

## Lab Tests & MG

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You now have the diagnosis of myasthenia gravis (MG). You may now ask “what is next”? What lab tests are necessary for those living with MG? Is my primary care doctor or neurologist offering me the best care possible? This article will briefly attempt to answer your questions. I will not address the lab tests that are used in making the diagnosis such as acetylcholine receptor antibodies. Note that some physicians monitor the antibody level as a way to follow your progress. The levels of these antibodies do not correlate with the severity of the disease. The purpose of this article is to address the ongoing monitoring of blood tests after the diagnosis of MG has been made.

Quite honestly, what is necessary for one person may not be necessary for another on a routine basis. Much depends on your medical and pharmaceutical histories. This information will dictate what laboratory tests may be necessary in your case. The most common commonly prescribed medications are pyridostigmine (Mestinon), corticosteroids (such as prednisolone, prednisone, solumedrol, methylprednisolone), azathioprine, cyclosporine, mycophenolate mofetil (CellCept) and cyclophosphamide. This list is not exhaustive, but lists the most common medications in the treatment of MG. Each of these medications has their unique profile that includes benefits and potential side effects. For instance, if you are using steroids such as prednisone, it is imperative to monitor your electrolytes and blood glucose (blood sugar) levels. Usually, if you have been on steroids previously without any significant side effects, your physician may not routinely monitor this. If you have diabetes or evidence of elevated blood glucose, then an Hgb A1c would be of great benefit in the diagnostic and therapeutic assessment because it gives the physician an idea of how regulated your blood glucose has been over the past three months. Ideally, the level should be less than 6.2; however, my preference is for it to be 6.0 or less. That is because the higher the number, the less regulated the blood glucose. Unfortunately, taking steroids places you at risk for elevated glucose although the medication works well for many. Furthermore, steroids may reduce your potassium (K+) level below the normal level of 3.5. In this case, potassium supplementation should be prescribed and the level should be monitored whenever you take steroids for the first time.

If you are on azathioprine, you need to have periodic monitoring of your CBC (Complete Blood Count) and liver function tests (LFT). The use of azathioprine requires periodic monitoring of the CBC and liver function tests (LFTs). Liver function tests are also called a hepatic panel. Obtaining LFTs gives an indication of how well your liver is functioning. A CBC looks at several components of the blood including, but not limited to, the white blood cell count (WBC), red blood cell count (RBC), hemoglobin (Hgb), hematocrit (Hct) and platelets.

When azathioprine is initiated, the white cell count and liver function test may need to be monitored monthly to every three months. If the WBC drops, the dose may need to be decreased or stopped if it falls below 3000 cell/mm. If there are signs of liver disease, the dosage may need to be adjusted or the medication may need to be stopped. Note however, that many people may be re-challenged without these side effects at a later date.

Cyclophosphamide is occasionally utilized in the cases of severe MG that are not controlled by other medications. If cyclophosphamide is used, your CBC should be checked and your urine monitored for symptoms of irritation. Myasthenia gravis is an autoimmune disorder. This means your antibodies are attacking your body. Many may have other superimposed immune diseases such as diabetes or thyroid disease. Both of these can be screened by simple blood tests, fasting glucose and thyroid stimulating hormone (TSH) through your primary care doctor or your neurologist. TSH is secreted by a gland in your head called the pituitary. This hormone (TSH) stimulates the thyroid gland in your neck to secrete thyroid hormones T3 and T4. If the thyroid gland is not making enough hormones, the pituitary will attempt to compensate for the deficit by overstimulating the thyroid gland by making more TSH. Some laboratories have their own set of normal values for the TSH usually ranging between 0.4 to 4 microunits/ml. When the TSH is low, then you are hyper thyroid which means you have an overactive thyroid. When the TSH is high, then you have an underactive thyroid and your pituitary is attempting to stimulate the thyroid gland. Unfortunately, I have several patients that have myasthenia and thyroid disease simultaneously. Other immune disorders that may co-exist with MG are lupus or rheumatoid arthritis. Blood levels of ANA and a rheumatoid factor may determine whether these diseases apply to you.

As a physician in general and specifically as a neurologist, I am not aware of any studies that directly link a low vitamin D to developing MG. However, besides maintaining a good bone density, we are now aware of the fact that vitamin D may play a role in the immune system. The details of this are still forthcoming. Vitamin D is necessary for the metabolism of calcium and magnesium. Nevertheless, as a neurologist, I have monitored the vitamin D levels on most patients that cross my practice. It has been my observation that most people, regardless of whether or not they have MG, are vitamin D deficient. This is due to the fact that, although sunscreens are protecting us from the dangers of ultraviolet light and the recommendation from dermatologists that people limit their exposure to sunlight to avoid skin cancer, it is preventing people from naturally making vitamin D. Sunlight is an important factor in the natural formation of vitamin D. Therefore, knowing your vitamin D level is helpful for one's overall health. Frequently, insurance companies may not cover this test. Nevertheless, I encourage patients to contact their insurance carrier and become proactive in requesting that such tests be covered under your policy for your overall wellness. Remember, you must become an active participant on your health care team and health advocate to enhance your total wellness program. A part of being an active participant is assuring that your primary care doctor also has your test results. You may ask for a copy directly or sign a release to have the information forwarded.

Most insurance companies cover basic tests such as a CBC, BMP, LFTS and cyclosporine.



\*In an effort to reduce the need for duplicate testing, the MGA encourages patients to request additional lab test results be sent to your primary physicians or neurologists for review. If you would like to examine your own lab test results, you can also request that a copy be sent to you.