Sedation and Anesthesia

Sometimes your pet may require sedation or immobilization for a minor procedure. This could be for a minor skin mass removal, wound repair, a joint injection, or for radiographs to be taken.

For our otherwise healthy pets, dexmedetomidine (Dexdomitor) is commonly used to induce sedation. Dexmedetomidine is a highly selective a-2 adrenergic receptor agonist. It is given either in a vein (IV) or into a muscle (IM). It causes our patients to be safely sedated for whatever minor procedure that we need to accomplish. After the procedure, we use atipamezole (Antisedan) to reverse the effects of the sedation.

If you pet is having surgery, they will need to be anesthetized. Anesthesia can be frightening for owners. Please rest assured that the safest possible anesthesia conditions are sought for every patient at STVS.

Prior to surgery, blood work is performed. This may be a basic pre-op panel for a young, otherwise healthy pet to make sure organ function is able to withstand anesthesia, or a comprehensive workup for an older patient who is systemically ill. This allows us to evaluate the kidneys, liver, and blood cells to make sure anesthesia will be well tolerated. We are able to send blood work out of our office for it to be returned the following day, or we have the capability of running bloodwork in house for same day surgery.

Every patient will receive an IV catheter. This allows us to easily administer medications without continuously giving your pet injections. It will be used to give IV fluids while your pet is under anesthesia and recovering from surgery. It also helps us react in the quickest, most efficient manner if there is an emergency with your pet during anesthesia.

Pre-medications will be given prior to starting anesthesia. These drugs help our patients relax, and keep us from using large amounts of drugs to get them under anesthesia. They are also pre-emptive pain medications. We know that the best way to adequately control pain is to get ahead of the pain signals. Therefore, we give pain medications before anesthesia even begins to help keep your pet as comfortable as possible.

Induction drugs are given to get our patients fully under anesthesia. Propofol is the most common drug that we use for this purpose. It is given through the catheter until we notice that its effects are causing the patient to be sleepy. If you've had surgery, this is likely what you've been given when they ask you to start counting backwards from 100. There are some cases where alfaxalone may be used in place of propofol, especially in some of our patients with heart disease or blood pressure problems. Once the induction agent has taken effect, our patients are intubated. This means we place a tube that extends from outside their mouth directly into the trachea, allowing for delivery of oxygen and anesthetic gas, isoflurane. Propofol takes effect very quickly (not many people get past "98" in the countdown), and it wears off pretty quickly too. This is why the isoflurane gas is used mixed with 100% oxygen to keep our patients under anesthesia for the entire procedure, and to make sure that the patient's oxygen levels are well maintained.

During anesthesia, a number of monitors are used. A pulse oximeter, which measures the percentage of hemoglobin saturated with oxygen, is placed on the patient. It also measures the heart rate. Carbon dioxide is monitored to ensure appropriate ventilation. An ECG (electocardiograph) is used to make sure that the heart is beating normally and that there are no abnormal heart rhythms. These arrhythmias can happen in any patient in any surgery, but especially in patients that have existing cardiac disease or have a surgical problem linked to abnormal heart rhythms like GDV or splenic disease. Temperature is monitored so that we may treat hypo- or hyperthermia during and after surgery. We have a variety of devices that keep your pet's temperature stable during the procedure and during recovery, including Hot Dogs and Bair Huggers. Blood pressure is monitored during and after surgery to make sure it does not drop to a dangerously low rate and cause organ problems. If patients develop hypotension (low blood pressure), we intervene immediately with a variety of steps—extra fluids, change in anesthesia depth, or administering medications to help increase the blood pressure. Patients are administered IV fluids during and after anesthesia to support the kidneys and other internal organs. If blood loss occurs, blood products can be administered to restore blood volume.

Your pet may receive a nerve block to help decrease pain with surgery. These are local anesthetics that are injected into the area of a nerve affected by surgery. Sometimes, an epidural is used. Another commonly

used local injection is Nocita, which is a long acting form of the local anesthetic bupivicaine. It can be directed into the skin around the incision or used as a specific nerve block, and it has a 72 hour duration of action on average.

When surgery is completed, recovery from anesthesia begins. The anesthetic gas will be stopped, and 100% oxygen will be given for about 5 minutes. If your pet is at risk for breathing problems after surgery, oxygen may be continued for longer during and after recovery with nasal oxygen or in an oxygen cage. As the anesthetic gas is breathed out of the patient, they will slowly start to recover reflexes. The most important reflex that we watch for during recovery is the swallow reflex. Once this reflex is consistently noted, we can remove the endotracheal tube. After the tube is removed, we monitor the patient closely for any signs of difficulty breathing over the next hour. We also monitor body temperature so we can actively warm any patient that needs it.

Anesthetic effects can be noticed for up to 24 hours after surgery, especially if the patient has organ dysfunction that prevents the anesthetics from being metabolized in a timely manner. This is why your pet will likely stay with us overnight unless the procedure was very minor and anesthesia was a short duration. We will continue to support our patients the evening following anesthesia with IV fluids, frequent vital sign monitoring, and more advanced monitoring as needed.

If your pet has an adverse reaction to anesthesia, or has difficulty recovering from anesthesia and requires more intensive care, we will refer you to an emergency hospital with 24 hour care. There are multiple options available, and we will send you to your choice of facilities. We do this because while we have overnight technicians caring for your pet, we do not have an overnight doctor physically in the building to help form treatment plans if problems arise. Most of our patients will be perfectly fine in the care of our experienced veterinary technicians during their overnight stay, and the technicians always have access to the doctors even though they are not on the premises in the event of questions or concerns.

While we can't take away the fact that there is always some sort of risk involved with sedation and anesthesia, we can assure you that we have made every possible effort to make it as safe as possible for your pet!

Information adapted from Veterinary Surgery: Small Animal, Second Edition, Elsevier Inc, 2018.