



EMERGENCY MEDICINE:

Fever

What is true fever vs. hyperthermia?

The animal body's temperature is regulated by the thermoregulatory center in the anterior hypothalamus (AH). It acts like a thermostat to maintain temperature as close to normal (normal "set point") as possible, and it sets off activities in the body to dissipate or conserve heat. True fever is a term used for those hyperthermic animals where the set point of the AH has been reset to a higher temperature. This is a normal response of the body to injury or pathogens, and is also part of the acute phase response.

Hyperthermia is the term use to describe any elevation in core body temperature, and is a result of loss of equilibrium of the thermoregulatory center but the "set point" of AH has not changed. The body raises the temperature as a response to physiologic, pathologic, or pharmacologic causes where the heat gain exceeds the heat loss.

How to differentiate

A good history and physical exam are the most crucial in differentiating fever from hyperthermia. Hyperthermia can be caused by increased muscle activity like: seizures, exercise or nervousness. Heat stroke may result from being left in a car on a warm day, or confined to an area with no water or shelter on a hot day. Fever can be induced by drugs, immune-mediated disease, neoplasia, infection or inflammatory disorders.

Initial diagnostics should include: detailed history (travel history, vaccination status, pet environment, response to previous medications, parasite control, sickness in other household pets, previous injury, etc), physical exam, complete blood work, cultures (UA, etc.), and chest +/- abdomen radiographs.

Treatment

In true fever the high temperature is being regulated by the body, so body cooling methods such as water baths are not recommended because they work against the body's own regulatory mechanism which is trying to meet the temperature set by the AH.

Glucocorticoids should be reserved for those patients that the fever is known to be of a non-infectious cause. Most indications include immune-mediated diseases.

To treat hyperthermia it is necessary to eliminate the cause of heat stress, and in this case cooling methods work. To avoid hypothermia, cooling procedures should be stopped when the temperature has been decreased to 103-103.5F. Avoid precipitous drop in temperature. Ice baths are not recommended because shivering and vasoconstriction lessen heat loss.

Benefits & detriments of fever

Benefits: fever may inhibit bacterial and viral proliferation, and leukocyte mobility and phagocytosis may be enhanced by fever. Most studies have shown that a fever will reduce the duration of many infectious diseases.

Detriments: prolonged fever of >106F may result in brain damage, heat stroke or DIC, and also increases metabolic state and oxygen consumption raising caloric and water requirements.

Fever of unknown origin (FUO)

FUO is defined as a fever that has lasted three weeks in the face of aggressive diagnostic testing, or any animal that does not have any history or physical finding that would explain the fever. Evaluating for infectious and immune-mediated disease, tissue trauma, and neoplasia can help in diagnosing a fever where no obvious cause exists.

Questions?

Our 24/7 Emergency and Critical Care service is open year round and staffed by excellent doctors and technicians. MVS attracts the top veterinarians from Canada and the United States for its positions and the ER doctors have access to specialists 24 hours a day, 7 days a week.

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