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Research Article

Retrospective Study of Avian Influenza Outbreak from 2015-2017; Resurgences in Plateau State Nigeria

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Abstract

The study was done to assess the risk of the avian influenza infection (AI) constitutes to poultry production and the public domain in Plateau State, Nigeria. Poultry infection with avian influenza A virus; highly pathogenic avian influenza virus (H5N1) was first identified in Nigeria in 2006. The methodology used in this study was retrospective survey of avian influenza from the Plateau State avian influenza desk office and $p < 0.05$ was considered significance. In the records evaluated, during the resurgence in 2015 from January through May of the year, out of 487,233 birds, 95.8% of the birds were depopulated including 0.01% pigeons, 0.03% turkey, 0.006% guinea fowls, 0.009% local chickens and 0.01% domestic waterfowls (ducks) while in 2016, 99.89% of pullet, layers and broilers with 0.13% of geese, turkey and cockerels depopulated. A reduced number of incidences were recorded and reported in 2017, including 72.6% pullets, and 27.4% layers. No reports or record of incidences in humans within the period under review.

Keywords: Avian Influenza Virus Poultry; Nigeria; Retrospective Study

Introduction

Avian Influenza is an infectious and devastating disease of poultry. Avian influenza disease was first identified in Nigeria in 2006 [1]. A viral disease of poultry of enormous public health importance over the globe due to infections and mortality in poultry and humans in Asia, Africa and Middle East caused by the Influenza A (H5 and H7 subtypes highly pathogenic) or low Pathogenicity H5/H7subtypes influenza A viruses [2]. The disease was considered stamped out or controlled after the first episode encountered in 2006 by engaging control measures including culling, movement restrictions, compensation and improved biosecurity [2,3,4] to limit the spread of the disease. The study revealed a resurgence of the devastating infection in poultry in 2015, 2016 and 2017 indicating some variance playing or endemicity???, which posed a big risk to the poultry farmers in the state. Coker., *et al.* [5] reported that Nigeria remains at risk of avian influenza occurrence due to regular migration of wild birds, which come in contact with the rural poultry, and through local trade in poultry that may lead to contamination of the live bird trade chain in the rural areas. The possibility of wild migratory birds being responsible for the introduction of this virus into and around the country has also been suggested [1,3]. The disease is a zoonotic infection that has been reported in humans in Asia (China, Bangladesh, Malaysia), Africa (Egypt. Djibouti and Nigeria) [1,4] and few cases in Canada and the Middle East [4,6]. These infections have been associated with human travels and movement, as well as post contact with infected birds and contaminated environment [2,4]. However, no evidence to date of sustained human to human transmission [4] though deaths have occurred in human post infection. The public health risks associated with Avian Influenza infection include zoonosis this means that transmission to humans has occurred where there is close contact with infected birds, or heavily contaminated environment [1,2,7-9]. Poultry owners revealed knowledge of the importance of liaising with the veterinary officer for every problem affecting the birds and biosecurity for health and economic consequences of the poultry business. This study is carried to investigate the resurgence of AI within the period under review.

Area of study

The study was carried out in Plateau State which is one of the thirty-six states that make up the Federal Republic of Nigeria in addition to the Federal Capital Territory; Abuja. It derived its name from the Jos plateau, which is a predominant geographical landscape in the middle belt of Nigeria. Plateau State lies within latitude 9o45' 50" North and longitude 8o37'31" East and has a total land area of 26,899 square kilometers. It is bordered in the North West by Kaduna State, in the North East by Bauchi State, in the South West and West by Nasarawa State and in the South East by Taraba State. The State has seventeen local government areas (LGA). The population is mainly engaged in farming, hunting and mining as

their means of livelihood. Households have backyard poultry and commercial poultry exists mainly in the urban areas in the State.

Materials and Methods

Three years retrospective data and records collated by the personnel of the Avian Influenza Desk office located at the Plateau State Veterinary clinic, Jos Plateau State were accessed and studied. The Avian Influenza desk office has the personnel who go all over the State for disease surveillance purposes, prevention and control from time to time or at report or notification of any problem by the poultry farmers.

