

Retrospective Study of Viral and Bacterial Diseases of Poultry Diagnosed In Katsina Metropolis (2015 To 2017)

A. S. Magaji*¹

*¹ College of Agriculture, Hassan Usman Katsina Polytechnic, Katsina, Katsina State, Nigeria

Date of Submission: 15-12-2020

Date of Acceptance: 30-12-2020

ABSTRACT: A three year (2015 – 2017) retrospective study of viral and bacterial poultry diseases presented to the Katsina zonal veterinary clinic was conducted. Out of a total of 126 viral cases recorded during the period, Newcastle disease represented 66.66% of the total viral cases recorded. Infectious bursal disease was 15.87%. Other viral diseases diagnosed were avian pox (9.52%) and avian influenza (7.94%). Of a total of 198 cases, fowl typhoid had the highest prevalence of 49.93%. Other bacterial cases of poultry recorded at the Katsina zonal veterinary clinic were pollorum, salmonellosis, colibscillosis, CRD, enteritis, necrotic enteritis and fowl cholera. Poor management practices by the farmers in addition to lack of awareness on diagnostic laboratory services may be associated with the distribution pattern of cases recorded in the clinic. Control and prevention strategies can only be successful after a careful assessment of each condition.

Keywords: Viral, Bacterial, disease, veterinary clinic

I. INTRODUCTION

Poultry production in Nigeria is an important component of the livestock sub sector. It is an important instrument for alleviating problems associated with poverty in Nigeria. It contributes significantly to poverty alleviation and the improvement of food security. Poultry diseases are identified as the major constraints in the development of the poultry industry in Nigeria thus causing huge losses to farmers [3].

Disease is the setting up of functional disturbances in the animal body by the foreign living organisms. The mere presence of foreign living organisms in or on animal body is termed as infection. Disease may be infectious if there is presence of foreign living organism in or on the host body and the development of functional disturbances or non-infectious if it is caused by non infectious agent such as nutrient deficiency (nutritional disease). It can also be contagious if it is transmitted from one individual to another by direct or indirect contact.

Animal (poultry) can present different sign and symptom when infected with either infectious or non-infectious diseases. Those signs may include: nasal, ocular and vaginal discharges, excessive salivation (drooling or foamy), diarrhoea (bloody or watery), dull coat and skin taut, tucked up belly appearance, lymph node enlargement, dry muzzle, teeth grinding, lameness, loss of appetite, difficulty in breathing, fever, vomiting, depression, dehydration etc.

Diseases can be classified into Bacterial eg. Fowl cholera, Fowl typhoid, chronic respiratory diseases (CRD), etc, Viral eg. Newcastle disease, Infectious bursal disease (IBD, Gumboro) Avian Influenza (Bird flu), Fowl pox etc. Protozoans eg. Coccidiosis, Fungal eg. Aspergillosis and Nutritional eg. Avitaminosis [14]

The objective of this paper is to present the prevalence of viral and bacterial diseases of poultry diagnosed at the zonal veterinary clinic Katsina.

II. METHODOLOGY

Study Area

The study was conducted at the zonal veterinary clinic Katsina located along Dutsin Ma road in Katsina metropolis. Katsina state is located in the north-western part of Nigeria between latitude 11000'N and 13020'N and longitude 7000'E and 8055'E. Katsina state shares border with Zamfara state to the west, Kaduna state to the south, Kano and Jigawa states to the east and Niger Republic to the north. It has a land size of about 24,971.215km² with a population of 5,801,584 as at 2006 national census. Katsina state falls under the tropical wet and dry climate type (Tropical Continental Climate). The average annual rainfall varies from 550 mm in the northern part to about 1000mm in the southern part of the state between May and September with high intensity between the month of July and August. The annual mean temperature is about 27⁰C. The highest air temperature normally occurs in April/May and the lowest in December through February.

Clinical records of cases diagnosed at the zonal veterinary clinic Katsina spanning between 2015 to 2017 were obtained. Only cases resulting from viral

and bacterial origin were extracted. Data obtained was presented using descriptive statistics..

III. RESULTS AND DISCUSSION

Table 1: Prevalence observed on reported cases of Poultry viral diseases in Katsina (2015 to 2017).

