Owners, Experts Share Experiences, Discuss Possibility that K (Laser) is Okay for Treatment of IPF in Westies

By Teresa Barnes

Tyler

University of Minnesota Veterinary Medical Center Rehabilitation Manager, Kim Colvard, with Tyler

Dr. Lindsay Merkel with Tyler

When PJ Kessler's West Highland White Terrier, Tyler, developed a cough and breathing issues following surgery for a torn anterior cruciate ligament (ACL), she feared the worst for her pet.

Tyler's veterinarian, Lindsay Merkel, DVM, Assistant Clinical Professor, Small Animal Internal Medicine at the University of Minnesota Veterinary Medical Center, wasn't sure, at first, the cause of his symptoms. Upon further examination, Merkel heard crackles (or a sound like paper crumpling) in the dog's chest. A CT scan confirmed her concerns and helped her make the diagnosis of Idiopathic Pulmonary Fibrosis (IPF), also known in the Westie community as "Westie Lung Disease" (WLD).

Kessler was familiar with the disease and knew what it meant for her dog – the lung disease was deadly and most dogs were lucky to survive just a few months. She also knew that much research was being done in IPF, much of it through visibility of the work driven by the Westie Foundation of America (WFA). She quickly learned there were two relatively new drugs that had been approved by the U.S. Food and Drug Administration for humans with the same disease, but they were unavailable for canines.

Unwilling to accept the fate of almost imminent death for her dog, Kessler sought options. She began with her own veterinarian, Dr. Merkel, and her friend, Sandy Gilmer. Gilmer's dog, Kalie, suffered from IPF and was treated with a class III laser. She survived for five years with treatment. Kessler quickly learned about a therapy that had been used in other diseases and conditions that researchers, including Merkel, were interested in testing in Westies.

A class IV laser therapy using a device called K-Laser may offer some relief for Tyler and other canines. Certified veterinary technician, MacKenzie Quast, works with Merkel at University of Minnesota, and has performed the therapy on Tyler. She says lasers have been used successfully in the treatment of post operative arthritis as well as osteoarthritis and post operative knee and back surgeries. She said the laser treatment reduces inflammation and pain in the area of treatment. "It is an accepted treatment tool in our arsenal for various conditions".

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Laser therapy has been used for about 20 years in veterinary medicine, however, the class IV laser devices, such as the K-Laser, were cleared by the FDA in 2005.

There is much to be done to prove, scientifically, if the laser is an effective treatment for IPF in dogs, as there are no clinical research studies completed that demonstrate the efficacy of the treatment for the disease in canines.

"At this time, we don't have enough data to confirm that we are seeing longer remissions or duration of disease control with the addition of laser therapy. Subjectively, the patients that have received it are more comfortable, are using less medication, and seem to have improved duration of control of disease compared to historical information," said Merkel.

There are other experts besides Merkel who have seen the same improved outcomes in other Westies. In an article written for the Westie Foundation of America (WFA) in 2009, Michael Ina, DVM, of Arguello Pet Hospital in San Francisco, described laser treatment performed on Gilmer's Westie with similar results as the ones Merkel continues to use on Tyler.

He wrote: "On February 17, 2009, we took radiographs to compare the lungs after the laser therapy… Although the lungs are not completely inflated, they do appear somewhat more lucent on today's study. The bronchovascular markings remain indistinct but are improved in appearance. No evidence of free pleural fluid. Conclusion: There appears to be an improvement in the appearance of the lungs compared to the previous study."

The next step is to validate the results in Merkel's case study of a single dog, and to set up a clinical study at the University of Minnesota.

"We are working on getting a standardized exercise tolerance measurement or test to assess before and after laser therapy response to be able to accurately prove our results are valid improvements. We currently have not seen an improvement in the results of the CT scan or blood gas data, but we have fewer cases where we have that data. We are very hopeful we will prove there is a true vs. perceived improvement," said Merkel.

Anecdotally, Quast believes it is helping though the subsequent CT scan of Tyler's lungs after therapy shows the IPF is still progressing. "Symptomatically, the dog is doing better," she said. According to Quast, before treatment, the dog had a markedly worse cough, was panting more and struggled to walk around. Now, she says, the dog can walk longer and further and is panting less. "Symptoms and quality of life seem to be improving."

