

HYPOTHERMIA (LOW BODY TEMPERATURE)

BASICS

OVERVIEW

- Body temperature below normal in a animal that normally maintains a relatively constant body temperature (known as a “homeothermic” or “warm-blooded” animal)
- Mild hypothermia—body temperature of 90° to 99° F (32° to 35° C)
- Moderate hypothermia—body temperature of 82° to 90° F (28° to 32° C)
- Severe hypothermia—any body temperature less than 82° F (28° C)

SIGNALMENT/DESCRIPTION of ANIMAL

Species

- Dogs and cats

Breed Predislection

- More common in small breeds with increased likelihood of surface heat loss

Mean Age and Range

- More common in newborns and old animals

SIGNS/OBSERVED CHANGES in the ANIMAL

- Known prolonged exposure to cold ambient temperatures
- Possibly history of disappearance from home or of trauma
- Cold, unresponsive animal

Mild Hypothermia (Body Temperature of 90° to 99° F; 32° to 35° C)

- Mental depression
- Sluggishness (lethargy)
- Weakness
- Shivering

Moderate Hypothermia (Body Temperature of 82° to 90° F; 28° to 32° C)

- Muscle stiffness
- Slow heart rate (known as “bradycardia”)
- Low blood pressure (known as “hypotension”)
- Reduced breathing rate and depth
- Stupor/dullness

Severe Hypothermia (Body Temperature Less Than 82° F; 28° C)

- Unable to hear heart sounds
- Difficulty breathing
- Coma
- Fixed and dilated pupils

CAUSES

- Cold ambient temperature
- Impaired ability to regulate body temperature (such as in newborns, older animals, animals with low levels of thyroid hormone [known as “hypothyroidism”])
- Impaired behavioral responses—as seen in newborns or sick, debilitated, or injured animals
- Surface heat loss—as in newborns and small animals
- Inadequate heat generation—as in newborns and animals with extreme weight loss and muscle wasting

RISK FACTORS

- Low levels of thyroid hormone (hypothyroidism)
- Disease of the hypothalamus, the part of the brain that regulates appetite and body temperature
- Very young or old age
- Low body fat
- Anesthesia and surgery

TREATMENT

HEALTH CARE

- Treat most as inpatients until normal body temperature is reached
- Minimize movement to prevent lethal irregular heart beats (known as “cardiac arrhythmias”), especially in patients with severely low body temperature (severe hypothermia)



- Anticipate further drop in body temperature during initial rewarming
- Support vital organ systems, rewarm the patient, and prevent further heat loss
- Oxygen supplementation and breathing support may be necessary
- Mild hypothermia—use passive rewarming techniques, including thermal insulation with blankets
- Moderate hypothermia—use active external rewarming with heat sources (such as heating pads and radiant heat); apply heat to the trunk to rewarm the body’s “core;” provide a protective layer between the heat source and the patient’s skin
- Severe hypothermia—use core rewarming techniques, including warm water gastric and peritoneal lavage, warm water enemas, warm intravenous (IV) fluid administration, and airway rewarming (using warmed air)

ACTIVITY

- Minimize movement, especially in patients with severely low body temperature (severe hypothermia)

MEDICATIONS

Medications presented in this section are intended to provide general information about possible treatment. The treatment for a particular condition may evolve as medical advances are made; therefore, the medications should not be considered as all inclusive.

- Oxygen supplementation may be provided via a face mask or endotracheal tube
- Blood volume support—essential; administer fluids intravenously
- Fluid solutions should be warm to prevent additional heat loss
- Fluid supplementation with dextrose may be helpful

FOLLOW-UP CARE

PATIENT MONITORING

- Core body temperature during rewarming
- Monitor electrocardiogram (“ECG,” a recording of the electrical activity of the heart) and blood pressure to assess status of circulatory system during rewarming
- Observe for development of frostbite

PREVENTIONS AND AVOIDANCE

- Avoid prolonged exposure to cold, especially with at-risk animals (such as small animals, older animals)
- Warm patient and monitor body temperature in anesthetized animals

POSSIBLE COMPLICATIONS

- Further drop in body temperature may occur during rewarming
- Return of cool blood to the heart may lead to irregular heart beats (cardiac arrhythmias)
- Severely low body temperature (severe hypothermia) may cause the heart to stop beating (known as “cardiac arrest”)

EXPECTED COURSE AND PROGNOSIS

- Varies with severity of low body temperature (hypothermia), underlying cause, and patient health status prior to hypothermic episode

KEY POINTS

- Avoid prolonged exposure to cold, especially with at-risk animals (such as small animals, older animals)
- Warm patient and monitor body temperature in anesthetized animals

