TEST

Acetylcholine receptor antibody

A blood test that looks for antibodies linked to myasthenia gravis

WHAT IT MEASURES
Antibodies targeting acetylcholine receptors at nerve-muscle junctions

SAMPLE
Blood

FASTING NEEDED?
No

HOW LONG IT TAKES
5 to 10 minutes

RESULTS IN
Several days, based on laboratory and assay

USED FOR
Diagnosis of myasthenia gravis

MAIN LIMITATION
A negative result does not exclude myasthenia gravis

Overview

An acetylcholine receptor antibody test is a blood test used when myasthenia gravis is suspected. Myasthenia gravis is an autoimmune condition that can cause muscle weakness that changes over time.

Nerves normally communicate with muscles using a chemical messenger called acetylcholine. It attaches to acetylcholine receptors on muscle cells, helping the muscle contract. Acetylcholine receptor antibodies can block, damage, or reduce these receptors, making communication between nerves and muscles less effective.

Laboratories may test for several types of acetylcholine receptor antibodies:

Some laboratories test only binding antibodies initially. Others use a panel or add further tests if the first result is negative.

- Binding antibodies , usually the first and most widely used test
- Blocking antibodies , which interfere with acetylcholine attaching to its receptor
- Modulating antibodies , which can reduce the number of available receptors

Why the test is ordered

The test helps investigate muscle weakness that could be caused by myasthenia gravis. Symptoms that may lead to testing include drooping eyelids, double vision, difficulty speaking or swallowing, and weakness that becomes more noticeable with activity.

A positive result can support the diagnosis when your symptoms and examination fit myasthenia gravis. The test cannot diagnose the condition by itself because other illnesses can cause similar weakness.

It may also be included in an assessment of a thymoma, which is a tumour of the thymus gland. The thymus is part of the immune system and is located behind the breastbone. Thymoma and acetylcholine receptor antibodies are both associated with myasthenia gravis.

Antibody levels are sometimes repeated, but changes in the number do not reliably match changes in muscle strength. For this reason, the test is not usually the only way treatment response is assessed.

Who should have the test

You may be offered this test if you have muscle weakness with features suggesting a problem at the connection between nerves and muscles.

The test is especially relevant when weakness fluctuates, worsens with repeated activity, or affects the eye, facial, swallowing, or breathing muscles. Your history and physical examination remain important because the same symptoms can have several possible causes.

It is not generally used as a routine screening test for people without relevant symptoms. Testing people who have a low chance of myasthenia gravis increases the possibility that an unexpected positive result will be misleading.

How to prepare

You do not normally need to fast. You can usually eat, drink water, and take your regular medicines before the blood draw.

Tell the healthcare professional arranging the test about your medicines and recent treatments. This is particularly important if you have received plasma exchange, intravenous immunoglobulin, or medicines that affect the immune system. These treatments may influence antibody levels or how the result is interpreted.

Do not stop pyridostigmine, steroids like prednisone or hydrocortisone , or other prescribed medicines unless you have been specifically instructed to do so. Pyridostigmine helps nerve-to-muscle communication but does not itself create acetylcholine receptor antibodies.

What happens during the test

A healthcare professional places a needle into a vein, usually in your arm, and collects a small tube of blood. The needle is removed, and pressure is placed over the site.

The blood draw usually takes less than 10 minutes. The sample is then sent to a laboratory. Because this is a specialised antibody test, results may take several days and sometimes longer if the sample is sent to another laboratory.

Understanding your results

Your report may describe the result as positive, negative, or equivocal. An equivocal result falls near the laboratory's decision point and may need repeating or checking with another method.

A positive result means acetylcholine receptor antibodies were detected. In someone with a matching pattern of weakness, this strongly supports autoimmune myasthenia gravis. It does not show which muscles will be affected or how severe the weakness will be.

A negative result means the laboratory did not detect antibodies above its stated threshold. This does not rule out myasthenia gravis. Some people have antibodies against other targets, while others have no antibody found using routine tests.

