

HEAT STROKE

About Heat Stroke

Heat stroke is a very serious and often life threatening condition seen primarily during the summer months when pets, most commonly dogs, are left in unattended cars while owners are shopping. Heat stroke can also occur in any situation where the body rapidly heats up such as during a long seizure attack lasting longer than 20 minutes, dogs placed in front of hair dryers, or when animals choke or accidentally hang themselves by the collar. The affected animal will often be found delirious, semi-conscious, panting, and sometimes frantic. Heat stroke is a medical emergency and the pet should be rushed immediately to the nearest veterinary office or preferably to an emergency clinic. While on route, the animal can be covered by cold wet towels, ice packs (put a towel between the pack and the skin), and rubbing alcohol can be applied to the dogs paw pads, but they should not be hosed down with cold water or placed in a cold water bath. If the body temperature is lowered too quickly, the pet is at a greater risk to develop multiple organ failure and death. When the body's temperature raises above 107 degrees, the proteins in the body start to change causing severe multiple organ failure, brain damage, and death if the temperature stays elevated for long (minutes to hours).

Symptoms

- Acute weakness & collapse
- T>106
- Possible seizures & convulsions
- Mental depression / semi-consciousness
- Coma
- Brick red gums
- Petechia (small red pin point dots on skin and gums due to bleeding)
- Coughing up blood
- Vomiting blood
- Bloody or tarry diarrhea

Diagnosis

A tentative diagnosis of heat stroke is made when the body temperature is > 106 degrees or higher on presentation. The veterinarian uses the history to determine if the high body temperature is due to an external cause (dog locked in hot car), or an internal cause (dog with epilepsy has been seizing for past 2 hours). Heat stroke dogs are critical patients and require extensive diagnostics and monitoring including serial blood work, blood pressure, blood oxygen levels, frequent temperature, ECG for monitoring the heart rhythm, and radiographs to identify fluid buildup in the lungs. Blood work is used to look for damage to the liver and kidneys, to monitor blood gasses and the pH of the body, and to look for decreases in the red & white blood cell counts and platelet counts. Coagulation times are also used to monitor the dog's ability to clot and urine production should be monitored to ensure that the kidney has not shut down. All of these parameters are monitored one to several times a day to monitor progress (or

deterioration), and direct appropriate therapy.

Therapy

The first goal of the treatment of heat stroke victims is to cool the body fairly quickly but not to allow the temperature to plummet below normal body temperature. All dogs should be put instantly on supplemental oxygen, and started on high volumes of IV fluids to restore blood pressure and tissue perfusion- especially to the brain, heart, and kidneys. Many veterinarians will also treat with steroids, antibiotics, and sometimes diuretics if there has been no urine production from the kidney, or if fluid has built up in the lung (pulmonary edema). Abnormality in the rhythm of the heart can be treated with lidocaine if necessary. The heart develops arrhythmias secondary to a lack of oxygen delivered to the heart muscle during the period of high body temperature. If the bleeding times are prolonged and the dog can not clot normally, a plasma or fresh whole blood transfusion can be given. The treatment is very aggressive and very costly, with no guaranteed of a favorable outcome. Most dogs must be treated very aggressively for several days in the hospital .

Prognosis

Guarded to poor depending on the duration of the high temperature endured, and any pre-existing conditions that may have predisposed the dog to severe hyperthermia. Owners should be prepared for a lengthy (at least 2-4 days minimum) stay in the hospital and a potentially expensive bill of between \$2000-\$4000 or more for seriously ill dogs. Even with very aggressive therapy, many dogs still die due to kidney failure and systemic multiple organ failure.

Prevention

The majority of heat stroke dogs can be prevented by never leaving a dog unattended in a car (even if the weather is cool), in front of hair dryers, or tied up in the yard where a dog can potentially hang themselves (such as on a deck). If your dog has a seizure which lasts for more than 5 minutes, take the dog immediately to an emergency hospital for seizure control before the body temperature rises too high. Grey Hounds are prone to heat stroke and should be watched carefully.