RETROSPECTIVE STUDY ON SUSPECTED CASES OF CANINE PARVO-VIRAL ENTERITIS IN DOGS IN SOME AREAS IN JOS SOUTH LOCAL GOVERNMENT AREA, PLATEAU STATE, NIGERIA

BY

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Abstract

A three-year (2018 – 2020) retrospective study on canine parvo-viral enteritis infection was undertaken in 2021 in some areas (State Lowcost, Kufang, Zarmaganda and Vom) all in Jos South Local Government Area in Plateau state to determine the activity of parvo-virus in dogs for the specified period. Data was collated from tentatively diagnosed clinical records from veterinary clinics located in the selected areas. The data collected was analysed and the result revealed a total occurrence of 53%. The tentatively diagnosed clinical signs observed were haemorrhagic diarrhoea, anorexia, dehydration, loss of weight and vomiting. Infection rate differs significantly ($P<0.05$) according to age, with high occurrence in the young 61.2% than the adults 27.1%. The study also shows a significant difference in infection rate by sex, the females had more infection rate (62%) compared to the males (44.3%). Infection rates also differ significantly ($P<0.05$) according to breed, vaccination status and location. The study concluded that there is a high occurrence of suspected cases of CPE in dogs in the study area influenced by age, sex, breed, vaccination status and location and suggested regular sanitation of housing and timely vaccination to protect the animals.

Keywords: Retrospective, Canine, Parvo-Enteritis, Dogs, Jos South

Introduction

Canine Parvo-viral enteritis (CPV) is a highly contagious and fatal disease in dogs and many carnivores, which results in severe gastroenteritis and myocarditis (Chen *et al.,* 2019). The disease is caused by canine parvo-virus which is one of the most important causes of mortality in young dogs and that has sustained pandemic circulation in dogs for more than 40 years and has continued to reduce the dog population (Oluwafemi and Busayo, 2018, Voorhees *et al.,* 2019). Three subtypes of Parvovirus namely (CPV-2a, CPV-2b and CPV-2C) have been reported in Nigeria (Olusegun *et al.,* 2020).

In Nigeria, the diagnosis of Parvo-enteritis has been on histopathological findings and serology while molecular detection of the disease using polymerase chain reaction (PCR) is not very common which is a limiting factor to prompt diagnosis (Olusegun *et al.,* 2020). Canine parvovirus especially the CPV-2 serotype has become an important problem to the dog population in Nigeria owing to its pathogenic nature which is now a regular occurrence and has been associated largely

with the frequent cause of morbidity and mortality of dogs, particularly in puppies younger than six months of age as reported by Shima and Olusegun (2020). Francis *et al.* (2019) reported a prevalence rate of 7.97% of the infection in dogs which was marked by high morbidity and mortality in puppies less than 5 months of age. Experience has shown that morbidity and mortality rates of CPE vary and are dependent on the immune status, age, sex, breed and further incriminated lack of protective immunity as one of the risk factors responsible for CPE infection in dogs (Nelson -and Couto, 1998, Foster and Smith, 2011).

The affection developed by humans towards this specie of animal (dog) continue to deepen and to some extent, has become adopted as part of the family that even their death could be mourned by humans for months, more so, the breeding of dogs has become a business in some homes alongside the security that the animal performs unfortunately, one of the diseases reducing dog population is canine Parvo-viral enteritis which has made many dogs owners and lovers groan at one time or the other from the death of their dogs and economic losses from treatment, this forms the basis for the study which aim to determine the effect of this virus in dogs in the study area.

Materials and Methods

Study Area

Three (3) years (2018 – 2020) retrospective study on parvo-viral enteritis in dogs was undertaken in some areas in Jos South Local Government Area of Plateau State. Jos South LGA is located in Bukuru town at $9^0$48'00" N to $8^0$52'00" E, it has an area of 510km^2.

Data Collection

A 3year data collated on tentatively diagnosed cases of Canine Parvo-Enteritis (CPE) from clinical records of dogs presented at veterinary clinics of Federal College of Animal Vom, Unity Veterinary Clinic State Lowcost Jos, Nanang Veterinary Clinic Zarmaganda and Tropical Veterinary Clinic Kufang all in Jos South LGA from 2018 – 2020. The data were generated by carefully reviewing the case records. The selection of cases was based on history, clinical signs and a tentative diagnosis of CPE recorded. The age, sex, breed and vaccination status of each dog as well as the month and year, when the diagnosis was made, were recorded. Vaccination history was categorized into two namely: vaccinated and un-vaccinated. Most of the dogs admitted into the clinics were within Jos South LGA. The data collected were analysed using chi-square (X^2) analysis and descriptive statistics using simple percentages.

