Study: Laser treatment helps dogs with spinal cord injury

By Sarah Carey

Veterinary technician Amy Reynolds performs a laser procedure on a patient.

The use of lasers in veterinary medicine is not new, but University of Florida veterinarians say they are now using the procedure postoperatively with great success in dogs with paralysis caused by intervertebral disc disease.

"Dogs that receive low-level laser treatment after initial surgery are walking a full week earlier than patients that do not receive the treatment," said Dr. Tom Schubert, a professor of small animal neurology at UF's College of Veterinary Medicine. "This means less hospital time for the patients, and less stress for patients and their owners."

Clinicians at UF's Small Animal Hospital began using the procedure routinely after results from a year-long study showed the laser's effectiveness in patients with intervertebral disc disease, which is the most common cause of endogenous spinal cord injury. Schubert and Dr. Bill Draper, a small animal neurology resident, presented their study results in June at the American College of Veterinary Internal Medicine's annual meeting in Denver.

The study is the first ever to compare dogs with intervertebral disc disease treated postoperatively with lasers to dogs not treated with lasers, Schubert said. He called the results "revolutionary."

Thirty-four dogs were included in the study, with 17 in the treatment group and 17 in the control group. The overwhelming majority of the dogs — 75 percent — were dachshunds, a breed genetically prone to intervertebral disc disease.

All dogs included in the study came to the UF Small Animal Hospital unable to walk, and some had lost the ability to experience the sensation of deep pain in their back legs. In addition, all of the dogs had their diagnoses confirmed through either MRI or CT scanning, and all underwent decompressive surgery after their diagnoses, said Schubert.

After receiving training and becoming certified in the laser's use, Schubert convinced the laser manufacturer, Thor Photomedicine Ltd., to loan the equipment to the UF Veterinary Hospitals for the study's duration.

"The company wanted proof that the equipment works, so they were willing to loan it to us," Schubert said. After the study's conclusion, UF found funds to purchase the equipment, he added.

"We are currently seeing two to three patients a week with intervertebral disc disease and we are routinely treating all of them with the laser," Schubert said.

The idea of studying the laser's effectiveness on patients with this disease came to Schubert after he heard a former colleague give a presentation on the effectiveness of laser treatment on animals receiving physical therapy for various conditions.

"I started wondering if we could use this technique in spinal injury cases," Schubert said. "In addition, I am always looking for projects for my residents, so Dr. Draper and I did some research and reviewed the literature on the use of lasers to help spinal cord injury. Then Dr. Draper put together a protocol. Now we can see that indeed, the laser therapy does help our patients."

The laser used in the study was a Class 3b of the near infrared range.

"In humans, this wavelength has been shown to speed healing of conditions such as muscle pain and superficial wounds," Shubert said. "In animals, it has been shown to prevent nervous tissue scarring, to promote nerve sprouting and to help heal bruised spinal cords in rats."

Schubert said light therapy is known to affect certain elements within the body, resulting in beneficial effects, "much like light affecting chlorophyl in plants."

"After spinal cord injury, broken down cells affect other cells, so you want to restore normal metabolism as soon as possible," Schubert said. "One function of laser therapy is that it kind of kick-starts the metabolic chain at the mitochondrial level and thereby restarts the production of the energy the cell uses to maintain all of its mechanisms."

He said the results of the UF study were "amazing" for several reasons.

"Patients walk sooner, they avoid additional medical complications, their owners save money and the animals are less stressed due to less hospitalization time," Schubert said. "The results were so profound that we're doing this procedure now on all dogs that come to us with this condition."

Anyone seeking information about treatment of intervertebral disc disease in dogs may contact UF's Small Animal Hospital at 352-392-2235.