



What is myasthenia gravis (MG)?

Myasthenia gravis is a disease caused by an abnormality in the acetylcholine receptor (AChR), which receives messages from the nerve and signals the muscle to contract. There are two forms of MG: congenital (inherited) and acquired. In the congenital form, animals are born with decreased numbers of receptors. In the acquired form, there is an autoimmune attack on the AChR, rendering it dysfunctional.

What are the symptoms of myasthenia gravis?

The most common symptoms are progressive weakness/stiffness until animals are unable to walk or stand up (caused by weakness in the limb muscles) and spitting up food/water shortly after eating/drinking (caused by weakness in the esophagus). If food/water gets into the lungs instead of the gastrointestinal tract, pneumonia can occur resulting in difficulty breathing and coughing.

How is myasthenia gravis diagnosed?

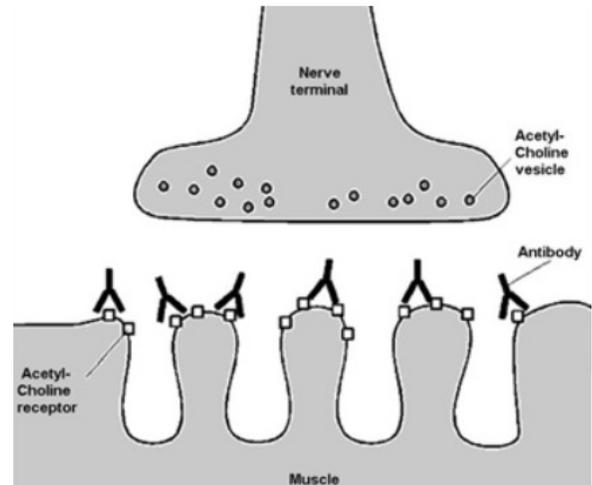
Congenital MG is diagnosed by obtaining a muscle biopsy and identifying decreased numbers of AChR. Acquired myasthenia gravis is diagnosed by identifying antibodies to the AChR in the blood. A small percentage of patients (2%) will not have antibodies in their bloodstream but still have the disease. Another diagnostic test called a “tensilon test” involves giving an injection that resolves symptoms for a very short period of time.

How is myasthenia gravis treated?

MG is treated by administering a drug that blocks the breakdown of acetylcholine, allowing all acetylcholine in the body to be used on the limited number of receptors. In some cases, immunosuppressive drugs are used to try to stop the immune attack. Many dogs need to be hospitalized initially and given intravenous fluids and medications to get the symptoms under control. In dogs where the esophagus is affected (called megaesophagus), special feeding practices must be employed including feeding small meals several times daily and holding an animal upright for 20-30 minutes after eating.

What is the prognosis?

If treatment is effective in getting the symptoms under control, many dogs will return to normal and, over time, the disease may be cured. An animal is considered “cured” after multiple normal neurological exams and once no antibodies are identified in the bloodstream. Complications can occur related to pneumonia, which can be fatal.



This diagram depicts the junction between the nerve and the muscle. Antibodies bound to the acetylcholine receptors inhibit the acetylcholine molecules from binding, thereby preventing conduction of signal from the nerve to the muscle.



The apparatus seen here allows a dog with myasthenia gravis to remain vertical while eating.