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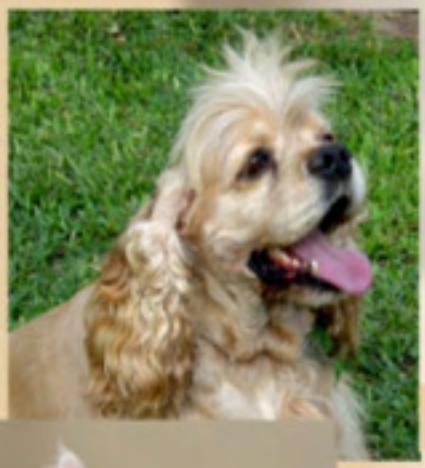

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RESUMEN

animales de compañía

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COMMON EMERGENCIES IN REPTILE PATIENTS

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Reptiles take a very long time to get sick. Likewise, amphibians tend to hide disease for prolonged periods. By the time they show signs of disease, their pathology is usually advanced. There are very few true emergencies in reptile medicine. The exceptions to this are acute traumas and hemorrhage.

Trauma management should be no different in herps than it is in mammals. Remember the ABC's of emergency medicine: A = airway, B = breathing, and C = circulation. Always control hemorrhage.

Basics of ER care

Always take the patient's core body temperature. This is done in a fashion similar to the procedure in mammals. Caution should be taken when inserting the thermometer in the vent as there is a blind pocket in the cranial portion of the cloaca (the corprodeum). This is easily, accidentally, penetrated, when using a pointed or sharp plastic thermometer. Soft, flexible, electronic thermometers are the best to use.

As odd as this sounds, with reptiles, oftentimes, the first diagnostic evaluation that you need to do is to assess whether or not the patient is still alive. With reptiles, especially those that are housed too cool, this is not always an easy thing to do.

First off, a sick, cold herp can be almost completely motionless. It is hard enough to determine if a reptile is breathing, or its heart is beating, when it is asleep. The heart beat goes from «beats per minute» to «minutes per beat» when cold or ill. A doppler or ultrasound may be needed to assess cardiac motion. Bear in mind, a reptile's heart may beat even after death.

It is not unheard of for an owner to bring a reptile in for emergency care, only to find out that it has already died.

If you do nothing else, you must always remember one thing: keep the sick or injured reptile warm.

All reptiles have a broad «Active Temperature Range,» which is the temperature range where reptiles are capable of normal, voluntary activity. For instance, early in the morning, before the sun comes up, the animal will wake, and move around to find a basking place. Once in the basking spot, it will stay there until it reaches its next temperature target.

The Preferred Optimal Temperature Range, or POTZ, refers to a specific temperature range selected by a particular species of reptile when presented with a thermal gradient. Each reptile species has its own unique POTZ. The animal's physiology is functioning at its optimum while within this range. Foraging, eating, reproduction etc., all occur within this POTZ. Most importantly, for the sake of this discussion, when a reptile is ill, its ability to heal and recover is most efficient while within the POTZ.

Any veterinarian that chooses to treat reptiles must have the knowledge of the animal's POTZ, AND, must also have the proper caging/heating/lighting that can be adjusted to the different requirements of the different species. That means that the clinician MUST KNOW the POTZ for any potential herp patients. Keep a chart in the ER wards so that the caretakers will know how to prepare hospital cages. Animals that are not housed or hospitalized correctly, as in a proper ambient temperature, will not respond to medications in any predictable fashion. This diminishes the effectiveness of any medical treatment.

To warm a sick animal, just put it into a container of the proper temperature. You don't need to «gradually» warm the animal. Be careful not to OVERHEAT it. There is a species specific temperature called the «Critical Thermal Maximum» where the animal loses voluntary control and is incapable of thermoregulating. If maintained at or above this temperature the animal will die.

Some of the most severe burns that I have seen in veterinary patients over the years (this includes dogs and cats, as well) are from over anxious caregivers trying to warm up their patients too fast. Perhaps

the most common mistake that people make is to take a hot water bottle and fill it with scalding hot water. When the person touches the outside of the rubber water bottle, it does not seem to be too hot. However, when you place the hot water bottle in direct contact with a sick, immobile animal, the heat transfer is maximized, and burns, secondary to the increased contact time, are often severe.

Common Pathogens

The majority of herp pathogens are of the gram negative flavor. Antibiotics should be selected with this in mind. Stay away from the penicillins and the bacteriostatic drugs such as chloramphenicol. I prefer to get the patient rehydrated prior to starting antibiotic therapy. As mentioned, most herp cases can easily wait for a day to reestablish hydration prior to starting antibiotic therapy. If you feel that starting drug therapy is imperative, then choose an antibiotic which is effective against G (-)'s, but is also non-nephrotoxic.

Most reptiles should not be fed while on treatment, especially on an emergency basis. Since these animals are uricotelic, excessive protein loads, as may be the case with certain enterals (such as A/D), may actually tax the kidneys, predisposing the animal to gout. This may be exascerbated when using potentially nephrotoxic drugs such as the aminoglycosides.

Most herps should be stabilized with fluids (15 - 25 ml/kg) either s.q., or intracoelomically, or in the dorsal lymph sacs (in amphibians), kept warm and started on antibiotics. Microbiological cultures should be taken prior to starting antimicrobial therapy. Blood samples should be taken prior to fluid administration if possible.