	2015	2016	2017	Total	%
Avian Influenza	6	6	0	12	7.94
Newcastle Disease	14	27	43	84	66.66
Infectious Bursal Disease	3	6	11	20	15.87
Avian Pox	1	2	7	10	9.52
Total	24	41	61	126	

From table 1 above, the study showed an increase in the prevalence of poultry viral diseases from 2015 to 2017. Newcastle disease and Infectious bursal disease being the most diagnosed poultry disease are in agreement with an earlier study by Ambali et al. [5], where the authors reported ND and IBD as the two major viral diseases. Newcastle disease however which has a higher prevalence in this study is considered the most economically important avian viral disease in the world including developing countries due to its devastating effect on the poultry industry [10,11]. Newcastle disease can produce mortality of up to 100% among infected population of birds

[12,13] and unfortunately the prognosis is poor once birds are infected. This created the reason for the alarming frequent reports to the clinics. El-Yuguda and Baba [14] also reported ND to be the greatest threat to poultry industry.

In a similar report, ND was reported to be the most frequently diagnosed poultry disease (32.3%) in Zaria [19], though the finding in the present study may be slightly higher (36.7%) for ND than the report from Zaria. The occurrence of IBD is most common in young birds and the disease has been reported to be a highly contagious avian viral disease especially in young birds [21].

Table 2: Prevalence observed on reported cases of Poultry bacterial diseases in Katsina (2015 to 2017).

	2015	2016	2017	Total	%
Fowl Typhoid	14	29	42	85	42.93
Necrotic Enteritis	1	2	1	4	2.02
Enteritis	0	3	0	3	1.52
CRD	1	2	3	6	0.51
Colibacillosis	1	7	13	21	10.60
Salmonellosis	4	11	3	18	9.09
Pollorum Disease	3	23	32	58	29.29
Fowl Cholera	0	1	1	2	1.01
Total	24	79	95	198	100

Among the bacterial diseases of poultry recorded in the study area, Fowl typhoid is the most frequently reported and recorded avian bacterial disease with a prevalent rate of 85 (42.93%). This coincides with similar reports by Wigley et al. [25] and Berchieri et al. [26] that stated that avian typhoid, Colibacillosis and Salmonellosis are considered to be the major bacterial disease problems in the poultry industry worldwide and that these disease constitute a major public burden and represent a significant cost in many developing countries including Nigeria.

Other bacterial diseases reported to the clinic include salmonellosis, colibacillosis, CRD, enteritis and fowl cholera.

IV. CONCLUSION

The prevalence of the poultry diseases reported at the study area may be attributed to some poultry farmers not vaccinating their birds against most of the poultry diseases. This finding agrees with the results of similar studies in which difficulties associated with vaccination of chickens led to higher prevalence of infectious diseases [36].

An in depth studies on the epidemiology of these diseases should be carried out and also exposure to disease organisms should be reduced by ensuring proper biosecurity measures and stress management. Disease outbreaks should be treated with specific medications that are effective against the diseases.