Your result may include a number, often representing the antibody concentration. Higher numbers do not consistently mean more severe symptoms. Comparing numbers from different laboratories can also be misleading because methods and reporting units may differ.

Reference ranges and interpretation vary by laboratory and assay. Age, sex, pregnancy status, medicines, treatment history, symptoms, examination findings, and the overall clinical context may affect how a result is understood.

What affects the results

This test has fewer day-to-day influences than tests such as blood sugar or hormone measurements. Eating, coffee, exercise, and the time of day do not usually cause a meaningful change.

Factors that can affect the result or its interpretation include:

Pregnancy does not normally make the maternal test inaccurate. However, acetylcholine receptor antibodies can cross the placenta, so pregnancy affects the clinical importance of a positive result.

Kidney function, iron deficiency, ordinary exercise, and a recent red blood cell transfusion do not usually have a direct effect on this antibody test. They may still matter to your broader health assessment.

- Plasma exchange , which removes antibodies from the blood and may produce a lower result
- Immune treatments , which may reduce antibody production over time
- Recent intravenous immunoglobulin , which can complicate some antibody testing
- Early or eye-only disease , when antibody levels may be below the test's detection limit
- The laboratory method , because newer cell-based tests may find antibodies missed by some standard assays
- Sample quality , since severe breakdown of blood cells or excess fat in the sample may require another collection

Accuracy and limitations

Standard acetylcholine receptor antibody tests find antibodies in roughly 8 out of 10 people with generalised myasthenia gravis. They find them less often in people whose weakness is limited to the eye muscles-approximately half in many studied groups. Performance varies with the assay and the people being tested.

This means the test can miss myasthenia gravis, particularly when symptoms are limited to drooping eyelids or double vision. A negative result should be considered alongside your symptoms, examination, and other tests.

A clearly positive result in someone with typical symptoms is usually reliable. However, uncommon false-positive results can occur. Antibodies may occasionally be found in people with thymoma or other autoimmune conditions without clear myasthenia gravis, and laboratory methods can sometimes produce a low-level positive result that does not fit the clinical picture.

If the result is negative but suspicion remains, different tests may be more useful. These can include antibodies to muscle-specific kinase, known as MuSK, or sometimes LRP4. Repetitive nerve stimulation and single-fibre electromyography measure how effectively nerves activate

muscles. Specialised cell-based antibody tests may also identify antibodies missed by routine methods.

Risks and complications

The risks are those of a routine blood draw. You may have brief discomfort, a small bruise, or feel light-headed; serious complications are uncommon.

What happens next

A result is reviewed together with your symptoms, physical examination, and any nerve or muscle tests. A positive result may lead to referral to a neurologist and assessment of the thymus, often with chest imaging.

A negative result may be followed by further antibody testing or electrical tests of nerve-to-muscle communication. If your symptoms are stable, this is usually arranged as routine follow-up.

Seek urgent medical help if swallowing or speech becomes rapidly worse, especially if you are choking or cannot manage saliva. Trouble breathing, severe breathlessness, or rapidly worsening weakness affecting breathing is an emergency.

Common questions

Can I drink coffee before the test?

Yes. Coffee does not usually affect acetylcholine receptor antibody levels. Fasting is not normally required.

Does the time of day matter?

No. These antibodies do not have a known daily pattern that requires morning or evening testing.

Can I exercise beforehand?

Ordinary exercise does not usually change the antibody result. If exercise makes your weakness significantly worse, avoid overexertion and follow the advice given for your symptoms.

Should I stop my medicines first?

Not unless you have been told to do so. Bring an up-to-date medicines list and mention plasma exchange, intravenous immunoglobulin, steroids, or other immune treatments.

Can I have my blood drawn while pregnant?

Yes. The blood draw itself is suitable during pregnancy. Tell the person interpreting the result that you are pregnant because acetylcholine receptor antibodies can cross the placenta.

Why was my result negative if myasthenia gravis is still suspected?

Routine testing does not find every case, particularly when weakness affects only the eyes. Testing for other antibodies or checking nerve-to-muscle communication may provide more information.

Sources

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