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Is Anesthesia Safe?

We anesthetize patients on a daily basis at New Berlin Animal Hospital. At least once per week, a pet owner expresses concern about anesthesia: Is it safe? Will my pet survive the procedure?

Modern anesthesia is very safe. The risk of a pet dying under anesthesia is less than 1% based on surveys taken from veterinary practices nationwide. The rare patients that are lost under anesthesia are generally emergency surgeries, when the patient's condition is extremely critical. The risk of a pet dying under anesthesia while undergoing an uncomplicated spay, neuter, dental or mass removal is extremely low, but this risk can be affected by the anesthetic drugs used and the monitoring of the patient as well as any underlying health condition that is not detectable on an exam.

Can you imagine an anesthesiologist in a human hospital using ether or chloroform in the 21st century? Of course not! But, unfortunately (and surprisingly), there are no standards of care for veterinary anesthesia, and some clinics are still using out-of-date techniques. Here is a list of questions to ask your veterinarian the next time your pet is scheduled for an anesthetic event:

- 1) **Is pre-anesthetic blood work performed?** All patients, not just the old or sick, should have basic pre-anesthetic blood tests performed checking the blood sugar, kidney values, and red blood cell count. Many animals will require more extensive pre-anesthetic blood work. Even in animals under one year of age, blood work will occasionally detect abnormalities that could affect anesthesia. Here at New Berlin Animal Hospital, we run blood work on every patient before performing an anesthetic procedure.
- 2) **Are intravenous fluids administered during anesthesia?** Many drugs used for general anesthesia tend to cause blood pressure to decrease. Intravenous fluids will combat this decrease. In addition, if there are any adverse reactions under anesthesia, an intravenous catheter allows immediate administration of emergency drugs. All of our patients have an IV catheter placed and are on IV fluids during the anesthetic procedure.
- 3) **Is the pet's body temperature maintained during and after anesthesia?** All pets, especially cats and small dogs, lose a lot of body heat under anesthesia. The resulting hypothermia can slow the anesthetic recovery. Anesthetized pets should be placed on a recirculating warm water pad and/or under a warm air blanket.

Conventional heating pads are risky because they can cause burns. Our surgical and dental tables have warm water recirculating pads to keep the patient warm during surgery as well as warm body heat reflecting pads and warm air blankets available after surgery.

- 4) **Is the patient intubated, and what anesthetic gas is used?** Intubation means that the patient has an endotracheal tube placed through the mouth and into the trachea, through which gas anesthetic is administered. The endotracheal tube allows controlled respirations if the patient is not breathing well on his or her own, and prevents accidental inhalation of stomach contents if the pet vomits under anesthesia. Virtually every surgical procedure done in dogs and cats requires intubation and gas anesthesia. The modern gas anesthetics are isoflurane and sevoflurane. Halothane and methoxyflurane are out-of-date. We use isoflurane gas inhalant on all of our patients that require intubation for surgery.

- 5) **What pain control is used?** Surgery hurts! It doesn't matter if the patient is a human, a dog, or a guinea pig. Analgesia is the relief of pain, and in modern anesthetic protocols, we strive for pre-emptive analgesia (blocking the pain pathways before the painful procedure starts), and balanced anesthesia (trying to block the pain pathways from as many directions as possible). At our hospital, we are very aggressive about pain management. Our patients are given pain medication before, during and after a surgical procedure. Research has shown that if pain medication is given before surgery that the patient will have less discomfort after.

- 6) **What monitoring techniques are used?** It is critical to monitor the patient's vitals while under anesthesia to ensure that the respiratory and cardiovascular systems are functioning well, and to ensure that the patient is not under too lightly or too deeply. Most important is that someone besides the surgeon (who is occupied) is monitoring the heart rate, respiratory rate, and anesthetic depth. At New Berlin Animal Hospital, we *exceed* most clinics by providing:
 - a) An *electrocardiogram* (EKG or ECG) to monitor the heart rate and rhythm looking for arrhythmias.
 - b) A *pulse oximeter/SPO₂* to monitor the percentage of oxygenation of the blood, which should be close to 100%
 - c) *Blood pressure* monitor because many patient's blood pressure drops during surgery. If the pressure drops too low, organ systems such as the kidneys can suffer.
 - d) *End tidal CO₂ or capnograph* to monitor the respiratory rate and carbon dioxide level. This provides information on how well the patient is being ventilated.
 - e) *Body temperature monitor* so that the patient stays warm and comfortable during the surgical procedure.

- f) *Certified Veterinary Technician (CVT)* that is dedicated to monitor and stay with your pet throughout the anesthetic procedure and after surgery. CVT's are college trained and board certified. Many veterinary clinics do not have CVTs.

As you can see, modern anesthesia involves a lot of equipment and expertise, and this unfortunately costs money. Cutting corners by not intubating patients, not keeping patients warm, or skimping on pain medications and monitoring can save money, but the price is decreased comfort and safety for your pet.

Although anesthesia is very safe, because of the unpredictability of the patient, we take anesthesia very seriously here at New Berlin Animal Hospital. We feel that performing pre-surgical blood work, using state-of-the-art anesthesia and anesthetic monitoring equipment along with Certified Veterinary Technicians is not a compromise that we would make with our own pets and you shouldn't either.

If you have any questions about an anesthetic procedure for your pet, please speak with one of our doctors. We want you to feel as confident as we are when your pet has his or her next surgical or dental procedure.