



Fever Fact Sheet

Fever

Fever of unknown origin in the Dog (also known as Pyrexia of unknown origin)

What is fever?

Fever in dogs and cats is an increase in body temperature because of an increase in the body's thermoregulatory set point. In a similar manner to which your boiler responds when you increase the temperature thermostat in your home, the body reacts to reach the new higher set temperature. To reach this higher temperature the body produces heat (shivering) in addition to taking measures to prevent heat loss (diversion of blood away from the skin).

The body's thermoregulatory set point is controlled by the hypothalamus in the brain. The mechanism by which the set point is elevated involves pyrogens which reach the brain via the blood. Pyrogens can be exogenous (e.g. infectious agents, drugs) or endogenous pyrogens (e.g. cytokines).

In dogs and cats with a fever the rectal temperature is equal to or above 39.5°C (103.1°F). Although some animals, in particular cats, can elevate their body temperature to this level with stress. A rectal temperature above 40°C (104°F) is unlikely to be stress related.

What is Pyrexia?

Pyrexia is an increase in body temperature that exceeds the normal range for a particular age and species. Pyrexia due to true fever occurs when there is an elevation of the body's set point (see above). "Pyrexia" and "fever" in dogs and cats are often used interchangeably by most clinicians.

Why develop a fever?

Fever is an important component of the immune response, though its role is not completely understood. A fever has several effects including increasing the activity of leucocytes (white blood cells) which fight off the invading bacteria or viruses; it can also inhibit the growth of some bacteria.

What is Fever of unknown origin or FUO?

FUO is a term used to describe a patient in which a fever is present but the underlying disease process cannot be readily identified. Historically, in human medicine, FUO was defined as a persistent fever for more than three weeks with a lack of a specific diagnosis after one week of investigation. Due to evolution in health care this definition has continually been redefined. In veterinary medicine, this definition is also difficult to fulfil due to a variety of reasons. As a consequence veterinarians will refer dogs for investigations of "FUO" when there is no obvious cause identified with first line diagnostics or there has been no response to a therapeutic trial with a broad spectrum antibiotic.

What are the causes of FUO?

There are a large number of different diseases that can cause fever in dogs and cats. Some of these conditions are rare and can be hard to diagnose. In some cases the diagnosis may be a relatively common one, but the disease has presented in an unusual manner. In dogs we typically group the causes of fever (or FUO) into the following groups:

- Infectious diseases (which includes viral, bacterial, protozoal or fungal)
- Immune mediated disease
- Cancers
- Miscellaneous group (this group contains conditions that don't easily fit into the other categories. An example would be a joint condition affecting young dogs called 'metaphyseal osteopathy')

Can prior treatment affect the tests?

Yes. In a recent retrospective study (Battersby JSAP 2006) which looked at dogs undergoing investigations for fever, the effects of prior treatment were evaluated. In dogs that had received treatment with antibiotics, corticosteroids or non steroidal anti inflammatory (NSAID) drugs within 24 hours of referral, time to diagnosis was significantly increased when compared with dogs that hadn't received treatment.

The delay in diagnosis could be attributed to a variety of reasons but would include suppressing the underlying condition sufficiently resulting in falsely negative test results.

When should the investigations be performed?

The best time to perform investigations is when the patient has a high fever and preferably has not received any recent medication such as corticosteroids. In some cases if a patient's temperature is found to be normal during the initial consultation, the clinician may elect to delay investigations until the temperature returns to reduce the chances of a falsely negative test result.

What investigations may be performed?

This can vary considerably depending on the clinical course. Sometimes during hospitalisation clinical signs develop that can allow the clinician to target the diagnostics to a specific area. An example would be a patient developing joint pain; in this case radiographs of the joint and joint taps would be indicated.

Clinical signs do not always develop and in this situation the clinician may elect to initiate screening tests to such as routine bloods, radiographic examinations of chest and abdomen and ultrasound examinations of the abdomen.

If you are concerned about the health of your pet you should contact your veterinary surgeon.

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