TEST

Apolipoprotein CII

A blood test that measures a protein needed to clear triglyceride-rich fats

WHAT IT MEASURES
ApoC-II protein that helps clear triglyceride-rich fats

SAMPLE
Blood

FASTING NEEDED?
Sometimes, when paired with a fasting lipid panel

HOW LONG IT TAKES
Less than five minutes for the blood draw

RESULTS IN
Several days to weeks, varying by laboratory

USED FOR
Diagnosis of rare inherited triglyceride disorders

MAIN LIMITATION
Protein amount may miss ApoC-II that does not work

Overview

Apolipoprotein C-II, usually shortened to ApoC-II, is a small protein carried on fat-containing particles in your blood. These particles include chylomicrons and very-low-density lipoproteins, or VLDL.

ApoC-II activates an enzyme called lipoprotein lipase. This enzyme breaks down triglycerides so that muscles and other tissues can use or store the released fatty acids.

The test usually measures the amount of ApoC-II in a blood sample. It is a specialist test and is not part of a standard cholesterol or lipid panel. It is also different from the more commonly available apolipoprotein B and apolipoprotein A-I tests.

A very low or undetectable ApoC-II level may help investigate ApoC-II deficiency. This is a rare inherited condition that can prevent triglyceride-rich particles from being cleared normally. Some laboratories or specialist centres may instead assess how well ApoC-II works or test the `APOC2` gene.

Why the test is ordered

The test may be ordered when blood tests repeatedly show extremely high triglycerides, especially when chylomicrons remain in the blood after fasting. Chylomicrons are particles that transport fat absorbed from food.

It may also be considered if you have had inflammation of the pancreas linked to high triglycerides, or if severe triglyceride elevation began in childhood or early adulthood. Family history can also be relevant.

The main reasons for testing are to:

High triglycerides alone do not show that ApoC-II is deficient. More common causes include diabetes that is not well controlled, alcohol use, certain medicines, kidney or liver conditions, pregnancy, and combinations of several genetic factors.

- Investigate a possible inherited chylomicronemia disorder
- Distinguish ApoC-II deficiency from other causes of severe triglycerides
- Guide further enzyme, genetic, or family testing

Who should have the test

ApoC-II testing is not recommended as routine cholesterol screening. Most people with mildly or moderately raised triglycerides do not need it.

A lipid specialist, endocrinologist, clinical geneticist, or another clinician may arrange testing when your history and previous blood results suggest a rare disorder of triglyceride clearance. Testing may also be offered to biological relatives if a harmful `APOC2` gene change has already been identified in the family.

The test is not usually useful for checking whether diet, exercise, or standard triglyceride-lowering treatment is working. A regular lipid panel is better suited to that purpose.

How to prepare

Ask whether the ApoC-II test is being collected with a fasting lipid panel. If fasting is required, follow the laboratory's instructions about how long to avoid food. Water is generally allowed.

Do not stop prescription medicines or supplements unless the clinician arranging the test specifically tells you to do so. Bring or provide an up-to-date list of what you take.

Tell the testing team about recent illness, pregnancy, major changes in diet or alcohol intake, and any recent blood or plasma transfusion. These may affect the surrounding lipid results or how the ApoC-II result is interpreted.

What happens during the test

A healthcare professional places a small needle into a vein, usually in your arm. A tube of blood is collected and sent to a laboratory.

The blood draw usually takes less than five minutes. Because ApoC-II testing is specialised, the sample may be sent to another laboratory. This can make the result take longer than an ordinary cholesterol test.

If genetic testing is also planned, the same blood draw may provide the DNA sample. Genetic testing requires separate consent and produces a different type of result.

Understanding your results

The report may give an ApoC-II concentration, describe the protein as present or absent, or compare your result with the laboratory's own reference interval. Units and methods are not standardised across all laboratories.

Ranges and interpretation vary by laboratory, age, sex, pregnancy status, medicines, and clinical context. Your result must also be considered alongside fasting triglycerides, cholesterol measurements, symptoms, family history, and other testing.

A low or undetectable result can support ApoC-II deficiency, particularly when triglycerides are severely raised and chylomicrons persist during fasting. A second sample, functional testing, or genetic testing is usually needed before an inherited diagnosis is confirmed.

A result within the laboratory's range does not always show that ApoC-II works normally. Rarely, the body can make a normal amount of protein that does not activate lipoprotein lipase properly.

