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The world-class 24-hour specialty hospital that delivers complete peace of mind for you, your clients, and their precious pets.



Heatstroke

Heatstroke is defined as severe hyperthermia resulting in thermal injury to tissues.

When animals are left in a warm or humid environment and cannot dissipate enough heat in relation to the environment, heatstroke is likely.

Enzymatic alterations and denaturation of proteins occurs at or greater than a critical temperature of 108° F. At or above this temperature, cell membrane integrity organ deterioration, dysfunction are consistently seen

PREDISPOSING FACTORS:

- Excessive environmental humidity
- Water deprivation
- Drug administration
- Obesity
- Concurrent or occult heart disease
- Exercise
- CNS disease
- Previous heatstroke episode
- Brachycephalic breeds
- Upper airway disease

COMMON SYSTEMS AFFECTED:

- CNS
- Cardiovascular
- Renal/Urologic
- Muscular
- Gastrointestinal
- Hepatobiliary
- Hematologic
- Ocular

PRESENTATION:

- Temperature greater than/ equal to 106 F° with no obvious signs of infection
- Excessive panting

- Dark, brick red mucous membranes
- Owners may report collapse, vomiting, ataxia, hypersalivation, and diarrhea, loss of consciousness, seizures, listlessness, and muscle tremors
- Other clinical signs: weak or irregular femoral pulses, cutaneous/mucosal petechia

DIAGNOSTICS:

CBC, Chemistry profile, UA, serial blood gas, serial coagulation profiles-obtain baselines for future evaluation, to detect early signs of abnormalities.

Elevation in HCT/TP initially; becomes lower with therapy and disease progression.

Blood glucose levels-often can be low.

Low Platelet count seen subsequent to DIC, hemorrhage.

Coagulation values can be prolonged.

FLUIDS:

Consider a controlled amount and reassess your patient frequently - great potential to cause fluid overload with fluids. Fluid needs of the patient presenting are individual and needs to be balanced with treatment response. Monitoring CVPs, electrolyte balance, acid-base status,

lactate, blood pressure, lung auscultation and urine output serially to assess hydration, rather than focusing a strict fluid volume end-point.

Anti-inflammatory medication (aspirin, ketoprofen, carprofen etc) is **contraindicated**.

Antibiotics - for potential sepsis and secondary infection.

Anticoagulant therapy: Heparin, fresh or frozen plasma for DIC.

OXYGEN THERAPY:

Maybe needed if hypoxia ensues.

COMPLICATIONS:

- Kidney damage
- SIRS/MODS
- DIC - highest and most common complication seen
- Cerebral edema, seizures and other neurologic issues
- GI ulceration
- Sepsis

PROGNOSIS:

Guarded to grave – if not treated aggressively upon admittance.

Most die within the first 48 hours.

Some that survive may have chronic renal dysfunction.

TREATMENT:

1 Goal of heatstroke treatment is early recognition and the institution of cooling measures.

First, the owner should seek medical care immediately. Prior to coming to the hospital, the owners should start at home the cooling process by spraying their pet with cool or tepid water. Have the owner take advantage of enhanced radiant and convection cooling by keeping the car windows open or air conditioner on maximum during the trip. Cold water and ice baths can actually slow the cooling process down and can cause vasoconstriction and shivering which lessens heat loss.

2 Cooling endpoint is to reduce core temperature to 103°F. Can use cool or tepid baths, fans, iced fluids, cool water enemas in attempts to cool down the animal. Some have had great success wetting the fur down and using a large fan to promote cooling. The goal is attempt to get to core temperature at least within a hour of presentation.

3 Continue monitoring of body temperature every 15 minutes until 3 similar rectal temperature are obtained, then every 4 hours for the next 12-24 hours. If the patient becomes severely hypothermic (<99F°), start the patient should then be warmed and cooling backed off.

If temperature goes above normal after normalization- concerns about infection, inflammation, or inability to dissipate heat should be investigated.