Periodontal disease and its systemic consequences – a retrospective study with 136 animals

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Background: Periodontal disease (PD) is one of the most frequent and widespread inflammatory diseases in dogs, with the dental microbial biofilm combined with the animal immune-inflammatory response being responsible for the onset of PD pathogenesis[1]. Along with local effects, systemic consequences can occur secondary to bacteraemia from dental plaque, which can affect distant tissues and organs[2,3]. The main goal of this retrospective study was to characterize a canine population (PD group and control group) and to access and evaluate the association between PD and systemic consequences (renal, hepatic and cardiac).

Methods: Sampling included dogs from both genders, with no breed or age selection, that have been diagnosed with PD. Additionally, a group of dogs with the same general characteristics but without PD was included has a control group. Clinical records of all animals were assessed for general and systemic information. Variables evaluated included age, gender, weight, breed, reproduction status (neutered or not), historical medical data, PD stage and systemic information, namely signs of renal, hepatic and cardiac diseases. Clinical evaluation and complementary methods were used to characterize systemic conditions. Variables were statically analysed by general linear model and Odds-Ratio, in order to evaluate its relationship with PD.

Results: A total of 136 animals were analysed, being 55.1% (n=75) diagnosed with PD and 44.9% (n=61) without PD, belonging to the control group. In general population characterization, increasing age was proven to be a risk factor (OR=1.04, $p<0.01$) in PD establishment, and small breeds (< 10 Kg) were the most prevalent in PD group, being more susceptible to this disease. On the other hand, no influence of gender or reproductive

status was observed in PD progression. Regarding systemic diseases, a statistically significant association (p=0.026) was obtained between cardiac disease and PD, more precisely between valvular disease in general (p=0.044) and valvular disease without myxomatous valvular degeneration (p=0.048).

Conclusion: These results showed that PD can have a significant adverse impact on animals' health, being related with systemic consequences, which may increase morbidity and mortality of dogs with PD. Cardiac disease has been previous related to PD in humans and dogs, in agreement with our study[3,4]. PD prevention, with focus on owner's information about this disease, are essential points for an active PD control program.

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