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Prevalence of Neonatal Mortality in Dogs and Its Associated Risk Factors in Jos, Plateau State, Nigeria

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ABSTRACT

The study determined the prevalence of neonatal mortality in dogs and its associated risk factors in Jos metropolis. Sixty dog breeders were visited and questionnaires were distributed to each breeder to assess the associated risk factors to canine neonatal mortality. The prevalence of neonatal mortality in dogs in the study area was shown to be 73.3%. The prevalence was more in older and unvaccinated dogs. Risk factors shown to have strong association to neonatal mortality in dogs were age of the bitch and vaccination status while breed of dog and litter size did not influence the prevalence. Therefore, older and unvaccinated bitches should be carefully monitored post-natal to avoid this menace of neonatal death in dogs as it always leads to psychological disturbance, loss of income by the owner and country at large.

Key Words: Prevalence, Neonatal mortality, Dogs, Risk factors, Jos

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INTRODUCTION

Neonatal period within veterinary medicine according to [1] is considered to be the transitional phase from foetal to adult life. During this interval, anatomical and physiological changes occur as the animal move from the physical, chemically and microbiologically protected environment of the uterus to face the adaptive requirement for survival in a complex environment post-partum [2]. Papich and Davi, [3] defined the neonatal period for dog and cat as approximately the first 30-45days. After this time the hepatic and renal drug metabolism can be expected to approach adult values. Nelson and Couto, [4] stated that mortality in puppies during the first weeks of life ranges from 10 to 34%. According to [5], 8% die within the first 2weeks of life and 7% during the following 2weeks out of all puppies born. Neonatal death can be associated with some factors such as bacterial contamination of milk from bitch, congenital defects and management system.

The protective effect of canine milk is due to the combined effects of a variety of protective factors present in colostrum and milk [6]. Milk is highly nutritious but serves as an ideal medium for the growth and multiplication of various micro-organisms [7].

Milk is the principal food for neonates and can serve as a media for bacterial infections. The rate of neonatal mortality of dogs is on the increase and this may be attributed to milk infection. There is paucity of information on the prevalence of neonatal mortality in dogs in the study area which is the major city harboring most breeders of many breeds of dog in the country. Most of these dogs are exotic and very expensive. Therefore this study was conducted to determine the prevalence of neonatal mortality in dogs and its associated risk factors in the study area.

METHODOLOGY

Study Area / Sampling Size / Technique

A total of 60 dog breeders in two local government areas of the study area (Jos North and Jos South) were visited randomly and questionnaire was given to each breeder to assess the associated risk factors to canine neonatal mortality.

DATA ANALYSIS

Data collected were analyzed using simple percentage and Chi-square test was used to determine associated risk factors to neonatal canine mortality. Results were also presented in tables.

RESULTS

Table 1: Prevalence of neonatal death based on age of bitches

Age (Year)	Neonatal Death	No Neonatal Death	Total
<1	5(8.3%)	5(8.3%)	10(16.7%)
1-2	5(8.3%)	8(13.3%)	15(25%)
3-4	7(11.6%)	1(1.6%)	8(13.3%)
5-6	15(25.0%)	1(1.6%)	16(26.7%)
>7	10(16.7%)	1(1.6%)	11(18.3%)
Total	**44(73.3%)**	**16(26.7%)**	**60(100%)**

X^2= 14.208, df = 4, p<0.05(significant)

Table 2: Prevalence of neonatal death based on litter size

Litter size	Neonatal death	No neonatal death	Total
1-5	10(16.7%)	3(5.0%)	13(21.7%)
6-10	14(23.3%)	4(6.7%)	18(30%)
11-15	20(33.3%)	9(15.0%)	29(48.3%)
Total	**44(73.3%)**	**16(26.7%)**	**60(100%)**

X^2= 0.5504, df = 2, p>0.05(Not significant)

Table 3: Prevalence of neonatal death based on vaccination status of bitches

Vaccination status	Neonatal death	No neonatal death	Total
Vaccinated	35(58.3%)	14(23.3%)	49(81.7%)
Not vaccinated	9(15.0%)	2(3.3%)	11(18.3%)
Total	**44(73.3%)**	**16(26.7%)**	**60(100%)**

X^2=9.4139, df = 1, p<0.05(significant)

Table 4: Prevalence of neonatal death based on breed

Breed	Neonatal death	No neonatal death	Total
Caucasian	16(26.7%)	6(10.0%)	22(36.7%)
Alsatian	7(11.6%)	0(0%)	7(11.7%)
Bull mastiff	6(10.0%)	4(6.6%)	10(16.7%)
Neopolitan	3(5.0%)	2(3.3%)	5(8.3%)
Indigenous	3(5.0%)	2(3.3%)	5(8.3%)
Rottweiler	6(10.0%)	2(3.3%)	8(13.3%)
Cross	3(5.0%)	0(0%)	3(5.0%)
Total	**44(73.3%)**	**16(26.7%)**	**60(100%)**

X^2=5.47, df = 6, p>0.05(not significant)

DISCUSSION

The result showed that age of the bitch is a predisposing factor to neonatal death. This is in agreement with [8]; [9]; [10] and [2] who reported that age of the dam contributes to the mortality rate of puppies and piglets in their studies. This may be due to the influence of age on the reproductive performance [11].

The prevalence of neonatal mortality based on vaccination status was significantly high among the unvaccinated bitches. This is in agreement with [12] who stated that maternal immunity has an influence in mortality of pups and [13] stated that maternal infections with Canine Parvovirus, Herpes virus, Distemper, *Brucella canis*, toxoplasmosis, Mycoplasmas, *Campylobacter jejuni*, *Escherichia coli, Salmonella sp*, Beta-haemolytic *streptococci*, etc are reported to cause fetal and neonatal mortality and vaccination of dam can reduce this infection.

There was no significant difference when the prevalence was compared based on the litter size. This was in contrast with [2] who stated that the higher the litter the higher the number of possible neonatal death. This could be due good management practice adopted by the breeders. Based on breed, it was insignificant because breed is not a factor for neonatal breed groups would be required although pup mortality has been reported to vary between breeds [14].

Conclusion

The prevalence of neonatal mortality in dogs in the study area was high and it was associated with the age of the bitch and her vaccination status while breed and litter size did not affect the prevalence. Therefore, it is recommended that older and unvaccinated bitches should be carefully monitored post-natal to avoid this menace of neonatal death in dogs as it always leads to loss of income by the owner and country at large.

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