Diagnosis and Treatment

Blood Testing

A blood test for acquired MG can be done to check for antibodies against acetylcholine receptors. It is called an **AChR test**. This blood test is able to detect 98% of pets with myasthenia gravis. When antibodies drop to less than 0.6 nmol/L clinical signs generally resolve.

Serum should be collected before corticosteroid therapy is initiated because immunosuppressive doses of corticosteroids for longer than 7 to 10 days lower antibody concentrations. Seronegative myasthenia occurs in approximately 2% of dogs. If the vet strongly suspects MG and antibody test negative, retesting in 3 weeks is suggested before ruling out MG.

Tensilon Test

This test involves giving an injection of edrophonium chloride (brand name Tensilon®) intravenously to a patient suspected of having myasthenia gravis. Edrophonium chloride is a short-acting anticholinesterase. This allows acetylcholine to accumulate in the neuromuscular junction, strengthening the message from nerve to muscle. A dramatic increase in muscle strength following the IV injection should give a presumptive diagnosis of acquired MG while waiting for the results of the AChR antibody titer, Treatment could be initiated based on the results of the dramatic positive test. Unfortunately, not all dogs are responsive to Tensilon, and dogs with other neuromuscular diseases may show a subjective positive response.

Chest Radiographs

A chest radiograph set should be taken to check for thymoma. Surgery to remove the tumor is sometimes recommended for patients who have thymic masses so it is important to identify these patients. This is much more prevalent in cats. In dogs, only around 3-4% of patients will fit in this category.

The other reason to take a chest radiograph is to look for megaesophagus and aspiration pneumonia.

Treatment:

Anticholinesterases

Pyridostigmine (Mestinon®) is the typical medication used to prolong the action of acetylcholine. By inactivating acetylcholinesterase, the receptors that have not been destroyed by the immune system can bind acetylcholine longer. It is typically given orally 2 to 3 times daily with food. The syrup form should be diluted with equal parts water. If patient exhibits signs of worsening weakness, vomiting, cramping, diarrhea, tearing or drooling the vet should be notified immediately. Adjustments in medication (decrease/increase dose) or additional medication may be required.

Because most pets resolve their myasthenia gravis spontaneously, the goal of therapy is to control symptoms until that happens. Many canine patients will require no further treatment beyond this medication. Sometimes corticosteroids, immune-suppression drugs, like prednisone are used in conjunction with Mestinon. Dogs usually go into remission from the disease within 6-8 months.

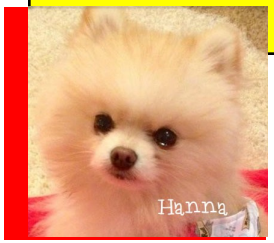
For more information on Canine MG visit:

http://vetneuromuscular.ucsd.edu/index.html

www.caninemegaesophagusinfo.com

https://www.facebook.com/groups/4329632343/

THE FACES OF CANINE MYASTHENIA GRAVIS



Canine Myasthenia Gravis

Myasthenia Gravis (pronounced My-as-theen-ee -a Grav-us) comes from the Greek and Latin words meaning "grave muscular weakness." It is an autoimmune neuromuscular disorder that is characterized by fluctuating weakness of the voluntary muscle groups. The voluntary muscles of the entire body are controlled by nerve impulses that arise in the brain. These nerve impulses travel down the nerves to the place where the nerves meet the muscle fibers. Nerve fibers do not actually connect with muscle fibers. There is a space between the nerve ending and muscle fiber; this space is called the **neuromuscular junction**. When the nerve impulse originating in the spinal cord arrives at the nerve ending, it releases a chemical called **acetylcholine**. Acetylcholine travels across the space to the muscle fiber side of the neuromuscular junction where it attaches to many **receptor sites**. The muscle contracts when enough of the receptor sites have been activated by the acetylcholine. In MG, there is a reduction in the number of these receptor sites. The reduction in the number of receptor sites is caused by an **antibody** that destroys or blocks the receptor site. Antibodies are proteins that play an important role in the immune system. They are normally directed at foreign proteins called **antigens** that attack the body.

Such foreign proteins include bacteria and viruses. Antibodies help the body to protect itself from these foreign proteins. For reasons not well understood, the immune system of a dog with MG makes antibodies against the receptor sites of the neuromuscular junction. Abnormal antibodies can be measured in the blood of many dogs with MG. The antibodies destroy the receptor sites more rapidly than the body can replace them. Muscle weakness occurs when acetylcholine cannot activate enough receptor sites.

There are two types of Canine MG:

Congenital Myasthenia Gravis

In this condition, the patient is born without normal neuromuscular junctions to striated muscles. There is no effective treatment. Myasthenia gravis has been described as a recessive genetic disease in Jack Russell terriers, Springer Spaniels, and Smooth Fox Terriers. The miniature dachshund gets a congenital form that actually resolves with age.

Acquired Myasthenia Gravis

This is a so-called autoimmune disease, meaning that the immune system is destroying neuromuscular junctions as if they were foreign invaders. What muscles are affected depend on which junctions have been destroyed. Therapy centers on stopping this immune reaction and prolonging what acetylcholine activity is still present. This is done with a combination of immunosuppressive agents and medications to inhibit acetylcholinesterase.

Acquired myasthenia gravis can be further divided into **three** categories:

Group 1) Mild or Focal MG - only one body part, usually the esophagus is involved.

Group 2) Moderate Generalized MG - appendicular (limb) weakness.

Group 3) Severe Generalized or Acute Fulminating - rapidly progressive and usually fatal

Signs and Symptoms

Megaesophagus- In megaesophagus, the esophagus (the tube that connects the throat and stomach and transports food) becomes flaccid and useless. Patients with this condition regurgitate their food because they cannot effectively move food into their stomachs. They lose weight because they cannot retain food. They are also highly predisposed to aspirating (inhaling) food and saliva and developing especially intractable pneumonia as a result. Special management of these patients is required to avoid pneumonia and maintain nutrition. It is important that this condition be recognized quickly so as to prevent debilitating weight loss and aspiration pneumonia.

Bark Change– Usually high pitched

Hindquarter weakness or limb weakness. Sudden urge to "sit down". Weakness appears after exercising, condition improves with rest.

Blink Reflex (palpebral reflex) - A reflex elicited by touching the eyelid and observing for a blink. This response fatigues or is absent in animals with MG.

Walking with stilted rear legs, running sideways, unable to jump or climb stairs.

Drooping lower lip - sudden increase in drool due to weakness in lower lip.

Trouble controlling urine stream or holding squat while defecating.

Lethargy

Symptoms can vary from dog to dog. A dog may have only one symptom or many.