



# Old

## Addressing Anesthesia

03

PART THREE

# Dogs Rule

Adapted from a podcast with Dr. Fred Metzger, DVM

6 PART SERIES

*YOUR BEST FRIEND is a little slower on his walks, but he still loves to play. He sleeps more and his joints ache a bit, but he is as happy as he was the day you first met. He has become a little grey in the face, but he never complains. He is a member of an elite crowd and you wouldn't have it any other way because you know ... **Old Dogs Rule.***

*To help celebrate the joy senior dogs bring to our lives, we will be publishing a six-part series "Old Dogs Rule" (compliments of the Canine Health Foundation) which will cover many aspects of caring for senior dogs. We hope you will enjoy!*

## Addressing Anesthesia Concerns in Senior Dogs

Advances in veterinary medicine, nutrition and quality of life contribute to dogs living longer today than ever before. As a result, senior dogs make up around 40 percent of the total dog population. Not surprisingly, older dogs are increasingly vulnerable to diseases that may require anesthesia as part of the treatment process.

Due to the natural physiological deterioration that occurs with age, experts estimate that the risk of anesthetic death increases as much as seven times for dogs older than 12 years of age. Oftentimes, older dogs have significant underlying diseases that complicate their ability to be anesthetized with a good outcome.

Anesthesia complications commonly seen in older dogs include low blood pressure, or hypotension; low heart rate, or bradycardia; low blood oxygen, or hypoxemia; and prolonged recovery. Older dogs also are prone to hypothermia, or dangerously low body temperature, which slows their metabolism and recovery from anesthesia.

The best results occur when senior dogs are considered as individuals and when each anesthesia episode is treated individually. "I think it's most important to tailor your protocol to an individual dog," says Courtney Lane Baetge, D.V.M., DACVAA, clinical assistant professor in the cancer treatment center at Texas A&M University (TAMU). "It also is important to monitor a dog well and to adjust the anesthesia based on the dog's responses during the procedure. There are no cookie-cutter protocols."

Nora Matthews, D.V.M., DACVAA, professor emeritus, TAMU,

agrees. "It is very important to consider each dog as an individual. Geriatric dogs are often 'fragile' and have specific needs. Fortunately, anesthetics have become safer with shorter-acting agents that go away faster."

Anesthetic doses for older dogs generally are reduced as much as 50 percent to account for their increased sensitivity and reduced physiological functioning.

"The goal is to provide safe and comfortable anesthesia," says Dr. Matthews. "Drug protocols and dosages should be carefully monitored to prevent an overdose or prolonged recovery. With the right preparation and monitoring, a geriatric dog can do quite well."

Before receiving anesthesia, senior dogs should have a thorough physical examination that includes a medical history of previous diseases, complete blood count and auscultation of the heart, in which a veterinarian listens to the heart with a stethoscope. If a heart murmur is detected, chest radiography or cardiac ultrasound may be necessary. Current medications a dog is taking should be considered as well.

"Any of the behavior-modifying drugs prescribed to geriatric dogs can have serious, even deadly, interactions with anesthetic or analgesic drugs," Dr. Matthews explains. "I think most owners value the importance of these pretests in helping to ensure their dog receives safe anesthesia."

Knowledge of underlying diseases should be considered in determining appropriate anesthesia. One study showed that nearly 30 percent of geriatric dogs had undiagnosed subclinical disease and 10



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percent had anesthesia canceled due to these other diseases. In cases such as this, the anesthesia is generally canceled to further investigate changes on blood work or to better stabilize the patient prior to anesthesia.

“Our cancer patients often have comorbidities (two or more diseases/disorders occurring at the same time) that change with repeated anesthesia, treatments and cancer involvement,” Dr. Baetge says. “We have to adjust the anesthesia to accommodate these changes. Just as in people with cancer, dogs have good and bad days during the course of treatment. Each morning, we assess our patients for their physical and emotional health before planning their anesthesia for that day. It is definitely adjusted depending on the needs of a particular dog for that particular day.”

Among best practices used during anesthesia is intubation, the placement of a flexible plastic tube into the windpipe (trachea) to maintain an open airway. This helps to protect the airway and help maintain positive pressure ventilation. Fluids should be given as needed to replace fluid losses and counteract the vasodilatory (widening of blood vessels) and hypotensive (low blood pressure) effects of anesthetic agents.

Vigilant monitoring during anesthesia is the best defense against potential problems in older dogs. Monitoring entails tracking a dog's oxygen saturation using pulse oximetry, level of exhaled carbon dioxide, known as end-tidal carbon dioxide, blood pressure, electrical cardiac functioning via an electrocardiogram, and temperature.

“Early intervention and correction of problems before there are permanent consequences is possible with vigilant monitoring,” Dr. Matthews says. “For example, early recognition of hypothermia allows for treatment to prevent the prolonged recoveries seen in these patients.”

Advances in cancer treatment for dogs have helped to advance anesthetic practices. “Cancer treatment has pushed the limits of how much older patients are anesthetized,” Dr. Baetge says. “Our patients have a lot of soft tissue sarcomas, nasal tumors and brain tumors that we treat with TomoTherapy®. Most patients require five treatments a week for a month or longer. Few patients complete 20 treatments without some modification to their initial anesthetic protocol.”

TomoTherapy is an advanced form of intensity modulated radiation therapy that has the accuracy of computed tomography scanning



Tweed's Braveheart, "Willie."

technology. Introduced at TAMU in 2011, it provides powerful, precise radiation beams to hard-to-reach tumors. The radiation is planned within millimeters, thus requiring a dog to remain perfectly still in exactly the right position throughout the entire treatment to ensure correct treatment of the tumor and protect healthy organs.

“Radiation itself helps tremendously to alleviate pain. We also provide palliative treatment for dogs with tumors using analgesics to help manage the pain, but not with the intent of curing them,” says Dr. Baetge. “These dogs receive one to three treatments per week. Some of these cases may only be treated one time on an as-needed basis to help manage the pain.”

The future of anesthetics in treating older dogs is likely to involve greater use of IV catheters and fluids, predicts Dr. Matthews. Best of all, as veterinarians and owners become increasingly aware of the importance of determining anesthesia on an individual basis and of careful monitoring during anesthesia, the ability to provide dogs with safe and comfortable anesthesia is likely to become a routine part of their care.

### Veterinary Anesthesiology Specialists

Veterinarians who are boarded by the American College of Veterinary Anesthesia and Analgesia (ACVAA) are specially trained to provide anesthesia and analgesia care to dogs. Both Drs. Baetge and Matthews in this article are ACVAA diplomates. These specialists often work in private veterinary practices and provide consultation services as well. To find a specialist who is boarded by ACVAA, visit their website: <http://acvaa.org/> ■



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