MUSC
MEDICAL UNIVERSITY of SOUTH CAROLINA

Lab Tests and Results

Alpha-1-antitrypsin measurement

What is this test?

This test measures the amount of a liver protein called alpha-1-antitrypsin in blood. This test is used to help diagnose and manage alpha-1-antitrypsin deficiency[1][2].

What are related tests?

- Alpha-1-antitrypsin phenotyping

Why do I need this test?

Laboratory tests may be done for many reasons. Tests are performed for routine health screenings or if a disease or toxicity is suspected. Lab tests may be used to determine if a medical condition is improving or worsening. Lab tests may also be used to measure the success or failure of a medication or treatment plan. Lab tests may be ordered for professional or legal reasons. The following is a possible reason why this test may be done:

- Alpha-1-antitrypsin deficiency

When and how often should I have this test?

When and how often laboratory tests are done may depend on many factors. The timing of laboratory tests may rely on the results or completion of other tests, procedures, or treatments. Lab tests may be performed immediately in an emergency, or tests may be delayed as a condition is treated or monitored. A test may be suggested or become necessary when certain signs or symptoms appear.

Due to changes in the way your body naturally functions through the course of a day, lab tests may need to be performed at a certain time of day. If you have prepared for a test by changing your food or fluid intake, lab tests may be timed in accordance with those changes. Timing of tests may be based on increased and decreased levels of medications, drugs or other substances in the body.

The age or gender of the person being tested may affect when and how often a lab test is required. Chronic or progressive conditions may need ongoing monitoring through the use of lab tests. Conditions that worsen and improve may also need frequent monitoring. Certain tests may be repeated to obtain a series of results, or tests may need to be repeated to confirm or disprove results. Timing and frequency of lab tests may vary if they are performed for professional or legal reasons.

How should I get ready for the test?

Venous Blood:

Before having blood collected, tell the person drawing your blood if you are allergic to latex. Tell the healthcare worker if you have a medical condition or are using a medication or supplement that causes excessive bleeding. Also tell the healthcare worker if you have felt nauseated, lightheaded, or have fainted while having blood drawn in the past.

Tell the person doing the test if you are pregnant, and what pregnancy trimester you are in at the time of the test[2].

Umbilical cord blood:

Ask the healthcare worker for information about how to prepare for this test.

How is the test done?

A sample of venous or umbilical cord blood may be collected for this test.

Venous blood:

When a blood sample from a vein is needed, a vein in your arm is usually selected. A tourniquet (large rubber strap) may be secured above the vein. The skin over the vein will be cleaned, and a needle will be inserted. You will be asked to hold very still while your blood is collected. Blood will be collected into one or more tubes, and the tourniquet will be removed. When enough blood has been collected, the healthcare worker will take the needle out.

Umbilical cord blood:

To collect an umbilical cord blood sample after an infant is born, the healthcare worker may use a needle and syringe to draw blood from the umbilical cord while the cord is still attached to the infant. Blood samples may also be collected from the part of the umbilical cord that has been detached from the infant.

After birth, an infant's body does not need the attached umbilical cord stump or its blood vessels, but they may be used temporarily for medical purposes. If the infant has a catheter inserted in a vessel of the umbilical cord, the blood sample may be collected through the existing catheter.

How will the test feel?

The amount of discomfort you feel will depend on many factors, including your sensitivity to pain. Communicate how you are feeling with the person doing the test. Inform the person doing the test if you feel that you cannot continue with the test.

Venous blood:

During a blood draw, you may feel mild discomfort at the location where the blood sample is being collected.

Umbilical cord blood:

There are several different ways that a cord blood sample may be collected. Depending on the procedure used to obtain the sample, the test may be uncomfortable. Ask the healthcare worker to explain how the test may feel.

What should I do after the test?

Venous blood:

After a blood sample is collected from your vein, a bandage, cotton ball, or gauze may be placed on the area where the needle was inserted. You may be asked to apply pressure to the area. Avoid strenuous exercise immediately after your blood draw. Contact your healthcare worker if you feel pain or see redness, swelling, or discharge from the puncture site.

Umbilical cord blood:

Depending on the procedure used to obtain a sample of cord blood, there may be special instructions for you to follow. Ask the healthcare worker for any special instructions following this procedure.

What are the risks?

Blood: During a blood draw, a hematoma (blood-filled bump under the skin) or slight bleeding from the puncture site may occur. After a blood draw, a bruise or infection may occur at the puncture site. The person doing this test may need to perform it more than once. Talk to your healthcare worker if you have any concerns about the risks of this test.

Umbilical cord blood: After the baby is born, umbilical cord blood may be collected in two ways. One method is to collect blood from the portion of the umbilical cord that is not attached to the baby. This method carries no risks. Umbilical cord blood may also be collected from a catheter which may be inserted into the babys umbilical artery or vein for medical purposes. Risks of collecting umbilical cord blood using this method include blood loss, infection, and air bubbles in the blood vessels. Additionally, a blood vessel spasm may occur, temporarily decreasing blood flow to a part of the babys body. The person doing this procedure may need to perform it more than once. Talk to your healthcare worker if you have any concerns about the risks of having umbilical cord blood collected using this method.

What are normal results for this test?

Laboratory test results may vary depending on your age, gender, health history, the method used for the test, and many other factors. If your results are different from the results suggested below, this may not mean that you have a disease. Contact your healthcare worker if you have any questions. The following are considered to be normal results for this test:

Adults 18 to 60 years of age (M-phenotype): 78-200 mg/dL (0.78 -2.00 g/L) [2]

Adults older than 60 years of age: 115-200 mg/dL (1.15 -2.00 g/L) [2]

Neonate: 145-270 mg/dL (1.45 -2.70 g/L) [2]

What might affect my test results?

Results increased in [2]:
- Acute inflammation
- Pregnancy (especially 3rd trimester)
- Presence of rheumatoid factor

What follow up should I do after this test?

Ask your healthcare worker how you will be informed of the test results. You may be asked to call for results, schedule an appointment to discuss results, or notified of results by mail. Follow up care varies depending on many factors related to your test. Sometimes there is no follow up after you have been notified of test results. At other times follow up may be suggested or necessary. Some examples of follow up care include changes to medication or treatment plans, referral to a specialist, more or less frequent monitoring, and additional tests or procedures. Talk with your healthcare worker about any concerns or questions you have regarding follow up care or instructions.

Where can I get more information?

Related Companies

National Society of Genetic Counselors
Alpha one foundation

References

1. Henry JB (Ed): Clinical Diagnosis and Management by Laboratory Methods, Twentieth. W.B. Saunders Company, Philadelphia, PA, USA, 2001.
2. Tietz NW (Ed): Clinical Guide to Laboratory Tests, 3rd ed. W. B. Saunders, Philadelphia, PA, 1995.