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Inflammatory CNS Disease Fact Sheet

Inflammatory CNS disease is a broad term used to describe a number of neurological disorders in dogs and cats causing inflammation of the central nervous system (CNS).

Depending on which part of the CNS is inflamed, inflammatory CNS disease can be more precisely divided into meningitis (inflammation of the meninges), encephalitis (inflammation of the brain) and myelitis (inflammation of the spinal cord). Each condition can occur primarily on its own, but it is usually combined with at least one of the other two (meningo-encephalitis, meningo-myelitis).

What are the causes of inflammatory CNS disease?

Causes of inflammatory CNS disease can be either infectious or non-infectious. Infectious causes are probably the least common and can be due to viral (Distemper in dogs, Feline-infectious peritonitis, FIV), bacterial, protozoal (Toxoplasma, Neospora) or fungal agents. Non-infectious causes are more common and include breed-specific disorders of Yorkshire terriers, Maltese and Pug, as well as presumed immune-mediated disorder (granulomatous meningo-encephalitis also known as GME).

The latter is probably the most common cause of inflammatory CNS disease in dogs. Why the immune system suddenly becomes 'over-excited' and decides to inflame the CNS remains a matter of speculation. Other rare non-infectious causes include pre- (inflammation that will turn into cancer with time) and para- (cancer outside of the nervous system having distant effect – in this case inflammation of the brain) neoplastic disorder.

What are the signs of inflammatory CNS disease?

The signs of inflammatory CNS disease vary according to which part of the CNS is inflamed (brain, spinal cord and/ or meninges).

When meningitis occurs on its own, pain, stiffness of the gait, reluctance to move the neck and hunched-up back are the most common signs. Fever is only seen in less than half of the cases and its absence can therefore not be used to discard the possibility of meningitis. Encephalitis and myelitis are associated with signs of neurological disorders in dogs and cats reflecting which part of the nervous system is inflamed.

How do you diagnose inflammatory CNS disease?

Unfortunately, the diagnosis of inflammatory CNS disease cannot be based solely on the clinical and/ or neurological signs as other neurological conditions (tumour, bleed) can potentially cause similar signs. Contrary to common belief, even the most severe neurological disorders in dogs, such as meningitis or encephalitis, may not show up in blood tests.

Further tests such as CT-scanner or MRI can reinforce the suspicion of inflammatory disease. Cerebrospinal fluid analysis (see fact sheet) collection is probably one of the most useful tests. Not only this can help to confirm the presence and type of inflammation, but important tests can be carried out to look for an infection. On rare occasions, cerebrospinal fluid can be normal despite the presence of an inflammatory CNS disease.

How can inflammatory CNS disease be treated?

Treatment of inflammatory CNS disease depends on the primary cause.

In the case of an infectious cause, treatment consists mainly of antibiotics, with the exception of fungal and viral causes.

In the case of a non-infectious cause, treatment is based on trying to counteract the 'over-excitation' of the immune system by giving immuno-suppression drugs. A high dose of corticosteroids (prednisolone) is the mainstay treatment. Other drugs such as azathioprine, cytarabine, mycophenolate, cyclosporin, cyclophosphamide can also be used in combination with corticosteroids. The short-term aim of the treatment is to return the animal to normal using a high dose of medication. Once this has been achieved, the medium-term aim is to slowly reduce the quantity of drug without the animal relapsing. The long-term aim is ideally to take the animal off any drug, but more commonly to find the lowest dose of medication that will keep him/ her free of signs. The main risk of using these drugs is to shut down the bone marrow, making the animal more prone to infection.

Can inflammatory CNS disease be cured?

In the majority of cases, inflammatory CNS disease can be controlled. This means that the animal can have a normal life but will need to remain on medication for many months, or even years. Unfortunately, a small percentage of animals with too severe inflammation may not improve despite aggressive treatment. In some cases, animals that have returned to normal and were taken off medication have experienced relapses months after.

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

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