BUSH VETERINARY NEUROLOGY SERVICE

Meningoencephalitis

Who can be affected?

Pugs, maltese, yorkies, and the chihuahua and all small breed dogs 1-6 years of age are at higher risk.

Cause

Meningoencephalitis (ME) exists when there are inflammatory cells (white blood cells) in the brain and its lining called the meninges.

There are 2 groups of causes for ME, infectious and non-infectious and it can be challenging to truly know in which group a particular patient belongs. Most often, an infection is not found and the patient gets a diagnosis of Meningoencephalitis of Unknown Cause (MUA). There are numerous diseases in this group, examples include: necrotizing encephalitis, Pug dog encephalitis, necrotizing leukoencephalitis, granulomatous meningoencphalomyelitis (GME) and lymphoma (which is a form of cancer that can be confined to the brain). These names represent an effort to group non-infectious brain disease by breed and/or microscopic description because some diseases carry a different prognosis or treatment.

Symptoms

The signs of disease depend on which part of the brain is affected but can include seizure, confusion, sedation, poor balance, weakness, and with progression: stupor, coma and death. Because the meninges are affected, pain is often also part of this condition. Please visit our website (www.bvns.net/disease) to review information on seizure and vestibular disease, and for more information on the signs of disease.

Diagnostics

To diagnosis ME requires both a MRI and spinal tap. The MRI is used to rule out certain diseases like hydrocephalus and brain tumor. A cerebrospinal fluid (CSF) analysis (see our website for more information) is often performed to better characterize the disease and better rule out infection. Lastly, a trial with antimicrobial medication and infectious disease testing can be performed to try to identify an infection.

Treatment

A dilemma in the treatment of ME is that an infection requires an antimicrobial (antibiotic, antifungal) and a functional immune system, whereas an immune disease requires immune suppression. Therefore the treatment for one condition, if inappropriate, might cause the other condition to get rapidly worse. Worst still is that some of these conditions are fatal if not treated promptly.

We will treat non-infectious ME with a steroid plus immune suppressive medications (cyclosporine, azathioprine, leflunomide) and/or a chemotherapeutic agent (cytosar, lomustine, procarbazine) and a antiepileptic drug (AED) in the event of seizure. The goal of immune suppression is to obtain a clinically-well patient so that we can reduce or eliminate the steroid treatment.

Prognosis

The prognosis for ME depends on test results and the breed of the patient. Pug dog and necrotizing encephalitis have a very poor prognosis while GME has a relatively good prognosis. Patients with the former often succumb to progressive neurologic signs or seizure within 6 months. However, a recent report on a subpopulation of dogs with GME treated with immune suppression reported an average survival of over 5 years.

To learn more about neurologic diseases, treatments, medications and our practice, please visit www.bvns.net.