

## Azaperone What? Tramadol Who?

It is that time of the year when many deer are being tranquilized. Most of these guys are big, heavy muscled bucks being transferred. A high majority of the time, there are being multiple deer sedations at a time in a short period time in order to reduce stress in a pen. We have all experienced the problem with deer not completely waking up, having trouble waking up, and issues from darting afterwards. What is going on? Unfortunately, each animal does not receive a complete physical exam, bloodwork assay, or radiographs prior to anesthesia like we as humans do. Therefore, many cases of deer that become problematic after darting or not surviving sedation is due to the physiological state of the animal at a given time. If we were able to do a complete exam prior to sedation, we could resolve or prevent such issues post anesthesia. However, it is difficult a majority of the time, to complete a full exam on a deer, even in a handling facility, without sedation first.

One of the most difficult situations with have in sedating deer remotely (dart) is Capture Myopathy (myo-muscle, pathy- disease). Capture Myopathy is a condition by which the skeletal muscles degenerate in a short period of time leading to paralysis, muscle stiffness, coma, and death. Lesions can be found in all skeletal tissue but also the myocardium (muscle of the heart). A necropsy report may demonstrate muscles with a "blood splashed" (severe bruising) appearance from ruptured muscle groups, urine may have dark wine-colored urine (rupture of muscle proteins, filtered by the kidneys) which results in kidney damage. When deer are sedated, the sedatives (Xylazine/ Medetomidine) cause a decrease in blood pressure, Hypotension. This hypotension causes hypoperfusion (decreased oxygen) of tissues and organs. When tissues have decreased oxygen, they begin to die (oxygen starvation). The first of the organs to be affected from hypoperfusion are the kidneys. When the kidneys fail, deer either die or they become chronic cases. The kidneys cannot regenerate themselves, but the remaining live cells can increase in size (hypertrophy) to help support the normal function of the kidneys. Therefore, when animals are sedated for longer than 30 minutes, rotate them occasionally from side to side about every 30 minutes. The reason for this is to prevent the pressure of the animal to itself on major muscle groups, which exacerbates muscle hypoperfusion. Moving to soft areas to prevent pressure on these animals will help. Another strategy that will decrease the chances of capture myopathy is to sedate the animals at the lowest dosage to maintain safe restraint. What and how do we treat Capture Myopathy? We treat it by trying to treat every possible situation that is occurring. First, take a temperature on all sedated deer. When large numbers of skeletal muscles fire, they can produce a tremendous amount of heat. We want the temperature between 100-102.5 degrees F. If the temperature exceeds 102.5, cold water enemas work great (keep 20 ounce water bottles in a cooler when

darting). Keep animals that are sedated for a long period of time on a padded area. Give one liter of LRS (Lactated Ringers Solution) under the skin per 100-150 lbs to help with hypotension. Also fluids will help to dilute Creatinine Kinase (CK) from muscle breakdown that can be toxic to the kidneys. CK can be evaluated by drawing blood while sedated and the serum sent to the lab. Always remember, when giving fluids, "A solution to pollution is dilution" and to give under the skin and not IV immediately. Without doing prior bloodwork to the animal, we do not know the total protein (TP) or albumin (ALB) levels. If too much fluid is given IV, We could over dilute our patient and cause them to crash. Subcutaneous fluids will be used by the body as needed.

AZAPERONE is one of the only known medications to treat Capture Myopathy. Azaperone is a butyryphenone neuroleptic tranquilizer and sedative which reduces motor activity (skeletal muscle) and inhibits Central Nervous System (CNS) catecholamines (norepinephrine) which are neurotransmitters causing skeletal muscle to contract. Azaperone can also inhibit the respiratory depressant actions of other general anesthetics (Butorphanol/ opioids). A dosage of 25 mg per 100 lbs IM has been successfully utilized to treat Capture Myopathy. On a 100 lb. deer, folks have tried 1.5 cc BoSe and 0.5cc Azaperone with great results. There are no exact dosages for this treatment, only dosages that have been tried and used. In review, it is important to decrease elevated temperatures (cold water enemas), give subcutaneous fluids (solution to pollution is dilution), and monitor the body for muscle tension/cramping.

It is obvious that when a deer experiences Capture Myopathy, it will be painful for a period of time. When you catch these cases early and treat accordingly, there will be need for follow up to get these guys back to 100%. If you were to have a severe Charlie-Horse cramp, wouldn't you like to have some good pain relief? It has been discovered that Banamine does not have the pain relief effect in deer as once believed. Also, Banamine can be tough on the GI tract and kidneys and exacerbate problems. Tramadol is a narcotic-like pain reliever that treats moderate to severe pain. It has been discovered that utilizing a dose of 2 mg/ lb. twice a day for 5-7 days post-surgery provides great pain relief. On a 100 lb. deer, the requirement is 200 mg twice a day. The pill comes in a 50 mg tablet, thus, a 100 lb. deer needs 4 tablets twice a day for 5-7 days. This therapeutic plan has been very successful in pain relief for fawns with trench mouth as well as surgical amputations and fracture repairs. Tablets can be administered into "Fruit Treats." Preventing and stopping pain will allow the body to heal and recuperate much more quickly. Keep a close relationship with your Veterinarian. Each case is different from the next. Developing an individual therapeutic plan is critical. Both these medications need to be obtained from your Veterinarian and you must have a current Client-Patient-Veterinary Relationship.