INTRAVENOUS CATHETER PLACEMENT

Just ten to fifteen years ago the concept of taking a blood sample from a herp seemed ludicrous. As with everything else in veterinary medicine, herp medicine is becoming more and more technical and less anecdotal. To make these advances it has become necessary to expand our diagnostic and therapeutic capabilities. Most veterinary practitioners would not think twice about placing a catheter and starting intravenous (IV) fluids in a dehydrated dog or cat. But, when a dehydrated herp is presented, initiating IV therapy is usually not even a consideration.

There have been a few papers in the literature regarding placement of chronic indwelling catheters in herps for sampling studies. These catheters serve their purpose but in a clinical situation they can be difficult to place or require extensive surgical techniques to initiate.

IV access can be beneficial for administering fluids, transfusions, antimicrobials and sampling. The techniques presented here can all be performed in any practice using standard clinic supplies. In the case of small patients, where venous access is not possible, intraosseous (IO) catheters are usually readily possible.

TURTLES AND TORTOISES

The jugular veins are the preferred sites for catheter placement in the chelonian patient. The IV catheter should be selected based on the size of the patient and vein being catheterized. As an example, a four kilogram tortoise can easily accept a 22g, 1-1/2 inch catheter.

The skin over the jugular vein is prepped as would be done with a mammal. Since reptilian skin is tough it is advisable to make a small cut-down incision over the vein using the sterile tip of a large gauge hypodermic needle prior attempting penetration with a delicate catheter. Once the vein is visualized insertion of the catheter follows the same procedure as performed in a mammal. An access port is affixed to the inserted catheter and then the catheter is flushed with heparinized saline.

This apparatus can then be secured to the side of the neck using either a cyanoacrylate adhesive, suture material or a combination of the two. A light dressing can then be applied to the final assembly to maintain sterility at the catheter site.

Surprisingly enough, the catheter is not compromised even when the chelonian patient withdraws into its shell. IV fluids can be administered either via IV boluses or a continuous drip system.

LIZARDS

IV placement can be occasionally performed in the cephalic veins without anesthesia or tranquilization, but it may be necessary to make a cut-down over the vein, and some form of analgesia will be required should that be the case.

With the patient in proper restraint a skin incision is made from the cranial-most aspect of the antebrachium and directed medially approximately 90 degrees around the inside of the leg (as you gain more confidence with this technique your cut-down incision will be markedly smaller). This will allow excellent visualization of the cephalic vein. Once the vein is located placement of the catheter is no different from techniques already described.

Once again, securing the IV catheter and access port is accomplished with tissue adhesive, suture material or a combination of the two. A clean dressing is applied as was done in the chelonian patients.

SNAKES

It is not as easy to catheterize snakes, but it is possible. It takes a cut down technique to expose one of the jugular veins, but once it is practiced the technique is not difficult. The snake should be anesthetized and taped to a restraint board prior to starting the procedure.

The heart is located by placing the anesthetized patient on its back and observing for the rhythmic contractions of the ventral scutes. Once the heart is localized count forward approximately 10 scutes. The right jugular vein is usually larger than the left, and as such, is the easier of the two to catheterize. Surgically prep the area and then make a small incision at the margin of the scutes and the lateral body scales. The incision should be two to three scutes long. Using blunt dissection gently separate the fascia until the jugular vein is exposed. It is very superficial and runs medial and parallel to the free margin of the ribs.

When the jugular vein is exposed carefully insert an appropriately sized catheter, directed toward the heart. Sutures around the jugular vein are not needed to hold the catheter in place. The catheter hub can be incorporated into the skin closure and an injection port can be affixed to the end for infusion or sampling. A pledget of antimicrobial ointment should be placed over the incision and a clean dressing placed around the snake's body at the exit site of the catheter so it does not get entangled and pulled out.

The catheter can be removed by clipping the skin sutures and pulling it out. There is no need to open the incision or to ligate the jugular vein. Just apply pressure to the site for a few minutes after removing the catheter to ensure hemostasis.

This technique requires substantially more time and equipment than IV catheter placement in either the chelonia or squamata. As such, the clinician should charge accordingly. If the cost of this technique is out of the budget of the clients, or if a chronic indwelling catheter is not intended, there is an alternative technique which is both inexpensive and easily performed. This technique is especially useful in emergency situations where IV fluids may make the difference in saving a patient's life.

Manual restraint is required to position the patient in dorsal recumbency. The heart is localized as previously described. The area immediately over the heart is surgically prepped. An IV catheter of appropriate gauge and length is selected and inserted directly into the beating ventricle of the heart. Once a flash-back of blood is seen the rigid metal stylet is removed and the catheter is threaded completely into the chamber. An injection port is affixed and then the entire apparatus is taped to the ventral scutes.

Before fluids are administered the catheter can be used for laboratory sampling. Fluids can be administered either as a slow intracardiac bolus or via a drip set. The author has successfully left these intracardiac catheters in compromised patients for as long as twelve hours with no complications.

AMPHIBIANS

IV catheters are not routinely utilized in amphibians. In the larger specimens, IO catheters are readily placed in the tibia. The needle is inserted through the tibial crest, directed anterograde, and inserted into the medullary cavity. Small amounts of fluid are easily administered.

FLUID THERAPY

Although there are papers recommending specific recipies for fluid replacement in herp patients, in reality, most of the standard crystalloid fluids will suffice for most all patients in an emergency situation. Lactated ringers, ringers or saline solutions can all be used. The metabolic requirements for fluid balance in herps is poorly understood, but it is generally accepted that a rate of 15 - 25 mls per kg, every one to two days is appropriate.