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Periodontitis and Characteristics Associated Dogs Slaughtered in a Canine Control Center and Anti-Rabies from Mexico City

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Abstract: It was determined the prevalence of periodontitis, a level of severity and associated factors in 104 dogs gathered in the streets and slaughtered in a control center and canine anti-rabies from Mexico city. Established a scale for measuring the severity based on 4 points: No apparent damage, moderate inflammation of periodontal area, periodontal inflammation of the true area and severe inflammation of periodontal area with abundant plaque dental. Under an epidemiological approach, was determined by multiple regression and analysis of variance, the significant factors and differences between races. The prevalence of periodontitis level 1, from 23.07%; level 2, from 46.15%; level 3, of 18.26% and level 4 of 12.50%. Statistically associated factors were age, the old, 3.16±0.50 ($p = 0.029$), the better nourished, with ± showed a higher rate, with 2.51±0.39 ($p = 0.000$); as well as those of race the Neapolitan mastin and great dane average rate of 4±0.90 and 80, respectively.

Key words: Periodontitis, dogs, risk factors, epidemiology, anti-rabies, Mexico

INTRODUCTION

Periodontal disease in dogs is a high incidence (Kyllar and Witter, 2005), primarily in older dogs with low body condition, primarily in small breeds and predominantly male (Sharma *et al*., 2007). The main causes are inadequate nutrition, the texture of the food consumed and little or no cleaning.

Overall, it is not enough interest in studying the epidemiology of diseases of the oral cavity of dogs and their importance in the transmission of zoonotic diseases, but is known to have close cohabitation with humans (Abarca *et al*., 2005), Mexico is no exception, but there are not enough studies related to the topic.

It is likely that periodontitis of the dog is prevalent in Mexico and important as the food is inadequate and prophylaxis scarce in most cases.

The aim of this study was to determine the prevalence, level of seriousness and probable factors associated with canine periodontitis in dogs slaughtered in a control center and canine anti-rabies from Mexico city.

MATERIALS AND METHODS

We used 104 dogs gathered in the streets of Southern Mexico City by a Canine Control Center and anti-rabies after being slaughtered, were evaluated to determine the degree of periodontitis and other features probably associated with the disease: sex, size, age, Nutritional status, obesity and race.

To determine the severity of periodontitis was used a scale based on 4 levels:

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- Without apparent damage: structure peridontal full, without inflammation or plaque dental and complete with teeth
- Moderate inflammation of the area peridontal, low presence of plaque dental, teeth complete and undamaged
- Inflammation peridontal franca of the area, presence of plaque dental, teeth complete and undamaged
- Peridontal severe inflammation of the area, abundant plaque dental, halitosis, loss or marked wear on teeth and sores in the oral mucosa

It was used for observation guide dog, to record levels of periodontitis, sex, age, size, race, nutritional status and obesity. For the old, established 2 categories: young and old on the basis of dental wear; for size: small, medium and large; for the nutritional status: nourished and malnourished, according to the BCS, characteristics of the coat and pigmentation mucous membranes; for obesity: obese and non-obese.

The statistical analysis was used multiple linear stepwise regression (stepwise) and we built a generalized linear model with the significant variables. It was used for the analysis of the statistical package JMP, ver. 3.1. (SAS, 1995).

RESULTS

The average prevalence of dogs with periodontitis Level 1 was 23.07, 46.15% of level 2, level 3 18.26 and 12.50% level 4.

From the results of the stepwise multiple linear regression (stepwise), it was determined that the age, nutritional status and race were significant ($p \leq 0.05$) and was a regression coefficient $R^2 = 0.50$.

With the significant variables in the regression model, we built a generalized linear model and analysis of variance was performed, were obtained the following results.

Significant variables

Age: Young dogs, had a level of periodontitis of 2.13±0.29 and old of 3.16±0.50 ($p = 0.029$).

Nutritional status: Malnourished, had an average level of 1.40±0.39 and malnourished 2.51±0.39 ($p = 0.000$).

Race: Great Dane, doberman, Neapolitan Mastin, Collie, Boxer, crossbreeds, Rottweiller and Golden retriever, had a higher average level of periodontitis that the Poodle, American Pit Bull Terrier, German Shepherd, Irish Setter and Chihuahueño, as shown in Table 1.

Table 1: Securities average level of severity of periodontitis by race of dogs slaughtered in a control center and canine anti-rabies from Mexico city

Breed	Average level	E.D	n
Great dane	4[a]	0.90	1
Doberman	3[a]	0.66	2
Napolitan mastin	3[a]	0.80	2
Colie	2.50[a]	0.55	14
Boxer	2.50[a]	0.64	2
crossbreeds	2.42[a]	0.47	35
Rottweiller	2.40[a]	0.45	5
Golden retriever	2[a]	0.89	1
German Shepherd	2[b]	0.51	14
Bull terrier A.P.	2[b]	0.59	3
Poodle	1.63[b]	0.52	22
Chihuaheño	1[b]	0.89	1
Irish setter	1[b]	0.72	2

Literal equal, show no significant difference ($p \geq 0.05$); DIfferent literal indicate significant difference ($p \leq 0.05$)

No significant variables

Sex: Female, had an average level of periodontitis of 2.11±0.64 and males of 2.26±0.36 ($p = 0.16$).

Size: Dog-sized boy, had an average level of 2.0±0.46, the average size 2.29±0.28 and the large size 2.66±2.29 ($p = 0.47$).

Obesity: The dogs obese, had an average level of periodontitis of 2.83±0.46 and non-obese 2.15±0.32 ($p = 0.84$).

DISCUSSION

According to the results of this study, periodontal disease is a disease prevalent in dogs slaughtered in a Canine Control Center and anti-rabies from Mexico city and can be an important and prevalent disease in dogs with homes.

With regard to gender, males had an average index of periodontitis higher than females, this coincides with results of Sharma *et al*. (2007), but the results were only designed to statistical significance ($p = 0.16$).

With regard to size, it was found that dogs large, had an average index of periodontitis higher, but the results were not statistically significant ($p = 0.47$), results in similar studies by Borissov (1999) and Costinar (2006); have been opposing, this may be because the sample size in this research, pet-size litle, was small.

With regard to age, we found that animals old, had an average index of periodontitis higher than young animals ($p = 0.029$), this coincides with the research of Costinar (2006), Isogai *et al*. (1989), Sharma *et al*. (2007) and Telhado *et al*. (2004).

As for the nutritional status, the results coincide with those of Lonsdale (2005) and Watson (1997), in the sense that animals are better nourished an average index of

periodontitis higher. In this study, obese dogs, had an average index of periodontitis higher than non-obese dogs, which differs with Costinar and Pascu (2006), but there was no statistically significant difference ($p>0.05$).

Because the assessment was conducted with dogs slaughtered in a Canine Control Center and anti-rabies, it was not possible to accurately determine the age of the dogs and their eating habits nor was it possible to balance the sample size for different races, being for larger dogs to race Criolla, that for pure breeds, so the sample size for different races was markedly different, although, the race was significant for building the regression model and analysis of variance, it is necessary to make on this subject in future work.

CONCLUSION

The canine periodontitis, a disease is prevalent in dogs slaughtered in a Canine control center and anti-rabies from Mexico City. With prevalence of periodontitis level 1 of 23.07%, level 2, 46.15%; level 3, 18.26% and leve 4, 12.50%. The age, nutritional status and race were statistically significant factors associated; being old, malnourished and large breeds, which showed rates of more severe periodontitis.

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