Results and Discussion

Table 1: Parvo-viral enteritis in dogs in Jos South L.G.A, Plateau State in 2018 based on clinical examination

Variables	Number Examine	Number positive	Percentage Positive	Chi-Square value	P-value
Age					
Young	152	93	61.2	17.00	0.000
Adult	48	13	27.1		
Total	200	106	53.0		
Sex					
Male	106	47	44.3	6.79	0.009
Female	94	59	62.8		
Total	200	106	53.0		
Breed					
Local	121	71	58.7	10.99	0.027
Alsatian	8	0	0.0		
Caucasian	43	21	48.8		
Rottweiler	10	5	50.0		
Crossbreed	18	9	50.0		
Total	200	106	53.0		
Vaccination status					
Vaccinated	45	13	28.9	13.55	0.000
Not vaccinated	155	93	60.0		
Total	200	106	53.0		
Location					
State Low cost	50	41	82.0	49.06	0.000
Kufang	50	27	54.0		
Zarmaganda	50	31	620		
Vom	50	7	14.0		
Total	200	106	53.0		

$P < 0.05$ **is significant**

Table 2: Parvo-viral enteritis in dogs in Jos South L.G.A, Plateau State in 2019 based on clinical examination

Variables	Number Examine	Number positive	Percentage Positive	Chi-Square value	P-value
Age					
Young	130	107	82.3	77.02	0.000
Adult	70	13	18.6		
Total	100	120	60.0		
Sex					
Male	102	56	54.9	2.25	0.130
Female	98	64	65.3		
Total	200	120	60.0		
Breed					
Local	62	45	72.6	21.68	0.000
Alsatian	14	1	7.1		
Caucasian	59	37	62.7		
Rottweiler	26	13	50.0		
Crossbreed	39	24	61.5		
Total	200	120	60.0		
Vaccination status					
Vaccinated	77	12	15.6	102.91	0.000
Not vaccinated	123	108	87.8		
Total	200	120	60.0		
Location					
State Low cost	50	30	60.0	37.167	0.000
Kufang	50	19	38.0		
Zarmaganda	50	47	94.0		
Vom	50	24	48.0		
Total	200	120	60.0		

$P < 0.05$ **is significant**

Table 3: Parvo-viral enteritis in dogs in Jos South L.G.A, Plateau State in 2020 based on clinical examination

Variables	Number Examine	Number positive	Percentage Positive	Chi-Square value	P-value
Age					
Young	141	95	67.4	19.08	0.000
Adult	59	20	33.9		
Total	200	115	57.5		
Sex					
Male	94	57	39.4	0.72	0.398
Female	106	58	45.3		
Total	200	115	57.5		
Breed					
Local	78	49	62.8	21.69	0.000
Alsatian	9	1	11.1		
Caucasian	53	31	58.5		
Rottweiler	22	10	45.5		
Crossbreed	38	24	63.2		
Total	200	115	57.5		
Vaccination status					
Vaccinated	60	11	18.3	53.81	0.000
Not vaccinated	140	104	74.3		
Total	200	115	57.5		
Location					
StateLow cost	50	20	40.0		
Kufang	50	20	40.0		
Zarmaganda	50	44	88.0		
Vom	50	31	62.0		
Total	200	115	57.5		

$P < 0.05$ **is significant**

Table 4:Summary of a three-year retrospective study on Parvo-viral enteritis in dogs in Jos South LGA of Plateau State (2018 – 2020)

Year	Number examined	Number positive	Percentage positive	Chi-square value	P-value
2018	200	106	53.0	2.12	0.346
2019	200	120	60.0		
2020	200	116	58.0		
Total	600	342	57.0		

$P < 0.05$ **is significant**

The data collated for three years (2018 – 2020) for CPE in Jos South LGA, Plateau State are shown in Tables 1 to 4. A total of 200 dogs presented with different health challenges revealed 106 (53.0%) with hemorrhagic diarrhoea, anorexia, dehydration, loss of weight or vomission were considered to be infected with canine Parvo-viral enteritis according to tentative clinical diagnosis. The occurrence was observed to differ significantly (P<0.05) according to age, sex, breed, vaccination status, location and year. Tables 1, 2, 3 and 4 respectively.

Discussion

Canine Parvo-viral enteritis has become a major disease and endemic reducing the dog population as reported by (Oluwafemi and Busayo, 2018, and Voorhees, et al., 2019).

The study revealed a CPE occurrence of 53.0% in dogs in the study area which is higher than the one reported by Francis *et al* (2019) who obtained 7.9%. it can also be observed that the young are mostly affected by CPE with a percentage prevalence rate of 61.2% than the adults at 27.1% indicating a significant difference (P<0.05) in prevalent rate according to age. Table 1.

Infection rate differs significantly (P<0.05) in the animals according to sex, the female has a higher infection rate (62.8%) compared to the male (44.3%).

The study further revealed that local breeds are more susceptible to CPE infection than others with a prevalent rate of 58.7%, signifying that infection rates vary significantly (P<0.05) according to breed. It can be seen in this study that unvaccinated dogs had high prevalent rate (60.0%) than the vaccinated (28.9%) indicating that vaccination plays an important role in the control of CPE in dogs, table 1, this agreed with the findings of (Nelson and Couto 1998, Foster and Smith, 2021).

Conclusion

The study concluded that there is a high occurrence rate (53%) of Canine Parvo-Viral enteritis in dogs in the study area based on clinical records collated and analysed. Occurrence is influenced by age, sex, breed, and vaccination status. The study suggested regular sanitation of housing and timely vaccination to protect the animals against infection.

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