain on the African continent (NADIS INFO, 2006).

Despite immediate containment measures taken by the veterinary and public health authorities in conformity with standard operation procedures, the disease still spread to 14 states and 26 local government areas. Over 268 suspected cases were analyzed at the National veterinary Research Institute (NVRI), Vom, where 58 were found positive and over 200 tested negative (NADIS INFO, 2006).

Prior to the first confirmed AI case at Kaduna on January 14th 2006, scores of local poultry were reported to have been dying in Jigawa state between December, 2005 and early January 2006, from a strange disease that was more devastating than Newcastle disease. In Kano state also, birds were reported dying due to an unknown disease condition from which chemotherapy and supportive care proved abortive in many cases.

The import of this study is to examine and analyze the reports and impact of Avian Influenza in some states of Northwestern Nigeria during the 2006 outbreaks.

Materials and Methods

Sources of information were obtained from records of the Avian Influenza control committees in Kano and Katsina States, Veterinary Teaching hospital, Ahmadu Bello University, Zaria and the Pan African control of Epizootics (PACE) Project office at Kaduna involving the different outbreaks of 2006.

Information on confirmed outbreaks of avian influenza in Jigawa, Kaduna, Kano and Katsina States, were retrieved for the purpose of analysis. In Jigawa State the information were obtained through a questionnaire designed and administered by the Kaduna PACE office. All the birds affected were divided into 3 main age groups as follows. 0-8 weeks (chicks), 9-18 weeks (growers), 19 and above (adults) and the flocks whose ages are not known were grouped as unknown.

Results

The distribution of the outbreaks of influenza in some states of Northwestern Nigeria is shown in Table 1. Kano State accounted for 69.4% of the farms affected followed by Kaduna State (24.4%), 9 farms (4.6%) in Jigawa State and Only three farms (1.6%) were affected in Katsina State. A total of 480, 378 birds were lost during the period under study. In Kano State more than 70% of the birds were destroyed while 63.2% died as a result of Avian Influenza. In Kaduna more than 50% of the birds died as a result of Avian influenza. In Katsina State more than 70% of the bird died as a result of the disease (AI) as was the case in Jigawa State.

Table 2 shows the distribution of AI by species of birds. The chicken accounted for 99% of the number of birds affected followed by guinea fowls (0.20%), turkeys (0.10), geese (0.06), ducks (0.05), ostriches (0.04) and pigeons (0.01). The mortality rates for the different species were 100.0, 86.9, 85.9, 53.5, 52.2 35.5 and 15.0% for ducks, turkeys, geese, chicken, pigeons, guinea fowl and ostrich respectively.

Birds within the 19 weeks age group and above accounted for more than 60%, of all the birds affected while the 9-18 weeks age group accounted for 16.0% of the birds affected. Birds whose ages were not known accounted for 14.9% while 0-8 weeks old birds accounted for only 5.2% of all the birds affected (Table 3). The mortality rate in the 9-18 weeks age group was 70.9% followed by 19 week and above (59.1%). The mortality rate in birds of unknown ages was 45.4% (Table 3).

Discussion

From the information obtained, most AI outbreaks of 2006 in poultry flocks were from Kano State. This may be due to the fact that there is a very high concentration of poultry farms in Kano metropolis, particularly in the area where the epidemic was first observed (Gwarzo road) in the metropolis. In the early days of January 2006, it was reported in Kano that birds were dying of an unknown disease that was not responding to treatment by common antibiotics. The disease continued to spread from one farm to another throughout the first two weeks of January.