A high result does not diagnose a specific disorder. ApoC-II travels on triglyceride-rich particles, so its concentration may rise when those particles are increased.

What affects the results

Several factors can make an ApoC-II number misleading even when the laboratory has

performed the measurement correctly.

Eating before a test can increase chylomicrons and change the distribution of ApoC-II between different particles. This is one reason a fasting sample may be requested when severe triglyceride elevation is being investigated.

Pregnancy, diabetes, kidney or liver disease, acute illness, alcohol intake, and major recent dietary changes can alter triglyceride-rich particles. Medicines that change lipid metabolism can also affect the overall pattern. These factors do not necessarily cause ApoC-II deficiency, but they can complicate interpretation.

A very fatty, or lipemic, blood sample may interfere with some laboratory methods. The laboratory may dilute the sample, use another technique, or request a repeat.

A recent transfusion containing plasma can temporarily supply circulating proteins, including ApoC-II. Tell the testing team if you have recently received blood products or undergone plasma exchange.

If lipoprotein lipase activity is being measured as well, recent heparin treatment matters because heparin releases this enzyme into the bloodstream. This affects the enzyme test rather than the ApoC-II concentration itself.

Genetic results are not changed by fasting, exercise, pregnancy, medicines, or transfusion. However, they have their own interpretation limits.

Accuracy and limitations

ApoC-II concentration testing can correctly identify some people who make little or no protein. However, widely applicable figures for how often the test detects ApoC-II deficiency or gives a misleading positive result have not been established. The condition is rare, and laboratories use different methods.

The main way the test can miss the condition is by measuring quantity rather than function. A person may have ApoC-II in the blood, but the protein may not work correctly.

A low level can also be misleading if it is interpreted without triglyceride results, medical history, and information about conditions affecting lipoproteins. Repeating the test may help when the sample was non-fasting, severely lipemic, or collected during an acute illness.

When inherited chylomicronemia is strongly suspected, a broader approach is often more informative. This may include lipoprotein lipase activity testing and a genetic panel covering `APOC2`, `LPL`, `APOA5`, `GPIHBP1`, and `LMF1`. Changes in these genes can produce similar lipid patterns.

Genetic testing can confirm many cases, but it can still miss changes that the method was not designed to detect. It may also find a variant of uncertain significance, meaning there is not yet enough evidence to know whether the change affects health.

Risks and complications

The risks are those of an ordinary blood draw. You may have brief discomfort, a small bruise, or feel faint.

What happens next

If your ApoC-II result is low, absent, or uncertain, routine follow-up may include a repeat fasting sample, a detailed lipid panel, enzyme testing, or genetic testing. Biological relatives may be offered testing if an inherited cause is confirmed.

A normal ApoC-II concentration may shift the investigation toward other inherited or acquired causes of severe triglycerides. Your usual lipid results and clinical history remain important even when ApoC-II is normal.

The laboratory result itself is not an emergency. However, very high triglycerides can sometimes be linked to pancreatitis. Seek urgent medical assessment for severe, persistent upper abdominal pain, especially if it spreads to the back or occurs with repeated vomiting. Use emergency services if the pain is severe, you faint, have difficulty breathing, or cannot keep fluids down.

Common questions

Can I drink coffee before the test?

If you have been told to fast, drink water only unless your laboratory instructions specifically allow coffee. Even black coffee may not fit the fasting instructions used for the accompanying lipid panel.

Does the time of day matter?

There is no standard time-of-day requirement for ApoC-II itself. Morning collection is often more convenient when fasting has been requested.

Can I exercise beforehand?

Ordinary daily activity is unlikely to invalidate the protein measurement. Strenuous exercise

can temporarily affect triglycerides and other blood measurements, so follow any instructions provided for the full set of tests.

Can I take my medicines before the blood draw?

Usually, yes. Do not stop medicines on your own. Tell the testing team about all prescription medicines, over-the-counter products, hormones, and supplements because some can alter triglyceride metabolism.

Is this the same as an ApoB test?

No. ApoB reflects the number of certain cholesterol-carrying particles and is used in cardiovascular risk assessment. ApoC-II helps activate lipoprotein lipase and is mainly tested when a rare triglyceride-clearance disorder is suspected.

Will I need genetic testing?

Not always. Genetic testing may be useful when the ApoC-II level is very low, when the protein appears unable to work, or when several inherited chylomicronemia disorders are possible.

Sources

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