

## Veterinary Anesthesia

November 1, 1989 by Margaretta Wood, AKC Gazette Breed Columnist

We are very pleased to provide excerpts from a report by Alan M. Klide VMD, Professor and Chief of Veterinary Anesthesia at the University of Pennsylvania School of Veterinary Medicine.

Anesthesia is a process during which a patient is unaware, does not feel pain, and has minimal responses to a pain-producing event. This is accomplished by giving certain drugs, either by injection or inhalation. The drugs which produce this necessary and important state also have effects not only on the brain, but on many different parts of the body. In general, these effects are bad as they interfere with normal function. The degree of this interference is usually small, and the duration usually relatively short, so that the patient can tolerate these effects.

Sometimes the body cannot compensate for the effects of the drugs, and major problems occur. These drugs can affect many systems, but the ones that are most critical are the respiratory system (breathing) and the cardiovascular system (heart and blood vessels—circulation). If breathing is depressed, the patient can be ventilated mechanically until the drug wears off. If the heart is depressed, it can be stimulated up to a certain point. If depression cannot be overcome, the patient dies. This is not meant to scare you, but you do need to understand what happens under anesthesia and what the risks are.

It is commonly believed by many dog breeders that their breed is particularly sensitive to “anesthesia” or the effects of certain drugs. There is very little scientific information to show that there is a difference between breeds in response to drugs; however, there is some. Sight-hounds and Greyhounds, in particular, have been studied, but there is no other information to indicate that anesthesia is any more or less dangerous in any other breeds.

Anesthesia has changed markedly in the last thirty years, and even though there are still some risks involved, it is much safer now than it was then. There is no question that there is a wide range of responses between individuals, and this range of responses is most obvious with anesthetic drugs. There are differences in breeds in relation to their attitudes on life, pain and adversity. Some breeds will awake from anesthesia very differently than others. The likelihood of excitement during recovery depends a great deal on the site of surgery. A dog that has had head or neck surgery is more likely to awake with excitement than a dog who has had abdominal surgery.

Veterinarians are taught various aspects of anesthesia throughout their time in veterinary school. The subject requires a thorough understanding of how the body functions and the effects of drugs and disease on the body, then builds on this base of information to be able to determine the best drugs and techniques to use in different circumstances. Computers are beginning to be used in teaching and clinical veterinary medicine as well, and are capable of doing calculations in the operating room in addition to containing information instantly available on many subjects of critical importance.

In veterinary practice, anesthesia may be administered by different people. The veterinarian may administer it himself, and there are now trained animal health technicians who may be the administrators. Rarely in veterinary practice does one veterinarian do the surgical procedure and another vet administer the anesthetic, as in human anesthesia, except in veterinary schools and in a few practices.

Many drugs are given when a dog is anesthetized. The first drugs are called the pre-anesthetic drugs, with one type being used to decrease secretions and to keep the heart from going too slowly during the beginning of anesthesia. Another kind of drug would be given to sedate the dog. This drug may be a narcotic, tranquilizer or sedative. Then anesthesia is most commonly induced with an ultra short-lasting barbiturate given intravenously. Anesthesia may also be induced by having the dog breathe an inhalation anesthetic. After it is induced, a tube is usually placed through the mouth into the trachea so that the dog can breathe without any obstruction to the flow of air in and out of the lungs, and to prevent aspiration into the lungs of material regurgitated up from the esophagus or stomach. The endotracheal tube is then connected to an anesthesia machine from which the dog breathes an inhalation anesthetic. The most common ones are halothane, Isoflurane and methoxyflurane. After anesthesia, the endotracheal tube is removed as the dog awakens, at which point the dog may receive medication to prevent pain at this point.

There are many drugs in each category, each with different properties that make them useful or dangerous under different circumstances. There is, almost never, only one way to do anything, and this is true for anesthesia too. In any particular circumstance, different drugs in each category may be appropriate or on the other hand, definitely not used. Anesthesia is a highly important, common, but dangerous part of veterinary medicine. It can be done in a manner which makes it as safe as possible, or it can be done in a manner which is less safe.

— A. M. K.

Know your animal and consult openly with your veterinarian!

— Margaretta Wood, AKC Gazette Breed Columnist

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