Merkel says the most common change with the use of the laser for IPF is a decrease in the severity of the cough experienced by the patient with an increase in exercise and activity tolerance, overall improved breathing ease and comfort. "We can also see a decrease in the number and amounts of medications needed to keep the patient comfortable," she said.

The therapy is non-invasive and the K-Laser device produces an infrared light that is emitted from a wand that the technician moves over the treatment area. For the treatment of this canine, Quast treats the dogs left side and then right side of the thoracic area or the area on the underside of the dog's chest. The laser therapy is performed without sedation and the dog may get up and move normally following completion which usually takes 25 minutes.

Merkel and her technician follow a protocol produced and recommended by the product manufacturer which includes what she calls a "3,2,1 system": three times a week for the first week, twice the second week and once the final week. Thereafter, she says, it is used on an as-needed basis. Most patients receive one to two treatments per week and taper when they start to see symptom subside. Treatments are continued through the patient's life and the veterinarian works to develop a frequency of treatments

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that work best for each patient. The recommended maintenance protocol is once every three to four weeks as needed for the life of the dog.

Results vary, she says, but Dr. Merkel is seeing positive changes. "Every patient is different in how long it takes for results to be seen by the owner and veterinarian. Some improvements can be seen within a day to as long as three weeks or longer. It is dependent on the extent and severity of disease," she said. "Laser is not a cure for WLD, but shows promise as a means to help make the pet more comfortable."

At $27 per laser treatment and no other real options, owners like Kessler have been willing to try and continue the treatments.

"K-Laser has no curative effect," said David Bradley, DVM, an executive who works for K-Laser USA. "The main benefit is decreasing symptoms and the amount of drugs needed for symptoms. It seems to slow progression."

WFA board member and Houston-based veterinarian, Kay McGuire, DVM, is optimistic about the laser's use in IPF in Westies. "I use the laser for all kinds of treatment. I definitely think it's beneficial and it makes sense," she said. "No one really actually knows what it is doing, but they can see the end result."

Elizabeth Rozanski, DVM, at Tufts University isn't so sure. She has extensive experience in IPF in canines hasn't yet used the laser technology for dogs with the disease, but is familiar with Merkel's work using the laser. Rozanski is anticipating future clinical studies using it. "I think it is a placebo effect but I don't know for sure," she said.

Laser therapy is not currently used for IPF in humans and some human pulmonary researchers are seeing laser treatments for lung disease in humans limited to diseases of the airways and bronchi, such as COPD and asthma. IPF is a disease of the lung tissue that becomes damaged and scarred.

However, in 2015, there was a bleomycin-induced mouse study published in the European Respiratory Journal that suggests low level laser therapy (LLL) could hold promise for humans. In their published papers, lead author Nicole Cristine Rigonato-Oliveira of Laboratory of Pulmonary and Exercise Immunology, Nove de Julho University, Sao Paulo, SP Brazil concluded, "The results indicate that LLL reduced pulmonary inflammation, by reduction cell numbers in the BAL ($p<0.05$) and levels of cytokines IL1 β, IL6, IL10, IFNγ and TNFα ($p<0.05$). There was a reduction of inflammatory mediators in the supernatant of cell cultures ($p<0.05$), collagen deposition in the airways ($p<0.001$) and caspase 3 ($p<0.05$). In contrast, the levels of PCNA [proliferating cell nuclear antigen] were elevated ($p<0.001$). We conclude that LLL reduced the impact of IPF mediated through modulation of the inhibition of pro-inflammatory cytokines and increase expression of PCNA."

"It's just so unbelievable how much the laser therapy is helping our Westies with this disease," said Kessler. "The best thing is there are not any terrible side effects."

Kessler and other Westie owners whose dogs have been diagnosed with IPF/WLD created a Facebook page on which to share and compare information and experiences. More than 600 Westie and other terrier owners and enthusiasts participate in the closed group. Merkel and Bradley are advisors to the group and help to answer technical and medical questions the group has on the subject.

According to Merkel, most members of the WLD Facebook group are seeing good results including a significant decrease in their dogs' symptoms. "The patients that are the most likely to have positive results are ones where the disease has been recognized early and where treatment with the laser has started early," she said.

You may find the WLD closed Facebook page at the group's webpage at westielungdisease.net. The Facebook page's administrators, in addition to Kessler, are: Sandy Gilmer, Janet Kurnick and Renaye Delano.

Note: For information provided by the manufacturer of K-Laser, see the story that appeared in the Summer 2015 issue of the WFA newsletter (pages 18-19).