The absence of AI in Nigeria prior to the outbreaks of January 2006 made the diagnosis difficult for both veterinarians and poultry farmers. This situation was similar to that of the Netherlands in 2003 when the highly pathogenic avian influenza virus epidemic was reported in that country (Elbers *et al.*, 2004). It is most likely that it was from Kano that the disease spread to Kaduna State through trade in live birds. This may be

Table 1: Distribution of avian influenza losses by state

State	No. of farms affected	No. dead (%)	No. salvaged (%)	Losses (%)
Kano	134(69.4)	164,603(63.2)	169,384 (77.0)	333,987 (69.6)
Kaduna	47(24.4)	72,640 (27.9)	38,613 (17.6)	111,253(23.2)
Katsina	3(1.6)	7,500 (2.9)	1,370 (0.6)	8,870(1.8)
Jigawa	9(4.6)	15,744(6.0)	10,524(4.8)	26,268 (5.5)
Total	193	260, 487(54.2)	219, 891(45.8)	480,378(18.8)

Table 2: Distribution of avian influenza losses by species of birds

Species birds	No. of birds (%)	No. dead (%)	No. Salvaged (%)	Mortality rate (%)
Chicken	477,470 (99.40)	258,676 (99.30)	218,794 (99.50)	52.2
Turkey	673 (0.10)	585 (0.22)	88 (0.04)	86.9
G/fowl	1,227 (0.20)	435 (0.17)	792(0.01)	35.5
Pigeon	43 (0.01)	23 (0.01)	20 (0.01)	53.5
Geese	312 (0.06)	268 (0.10)	44 (0.02)	85.5
Duck	320 (0.05)	230 (0.08)	0(0.00)	100
Ostrich	180 (0.04)	27 (0.07)	153 (0.07)	15.0
Total	480, 378	260, 487	219, 891	

Table 3: Distribution of avian influenza losses by age group

Age group	No. dead (%)	No. salvaged (%)	Total (%) lost	Mortality (%)
0-8 weeks	8,679 (3.14)	16,131 (7.9)	24,828 (5.2)	35.0
9-18 weeks	54,543 (19.70)	22,371 (11.0)	76,914 (16.0)	70.9
19 weeks	181,511(65.50)	22,371 (11.0)	203, 882	59.1
Unknown	32,500 (11.72)	39,131 (19.33)	71,361 (14.9)	45.4
Total	277, 251	203, 127	480, 378	

explained by the fact that the farm from which the disease was first suspected and subsequently diagnosed in Kaduna State purchased some point-of-lay pullets from several farms at Kano prior to the outbreak of AI on the farm. It was reported by the FAO (2005) that in countries where disease outbreaks are common and poorly controlled, farmers usually respond to the situation by selling their birds before or after death in order to reduce their financial losses. This attitude might have been responsible for the spread of the disease to Katsina State which is bordering Kano State to the North and West. The epidemic of AI might have spread from Jigawa Sate to Kano State because as at December 2005 to January 2006, history revealed that local poultry in Jigawa State have been dying as a result of a disease that was more devastating than the annual epidemic of Newcastle disease that is usually experienced during the cold, windy harmattan period. Because according to the reports all species of poultry including ducks were dying unlike the annual epidemic of Newcastle disease that was limited to chickens turkeys and guinea fowls. It is very important to note that migratory water birds from Europe annually come to "Baturiya" game reserve in Jigawa State between late November to early march and they might have spread the disease to Jigawa and then subsequently to Kano from where it spread to other parts of the country due to trade in live birds.

The predominant species of birds affected by AI in the states were the chickens, turkeys and guinea fowls. This finding was similar to what was reported by other workers that species like pigeons are only partially susceptible to AI and that they may act as mechanical vectors and vehicles for long distance transmission of AI virus if the plumage or feet were contaminated (Kaleta and Honicke, 2004). The ducks, geese and other water fowls were known to play an important role in the epidemiology of AI (Compiteli *et al.*, 2004). The situation in most poultry farms in the study area particularly Kano was that, most poultry farmers kept some geese and Muscovy ducks on their farms. Although it was reported that the mortality due to AI may be low in the ducks and geese, in this study the mortality rates were high for both geese and ducks, even higher than the mortality rates for turkeys, chickens, pigeons and guinea fowls.

Most of the birds affected by the AI during the period under study were adults (19 weeks old and above). This is because during this period most of the farms affected in all the states had birds that were already laying or were at point of lay because most farms in the study area do not stock birds during the cold harmattan period (December-March) due to the fact that brooding is expensive and difficult during this time. The ages of a sizeable number of flocks were not known. These flocks may be backyard flocks as owners of backyard flocks in most instances do not keep proper records.