REFERENCES

- [1] Obi TU, Olubukola A, Maina GA (2008) Pro-Poor HPAI Risk Reduction Strategies in Nigeria- Background Paper Africa/Indonesia Region Report No. 5.
- [2] Eduvie LO (2002) Poultry production in Nigeria. National Animal Production Research Institute. Federal Ministry of Agriculture and Water Resources, Ahmadu Bello University, Zaria, Nigeria.
- [3] Abdu PA, Mera UM, Sa'idu L (1992) A study of chicken mortality in Zaria, Nigeria. World's Poultry Congress, Amsterdam, The Netherlands.
- [4] Adene DF (1996) International poultry health problems: Perspective from the poultry industry in Africa. In Proceedings, 20th World Poultry Congress, New Delhi, India 2: 401-414.
- [5] Ambali AG, Abubakar MB, James TE (2003) An Assessment of poultry health problems in Maiduguri, Borno State Nigeria. *Tropical Veterinarian* 21: 138-145.
- [6] Udo RK (1981) Geographical Region of Nigeria. In: Heinemann Education Books, Ltd Ibadan, Nigeria.
- [7] Abdu PA, Sa'idu L, George BDI (2002) Diseases of local poultry in Nigeria. *Discovery & Innovations* 14: 1-2.
- [8] Ameji ON, Abdu PA, Sa'idu L, Kabir J, Assam A (2012) Awareness, Knowledge, Readiness to Report Outbreak and Biosecurity Practice Towards Highly Pathogenic Avian Influenza in Kogi State, Nigeria. *Int J Poultry Sci* 11: 11-15.
- [9] Assam A, Abdu PA, Tabe-Ntui LN (2012) Local Poultry Farmers' Media Use, Access and Understanding of Highly Pathogenic Avian Influenza Communication Materials in Nigeria. *Bull AnimHlth Prod Afr* 60: 93-102.
- [10] Wakawa AM, Mohammed ZK, Aliyu HB, Mohammed B (2012) A retrospective analysis of marek's diseases diagnosed at poultry clinic of Ahmadu Bello University, Zaria, Nigeria. *Journal of veterinary advances* 2: 424-429.
- [11] Zeleke A, Sori T, Gelaye E, Ayelet G (2005) Newcastle disease in village chickens in Southern and Rift valley Districts in Ethiopia. *Int J Poultry Sci* 4: 507-510.
- [12] Sa'idu L, Abdu PA (2008) Outbreak of Viscerotropicvelogenic form of Newcastle disease in vaccinated six weeks old pullets. *Sokoto Journal Vet Science* 7: 37-40.
- [14] Ananth R, Kirubaharam JJ, Priyadarshini MLM, Albert A (2008) Isolation of Newcastle disease viruses of high virulence in unvaccinated healthy village chickens in South India. *International Journal of Poultry Science* 7: 368-373.
- [15] El-Yuguda AD, Baba SS (2002) Prevalence of selected viral infections in various age groups of village chicken in Borno state, Nigeria. *Nigeria JournalAnimal Production* 29: 245-250.
- [16] Alexander DJ (2003) Newcastle disease and other avian paramyxoviruses infections. In: Saif YM, Barnes HJ, Glisson JR, Fadly AM, McDougald LR, et al. (Eds). *Diseases of Poultry*. (11thedn). IOWA State University Press Ames 1A, USA.
- [17] Kapczynski DR, King DJ (2005) Protection of chickens against overt clinical disease and determination of viral shedding following vaccination with commercially available Newcastle disease virus vaccines upon challenge with highly virulent virus from the California 2002 exotic Newcastle disease outbreak. *Vaccine* 23: 3424-3433.
- [18] Van Boven M, Bouma A, Teun HFF, Elly K, Leo H, et al. (2008) Herd immunity to Newcastle disease virus in Poultry by vaccination. *Avian Pathology* 37: 1-5. 18. Numan M, Zahoor MA, Khan HA, Siddique M (2005) Serologic status of Newcastle disease in broilers and layers in Faisalabad and surrounding districts. *Pakistan Vet J* 25: 55-58.
- [19] Sa'idu L, Abdu PA, Tekdek LB, Umoh JU (2000) Retrospective Study of Newcastle Disease Cases in Zaria, Nigeria. *Nigeria Veterinary Journal* 27: 53-62. 20. AdamuAY, Ahmed AB, Abubakar MB, Lawal MD (2009) A retrospective study (2004-2008) of poultry diseases diagnosed in veterinary teaching hospital (VTH), UsmanDanfodiyo University Sokoto (UDUS) and Sokoto Veterinary Centre (SVC), Sokoto state, Nigeria. *International Journal of Animal and Veterinary Advances* 1: 15-17.

-
- [20] Berg van den TP, Esterradossi N, Toquin D, Meulemans G (2000) Infectious bursal disease (Gumboro disease). *Rev Sci Tech Off Int Epiz* 19: 527-543.
- [21] Afonso CL, Tulman ER, Lu Z, Kutish GF, Rock DL (2000) The genome of fowl pox virus. *J Virol* 74: 3815-3831.
- [22] Fallavena LC, Canal CW, Salle CT, Moraes HL, Rocha SL, et al. (2002) Presence of avipoxvirus DNA in avian dermal squamous cell carcinoma. *Avian pathol* 31: 241-246.
- [23] AgriInfo (2011) *Livestock Production and Management*.
- [24] Wigley P, Berchieri A, Page KL, Smith AL, Barrow PA (2001) Salmonella enteric serovar pullorum persist in splenic macrophages and in the reproductive tract during persistent, disease free carriage in chickens. *Infect Immune* 69: 7873-7879.
- [25] Berchieri A, Murphy CK, Marston K, Barrow PA (2001) Observation on the persistence and vertical transmission of Salmonella enteric serovar Pullorum and Gallinarum in chicken: Effect of bacterial and host genetic background. *Avian Pathol* 30:221-231.