

Clindamycin Use for Periodontal Disease in Dogs

Periodontal disease is a commonly occurring problem in dogs. This is a disease where food and bacteria have accumulated and mineralized to tartar. If not removed, it is possible for the tartar to build up under the gumline and begin to separate the gingiva from the teeth. This forms pockets, which are breeding grounds for bacteria. Inflammation from periodontal disease damages the periodontal ligament and alveolar bone leading to periodontal pocketing, gingival recession, and bone loss. Some of the risk factors for developing this disease include age, diet and breed of the canine, as well as home care provided by the pet owner. Signs of periodontal disease that veterinarians can warn pet owners to look for include bad breath, bleeding, receding and reddened gingiva, mouth sensitivity, pawing at the mouth, missing teeth, loss of appetite, drooling, difficulty eating, or even depression. This disease is diagnosed by looking at how much tartar has accumulated, the health of the gums, and the depth of the pockets that have formed between the tooth and the gum. Periodontal disease can be classified as stage I, II, III, or IV. According to the Merck Veterinary Manual, in stage I, gingivitis is present, but there is not attachment loss and the alveolar margins are normal. In stage II, early periodontitis is present, there is less than 25% attachment loss or stage 1 furcation involvement and some early radiographic signs of the disease. Stage III is classified as moderate periodontitis. There is 25-50% attachment loss which can be measured by probing the gingival pockets, by radiographic determination or stage 2 furcation involvement. Stage IV is advanced periodontitis, where there is over 50% attachment loss. It is measured in the same way stage III is or there can be stage 3 furcation involvement. Grades I and II are much easier to treat than grades III and IV.

If periodontal disease goes untreated, it is possible for the bacterial infection to spread into the blood stream of the animal, which can have serious consequences such as heart disease. The best thing to do for periodontal disease is to prevent its occurrence in the first place. Plaque removal and control can be done at home using a variety of products. Pet owners should brush their dog's teeth daily to prevent tartar accumulation. If a

toothbrush cannot be used, a gauze pad or dental wipes can be used every two to three days. There are also several dental chews available that can help reduce plaque buildup. The Veterinary Oral Health Council is a great resource for a list of approved products that can be used for prevention of plaque



buildup disease. Any risk factors that the dog may have—such as teeth crowding, retained deciduous teeth, predisposing anatomy, diabetes, renal problems, and any behaviors that may damage the tissue of the mouth should be identified and addressed. If the time for prevention has passed and treatment is necessary, several different methods can be used. If a diagnosis has been made for periodontal disease, the dog should be started on a round of antibiotics, before scaling, polishing, planing, and any other necessary treatment occurs. If the condition of the gum is bad enough (grade III or IV), then antibiotic use after treatment may be necessary as well. The antibiotics have been shown to decrease the bacterial load in the mouth, as well as treating any osteomyelitis if present. Usually, plaque contains gram positive species of bacteria that are relatively safe, however, when the plaque becomes very thick, oxygen cannot penetrate in and pathogenic gram negative anaerobic species begin to take over. Antirobe (clindamycin), is an antibiotic that is recommended for use in these situations. It is indicated in dental infections and osteomyelitis that is caused by *Staphylococcus aureus*, *Bacteroides fragilis*, *Prevotella melaninigenicus*, *Fusobacterium necrophorum*, and *Clostridium perfringens*. Clindamycin is available in several different forms including oral capsules and oral dose liquid aquadrops. The capsules come in several different strengths, including 25 mg, 75 mg, 150 mg, and 300 mg to help simplify dosing. The aquadrops have a concentration of 25 mg/1 mL. Both the capsules and oral liquid drops

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should be stored at room temperature. According to the supplemental new animal drug application, the recommended dose range is 2.5-15 mg/lb (5.5-33 mg/kg) every twelve hours for dental infections and should be given for a maximum of 28 days for this indication. It is suggested to use the lower end of the dose range if possible. Clindamycin will be rapidly absorbed from the gastrointestinal tract after administration, and serum levels will be maintained above 0.5 µg/mL with a 2.5 mg/lb dose given every 12 hours. Peak serum concentration levels will be reached 75 minutes and the elimination half-life is around five hours. The drug is eliminated through the urine and feces. The activity of the drug in the serum has been shown to be due to the parent molecule, however, urine bioactivity shows activity from both the parent molecule and some active metabolites. Clindamycin works by inhibiting bacterial protein synthesis. It binds to the 50S sub-unit of ribosomes and inhibits peptidyl transferases, which causes irreversible inhibition of protein synthesis at the ribosomal level. This antibiotic is a lincosamide and has activity against many different kinds of aerobic and anaerobic bacterial pathogens, including the ones previously listed above. Kidney and liver functions should be assessed before clindamycin is given to ensure that the dog will be able to properly metabolize and excrete this medication. Some common side effects to warn pet owners of include vomiting, diarrhea, decreased appetite, and weight loss.

There is also a topical 2% clindamycin hydrochloride gel that can be used if it is necessary to clean out the periodontal pocket during treatment. This will start out as a liquid that can flow into the periodontal pocket, where it will quickly form a gel that will act as a physical barrier to prevent new bacteria from being introduced into the site. When providing this treatment along with dental cleaning (scaling and root planing), it was shown to statistically decrease periodontal pocket depth by 19%, gingival index by 16%, the number of bleeding sites by 64%, and suppurating sites by 93%.

In conclusion, dental health is an important issue in veterinary medicine and client education is essential. If plaque buildup is not prevented and treatment is necessary, clindamycin is a great option that can be used before and after dental procedures, as well as during dental procedures to prevent more bacterial growth. This drug is well tolerated by pets and comes in multiple forms and



strengths to make dosing any size animal simple.

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