



THE WINN FELINE FOUNDATION

For the Health and Well-Being of All Cats

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Feline Herpesvirus and Calicivirus

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One of the most common illnesses seen in kittens less than one year of age is upper respiratory tract disease. While there are several agents responsible for upper respiratory disease in cats, the clinical signs of all tend to overlap. General signs include sneezing, discharge from the eyes or nose, fever, lethargy and loss of appetite. The two most common agents of upper respiratory disease in cats are the viruses, feline herpesvirus (FHV) and feline calicivirus (FCV). FHV is also called feline viral rhinotracheitis. FHV and FCV are each found in about 40% of cats with upper respiratory tract disease. Other non-viral agents may also be involved, and it is not uncommon for a cat to be infected by more than one agent at the same time.

Feline herpesvirus was first isolated in 1957. This virus is related to other herpesviruses, such as those that cause cold sores and chicken pox in humans. However, FHV infects only cats and never humans.

FHV tends to produce more severe signs of disease than any other cause of upper respiratory tract disease. After incubation from 2 to 6 days, affected cats will become depressed, lose appetite, and suffer from fever and sneezing. Drooling may be seen if ulcers develop on the tongue. Severely affected kittens with inadequate immunity may die. In the acute stages of the disease, the virus may damage the turbinate bones in the nasal cavity, leading to chronic sinusitis later in life. Cats with chronic sinusitis suffer from bouts of sneezing and purulent nasal discharge for months to years.

Feline calicivirus was also first discovered in the 1950s. Along with FHV, it is a leading cause of infectious upper respiratory tract disease in cats. FCV is related to other caliciviruses that cause disease in humans and other animals, such as Norwalk virus. Like FHV, FCV does not infect humans.

FCV is usually associated with milder disease than FHV, although it can be associated with a wide spectrum of clinical signs. These can range from inapparent infections where cats have no signs at all, to fatal pneumonia, especially in kittens. In addition, some strains of FCV found in modified live vaccines seem to cause an illness characterized by acute lameness and fever with no respiratory symptoms. FCV may also be one agent or factor associated with chronic stomatitis in cats.

In recent years, new strains of calicivirus have caused serious illnesses and deaths in several outbreaks in the United States. These strains appear to cause a virulent hemorrhagic disease with a high mortality rate. They are highly infectious and spread readily in multi-cat facilities, such as shelters. Several outbreaks have been recorded, each due to a new mutant strain.

FCV and FHV are very successful viruses. A large proportion of the cat population has been exposed to one or both of these viruses at some time. The viruses are spread directly from cat to cat via secretions from the eyes, nose and mouth. FCV is also sometimes shed in the urine and feces of infected cats. Indirect spread of the viruses also occurs via contact with contaminated bowls, cages, feeding and cleaning utensils and on the hands of people who touch or care for infected cats. Aerosol spread is not the most important means of transmission, although the viruses are occasionally spread in large droplets during sneezing. As well, neither FHV nor FCV will persist long in the environment. FHV is the most susceptible and can live for only about 18 hours outside the cat. FCV is more resistant and may persist in the environment for up to seven days.

The most important factor in the persistence and spread of FHV and FCV is the existence of carrier cats. Almost all cats infected with FHV become carriers. The virus is able to enter latency, or become dormant, and hide in nervous tissue in the cat. During latency, no virus is shed and the cat cannot infect others. However, the virus can be reactivated, often after a stressful event, such as having kittens or treatment with drugs such as corticosteroids. In the reactivated state, the cat will again shed virus starting about one week later, and usually lasting for about a two-week period. The affected cat often has a recurrence of mild respiratory signs at the same time.

In contrast, FCV does not enter a latent phase. Rather, infected cats shed the virus almost continuously. Surveys have found that as much as 20 to 25% of cats are shedding FCV at any given time. The rate of shedding is lowest in households with few cats and highest in multi-cat environments. It is not known how long an infected cat continues to shed virus, but it is life-long in some cats. Most cats will eventually eliminate the virus and stop shedding. In addition, different cats will shed different amounts of virus. High-level shedders are very infectious to other cats, while low-level shedders are much less infectious.

A cat that has antibodies to FHV and FCV from vaccination will be protected against developing severe disease in most cases, but may not be protected against infection by these viruses. Some of these vaccinated cats will become infected and shed virus without ever having displayed any signs of respiratory disease. These cats are sources of infection for other cats, and are one reason why these viruses can spread so successfully, especially in multi-cat situations.

Diagnosis of the cause of respiratory disease can be difficult since there is considerable overlap of symptoms. In some cases, cats may be infected with more than one of these agents. The traditional method of diagnosis for FHV and FCV has been isolation of the virus in cell cultures. Swabs of the throat are taken by the veterinarian and sent to a laboratory that performs this type of virus isolation. Newer tests, called polymerase chain reaction (PCR) tests are becoming available. Testing blood for antibodies to these viruses is not very helpful, since a great many cats will have antibodies from being vaccinated.

Veterinarians have very few anti-viral drugs to treat illnesses such as respiratory disease caused by FHV and FCV. Antivirals such as acyclovir are not very effective and are associated with adverse effects in cats. Famciclovir is a related anti-viral undergoing investigation for efficacy against FHV and it seems to be better tolerated by cats. Topical solutions of anti-virals, such as trifluridine and idoxuridine, can be administered as drops for treatment of eye lesions caused by FHV. A newer topical anti-viral, cidofovir, is also showing promise and does not have to be administered as often as older anti-virals. Most cats with viral respiratory disease will benefit from taking a broad-spectrum antibiotic to control secondary bacterial infections, which are common.

Most important is good nursing care, which may involve tempting the sick cat to eat with baby food or a specialized commercial cat food designed for recuperation. Many cats with moderate to severe respiratory disease are very reluctant to eat, sometimes from congestion, which impairs their sense of smell, and sometimes due to pain from tongue ulcers. Veterinarians may prescribe an appetite stimulant, such as cyproheptadine, if needed. Some severe cases also require supplemental fluid therapy, which might be administered at home. Relief of nasal

congestion can be accomplished by using a nasal decongestant such as phenylephrine. However, a conventional steam humidifier or saline nebulizer is effective, too. If a nebulizer or humidifier is not available, simply placing the patient in a steamy bathroom will help.

Vaccines have been available for many years against FHV and FCV. It has been a relatively effective means of controlling disease. Viral respiratory disease can still be a problem, especially in multi-cat households and in kittens where maternal immunity may disappear before vaccinations have begun. Your veterinarian should be consulted about a vaccination program against FHV and FCV, as they are considered core vaccinations to be given to all cats.

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