



## **NEUROLOGY:**

### **Myasthenia Gravis**

**Definition:**  
**Grave Muscle Weakness**

Myasthenia gravis, an immune-mediated disease, is a disorder of the neuromuscular junction resulting in weakness and easy fatigability. The muscle weakness results from a depletion of Acetylcholine Receptors (AChR) at the neuromuscular junction. These weaknesses may affect ocular, facial, oropharyngeal, esophageal, and limb muscles.

**Two Forms**

Acquired MG occurs spontaneously in dogs and cats. Acquired MG is an immune-mediated disease caused by production of circulating antibodies directed against Acetylcholine Receptors (AChR) on the post synaptic membrane of the neuromuscular junction.

Congenital MG is probably inherited as an autosomal recessive trait and is a non immune-mediated form.

**Signs and symptoms**

There are two forms of MG: generalized and focal. Dogs affected by the generalized form of MG could show different degrees of muscle weakness i.e.; pelvic limb weakness, fore limb weakness, trouble raising head, and cranial weaknesses. Dogs can also have weakness localized to specific skeletal muscles. The following signs are reported: weakness of palpebral and gag reflexes, facial drooping, excessive salivation or drooling and regurgitation.

Cats tend to have a generalized form of MG but are not diagnosed as frequently as dogs.

**Breeds Most Commonly  
Affected**

Cats: Abyssinian, Somali, Siamese, Himalayan, Persian

Dogs: Akita, German Shepherd, Golden Retriever, Newfoundland, Scottish Terrier, German Shorthaired Pointer, Chihuahua

**Diagnosis**

A thorough neurological examination is the most important tool to diagnose MG. The gait observed with MG can be similar to one seen with some orthopedic conditions or polyneuropathy. The patients do not experience ataxia or proprioceptive deficits often seen with spinal cord diseases.

A complete blood count with serum chemistries and a urinalysis should always be completed to ensure the patient's general health.

Thoracic radiographs should be taken to look for a mediastinal mass (thymoma), aspiration pneumonia or megaesophagus.

Tensilon (edrophonium chloride) IV at 0.1 to 0.2 mg/kg is an option for diagnosis. A positive response is not necessarily specific for MG. Some dogs with MG may not respond, although some dogs with a polyneuropathy will respond to tensilon. Electrodiagnostic testing can be performed in the evaluation of suspected myasthenia patients. Repetitive electrical stimulation will show decremental evoked response.

Most of the MG patients, but not all, will have increased Ach receptor antibodies. It is important that serum samples are collected prior to any steroid administration.

**Complications**

Megaesophagus: Is a serious complication of MG. Care should be aimed at preventing aspiration pneumonia. Food and water should be offered by hand with the patient in a standing position. The patient should remain in a standing or upright position for 10 minutes following feeding. Food should be hand fed in small meatballs to reduce the chance of regurgitation and aspiration.

Aspiration Pneumonia: Myasthenia gravis with megaseophagus and

aspiration pneumonia carries a guarded prognosis. Treatment with antibiotics and frequent chest coupage is essential for a successful recovery. Periodic thoracic radiographs should be taken to monitor progress.

### **Treatment**

Treating a patient with Myasthenia Gravis can be very challenging. Once the diagnosis has been made, the preferred drug is: Pyridostigmine (Mestinon) 0.2/kg BID or TID. The dose should be adjusted based on the response to the treatment. Administration of immunosuppressive therapy (1-2 mg/kg prednisolone) is added to the treatment if the patient does not respond to Mestinon and if there is no evidence of pneumonia. Steroid administration can also significantly exacerbate the weakness.

### **Board Certified**

#### **Neurologist:**

Dr. Isabelle Ducharme,  
DVM, DVSc, DCACVIM

MVS offers part-time neurology service at our Southfield location. Our neurologist serves as an extension of your practice. Our clinicians have years of specialized training and experience. Please let us know how we can help you and your clients.

### **Questions?**

Our 24/7 Emergency and Critical Care service is open year round and staffed by highly trained doctors and technicians. MVS attracts the top veterinarians from Canada and the United States for its positions and the ER doctors have access to specialists 24 hours a day, 7 days a week. Contact them at (248) 371-3713 or (248) 354-6660 with questions about your cases.

### **LOCATIONS**

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