

Shockwave Therapy for Osteoarthritis



Radial shockwave therapy (RSWT) was recently introduced for treatment of osteoarthritis (OA). RSWT has chondroprotective effects (eg, decreased metalloproteinase synthesis, increased type II collagen synthesis) and can cause increased blood flow to subchondral bone. The purpose of this study was to evaluate the effects of RSWT on canine coxofemoral OA using clinical assessment and kinetic analysis.

Dogs with bilateral coxofemoral OA ($n = 30$) were enrolled. One limb from each dog was randomly selected for RSWT treatment; the contralateral limb served as a control. Healthy dogs ($n = 30$) were also enrolled to serve as a normality reference for kinetic parameters. RSWT was applied in 3 weekly sessions with follow-up data collected at 30, 60, and 90 days after the first treatment session. Peak vertical force and vertical impulse were documented, and symmetry index was calculated. A visual analogue scale was used to evaluate dogs clinically and to assess owner perceptions regarding quality of life and physical activity at home. The mean peak vertical force and vertical impulse values significantly increased in the treated limbs with no significant difference in the control limbs. Visual analogue scale scores suggested improvement in pain and lameness in treated dogs. Owners reported improvement in quality of life and level of activity. The authors concluded that RSWT has beneficial effects in dogs with coxofemoral OA and that

further studies are warranted to determine the ideal treatment protocol.

Global Commentary

There is a current interest in more conservative therapies for long-term OA management in companion animals. Physical modalities such as radial extracorporeal shockwave therapy (rESWT) have been reported to have beneficial effects in degenerative joint disease. Extracorporeal shockwaves are acoustic waves of high pressure and velocity produced outside of the body that generate compression/tension forces and cavitation bubbles in the tissues through which they travel. These forces have the potential to generate large amounts of energy in the tissues and to induce rESWT's cellular and tissue effects (eg, decrease in pain and inflammation, increased neovascularization).

The results of this study confirmed previous studies reporting increased ground reaction forces and analgesic benefit of rESWT in dogs with hip OA.¹ This modality has additional applications in veterinary medicine; it has been reported to have positive effects in treating tendinopathies and ligament conditions, delayed or nonunion fractures, and wounds. Although these

results are promising, further studies are necessary to determine the best protocol. rESWT is becoming more available to physiotherapists and veterinarians, so clinicians interested in using this therapy should be aware that negative effects may be observed when high doses are applied, when an increased number of doses is applied, or when application is focused on areas with sensitive structures.

The most common side effects are petechiae and bruising of the treated area and discomfort during and after application. I would recommend administering short-term general anesthesia or heavy sedation during treatment and analgesics for a few days afterward.—*Pilar Lafuente, DVM, PhD, DACVS-SA, DECVS, DACVSMR, CCRT*

Reference

1. Mueller M, Bockstahler B, Skalicky M, Mlacnik E, Lorinson D. Effects of radial shockwave therapy on the limb function of dogs with hip osteoarthritis. *Vet Rec.* 2007;160(22):762-765.

Source

Souza ANA, Ferreira MP, Hagen SCF, Patricio GCF, Matera JM. Radial shock wave therapy in dogs with hip osteoarthritis. *Vet Comp Orthopaed Traumatol.* 2016;2:108-114.

Extracorporeal shockwave therapy has been reported to have beneficial effects in degenerative joint disease.