Result

In 2015, the surveillance group visited one hundred and sixty-seven (167) farms around the state and identified infection in 90% (150) of the farms. Over 90% of this infection occurred in commercial birds including 82.5% Layers, 15.85% pullets, while other birds including cockerels, Broilers, Turkeys, local chickens, ducks and pigeons made up 1.57% of AI infection (Table 1). In 2016, record showed lowered infection/incidence rates of other avian species including 0.01% pigeons, 0.03% turkey, 0.006% guinea fowls, 0.005 local chickens and 0.1% domestic water fowls while in 2016, 7.7% pullets, 87.5% layers, 4.7% broilers and 0.13% of geese, turkey and cockerels were infected in sixty-three (63) farms around the state. In 2017, twenty- two (22) farms reported outbreaks including 72.6% pullets and 22.3% layers only (Figure 1). No information on human infection was received within the period under review

Avian Type	Pullet	Layer	Broiler	Duck	Turkey	Pigeon	G/Fowls	Cockrel	L/Chicken
2015	77,274	402,285	7,011	48	176	53	28	303	44
2016	14,604	164,604	8,856	10	16	-	-	40	-
2017	45,125	16,973	-	-	-	-	-	-	-

Table 1: showing number and type of birds infected.

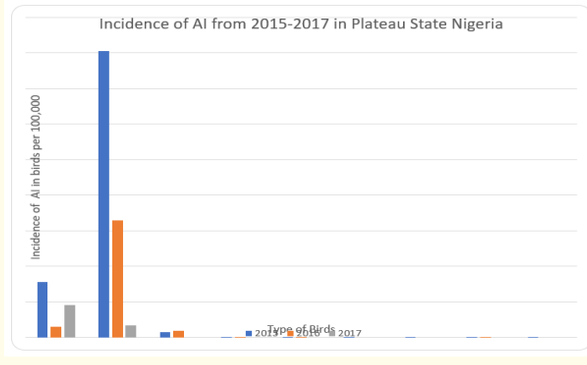

Figure 1: A chart of Incidences of Avian Influenza infection 2015-2017 in Plateau State, Nigeria.

Discussion

Avian Influenza is now a global phenomenon [10]. Surveillances carried out revealed a very high rate of incidences in commercial poultry in 2015, which declined subsequently, occurring from January to May in the three years investigated, perhaps due to strict control of human movement at the different poultry farms, reduced stockings of farms due to monetary restrictions (losses)/ cash scarcity and strict biosecurity measures implemented agreeing with [1] who reported that avian influenza infection occurrences were largely human and trade mediated in Nigeria. Avian Influenza infection in pigeons and other birds apart from the commercial poultry stocks (pullets, Layers and broilers) was reported as well and can be attributed to have occurred due to co-habitation with infected free-range chickens, turkeys and ducks in the poultry population an indication that the environmental condition in the tropical ecosystem are favourable for the circulation, persistence and transmission of the avian influenza virus, agreeing with Feare, and Gaidet., *et al.* [11,12] However, prior to these observations and investigations, there had been a false impression that the Avian Influenza infection had been crushed/eliminated in Plateau State Nigeria after the massive 2006 outbreak. Reducing the huge economic losses due to disease in the poultry industry in Plateau State will translate to improved protein intake of the majority (populace) in the State. This study has enriched the knowledge that the infection occurred steadily, and the need for a more holistic look into the control measures [3] on ground and a further need for public enlightenment on control measures and should be instituted to keep the poultry industry safe from further losses. Disease surveillance has been heightened by the Plateau State avian influenza desk office to stem the tide of the spread or occurrence of the disease around the state. Widespread infection caused by multiple strains of HPAI H5N1 has been reported in Nigeria with the introduction linked to commercial poultry [1]. Feare, and Gaidet., *et al*. [11-14] however, refuted that outbreak and spread of AI in Nigeria was caused by wild water birds or migratory birds. This should not lead to a relaxation in control measures/strategies by allowing strange/wild birds mixing in our poultry farm environments. In other words, biosecurity should be implemented strictly to keep the poultry environment safe from AI and other infectious poultry diseases.

Conclusion

In conclusion, it is risky to live on the assumption that the avian influenza scourge has been dealt with in the State because of this exposition. The issue of regular surveillance by the veterinarians and public enlightenment on prevention and control cannot be over emphasized. Layers and pullets are most affected followed by broilers.

Recommendations

The activities of the avian influenza desk office should be heightened with support and motivation from the government to encourage prevention and control of the disease in the state.

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