Myasthenia Gravis

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Myasthenia Gravis (MG) comes from the Greek and Latin words meaning “grave muscular weakness.” It is a chronic autoimmune neuromuscular disorder that causes fluctuating muscle weakness and fatigue. The prevalence of MG in the United States is ~20/100,000, affecting all races, both genders, and at any age. Between the ages of 20-30 years old, the ratio of women to men is 3:2. However, both sexes seem to be affected in equal numbers among adults over the age of 50.

The voluntary muscles of the entire body are controlled by nerve impulses that arise in the brain. When the nerve impulse arrives at the nerve ending, it releases a chemical called acetylcholine. This chemical travels across the space to the muscle fiber side of the neuromuscular junction where it attaches to many receptor sites, thus resulting in normal muscle contraction. Patients with MG can have as much as an 80% 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 usually protect us against foreign proteins known as antigens that are bad to have in your body such as bacteria and viruses. For reasons that have not yet been understood, when a person has MG, their immune system makes antibodies that fight against their own body.

Symptoms of MG include: a drooping eyelid (ptosis) , blurred or double vision (diplopia), slurred speech, difficulty chewing and swallowing, weakness in the arms and legs, chronic muscle fatigue, difficulty breathing. Symptoms may become severe over time; however, with proper treatment and medications they can be controlled. The first line of treatment is the Anticholinesterase medications which work by increasing the amount of available acetylcholine at the neuromuscular junction by inhibiting the breakdown of acetylcholine. Pyridostigmine (Mestinon) is the most commonly used drug. Their adverse side effects include: abdominal cramping, diarrhea, increased salivation and bronchial secretions, nausea, sweating, and bradycardia. Corticosteroids are used in addition to pyridostigmine when it is not effective alone. They suppress the immune system by reducing activity and volume of lymphatic system. Corticosteroid therapy begins with initial high doses and then tapering it to the lowest dose to maintain the response. Prednisone is the most common Corticosteroid used today. Azathioprine is an antimetabolite used to suppress cell proliferation. It is used in conjunction with Prednisone in order to suppress the immune system. The most common treatments include: thymectomy, removal of the thymus gland which is a source of acetylcholine antibodies, plasmapheresis (plasma exchange), and physical therapy.

As discussed earlier, this disorder affects 20/100,000 people in the US and we know someone close to us who lives a normal functional life with MG. Mr. Betancourt is 64 years old, Hispanic, and was diagnosed at the age of 53 years old. His initial symptoms included: drooping of left eyelid, double vision, difficulty in speaking, and difficulty in swallowing. He went undiagnosed for 1 year until a doctor from Argentina recommended getting tested for Acetylcholine Receptor Antibody, which is a specific blood test to detect for these abnormal antibodies. Approximately 85% of MG patients have these antibodies and in his case concluded his AChR antibody level was 3x than the normal count. His treatment throughout these years included: a thymectomy to lessen the severity of the MG weakness, plasmapheresis when he suffered his worse crisis to take affecting his respiratory system, and physical therapy. Medications include: Pyridostigmine 60mg 5xday, Mestinon 180mg 1xday (at bedtime), and under periods of light crisis such as drooping of his left eyelid, weakness in arms and legs, and difficulty in speaking, he is prescribed Prednisone 50mg for 10 days. Typically his energy levels tend to diminish as the day goes on therefore most of his activities must occur during the part of the day. Regardless of his disorder, he continues with his normal day-to-day activities to the best of his abilities and most importantly is extremely compliant with his treatments and medications.

MG is caused by a person’s own body producing antibodies against the Acetylcholine Receptor, therefore resulting in fluctuating muscle weakness, often in the oropharyngeal area. Dental hygienists must be prepared to make several adjustments when working with patients affected by MG in order to ensure a safe and effective dental appointment. It is critical to review patient’s medical history thoroughly and become knowledgeable on what negative implications these medications may have on their dental treatment.