After the disease was confirmed in February 2006 there was a lot of anxiety within the poultry industry because people refuse to buy poultry and poultry by products leading to a sharp drop in the prizes of eggs, day old chicks, broilers and spent layers. For example in kaduna state the prize of a crate of egg drop from four hundred and fifty naira (3.6 U.S Dollars) to as low as one hundred and seventy naira (1.4 U.S Dollars) and the cost of day old pullet drop from one hundred and fifty naira (1.2 U.S Dollar) to as low as sixty naira (0.4 U.S Dollars) per chick. Apart from the negative effect of the disease on marketing of poultry products and their consumption the disease also cause serious unemployment because most of the farm hands loose their jobs due to the disease and a lot of the farmers lost their income as a result of the disease. The poultry Association of Nigeria, Nigerian Veterinary Medical Association and the Federal and State Governments had to spend a lot of money organizing enlightment campaigns on the safety of eating poultry and poultry by products before people started eating poultry and poultry by products. By June 2006 the prize of eggs appreciated again to as high as 550 naira (4.4 U.S Dollars) and day old pullets suddenly became scarce and expensive because the cost of a day old pullet rose to two hundred and fifty naira (2.0 U.S Dollars) in some parts of kaduna state. During the Christmas and sallah periods of 2006 chicken was very expensive even the Guinea fowl that used to be relatively cheap suddenly became expansive and unavailable in most live bird markets.

For proper diagnosis and control of AI in Nigeria poultry farmers should be educated on the necessity for prompt disease reporting to the nearest veterinarian. Also the disease reporting system needs to be improved and there is the need for active surveillance of the disease in both local and exotic poultry.

References

Adene, D.F., A.M. Wakawa, P.A. Abdu, L.H. Lombin, H.M. Kazeem, L. Sa'idu, M.Y. Fatihu, T. Joannis, C.A.O. Adeyefa and T.U. Obi, 2006. Clinico-pathological and Husbandary Features Associated with the Maiden Diagnosis of Avian Influenza in Nigeria. Nig. Vet. J., 27: 32-38.

Alexander, D.J., 2003. Reports of Avian Influenza in the Eastern Hemisphere during 1997-2002. Avian Dis., 47: 792-797.

Alexander, D.J., 2004. Avian Influenza: Recent development. Avian Path., 33: 393-404.

Compitelli, L., E. Mogavero, M.J. Dearco, M. Declogu S. Puzelli, F. Frezza, M. Facchini, C. Ciapponi, E. Foini, P. Cordiallo, R. Wesbu, A. Pariggazzi, R.G Webster and Donatelli, 2004. Interspecies transmission of an H7N3 influenza virus from wild birds to intensively reared domestic poultry in Italy. Virol., 223: 24-36.

Elbers, A.R., T.H. Fabi, T.S. Devries, J.J. Dewit, A. Pipes and G. Koh, 2004. The highly pathogenic avian influenza A (H7N7) virus epidemic in the Netherlands in 2003: Lessons learned from the first five outbreaks. Avian Dis., 48: 691-705.

FAO, 2005. Food and Agricultural Organization of the United Nation. Epidemiology of H5N1 Avian influenza in Asia and implications for Regional control. Morris, R.S. and R. Jackson (Eds.). Rome, Italy.

Kaleta, E.F. and A. Honicke, 2004. Review of the literature on avian influenza A viruses in pigeons and experimental studies on the susceptibility of domestic pigeons to influenza A viruses of the haemagglutinin subtype H7. DTW Deut. Tier. Woch. 111: 467-4672.

NADIS INFO, 2006. Special "Avian Flu" Edition. National Animal Disease Information and Surveillance. 9th Edn. May, 2006. Pan-African Control of Epizootics (PACE) project, Nigeria, pp: 1-3.

Perkins, L.E.L. and D.E. Swayne, 2003. Comparative susceptibility of selected avian and mammalian species to a Hong Kong-origin H5N1 high-pathogenicity avian influenza virus. Avian Dis., 47 : 956-967.

Senne, D.A., 2003. Avian influenza in the Western Hemisphere including the pacific Islands and Australia. Avian Dis., 47: 798-805.