ALPHA-1 FOUNDATION

THE LIVER & ALPHA-1

What you need to know about liver disease caused by Alpha-1 Antitrypsin Deficiency (Alpha-1).

What is Alpha-1 Antitrypsin Deficiency?

Alpha-1 Antitrypsin Deficiency (Alpha-1) is a genetic condition that can cause damage to the lungs and/or the liver. It is a progressive condition, which means it may worsen over time. There is no cure for Alpha-1, but some symptoms can be managed with treatment. Alpha-1 occurs when there is a severe lack of a protein in the blood called alpha-1 antitrypsin (AAT) that is mainly produced by the liver. The main function of AAT is to protect the lungs from inflammation caused by infection and inhaled irritants such as tobacco smoke.

The low level of AAT in the blood occurs because the AAT is abnormal and cannot be released from the liver at the normal rate. This leads to a buildup of abnormal AAT in the liver that can cause liver disease.

What are some important facts about Alpha-1?

- Alpha-1 is a genetic condition that leads to low or undetectable levels of AAT
- Alpha-1 may cause lung disease in adults
- Alpha-1 may cause liver damage that gets worse over time in adults, children and infants
- Alpha-1 often goes undetected for years
- Alpha-1 can be treated, but cannot be cured without a liver transplant
- Alpha-1 is easy to detect through a simple blood test

Alpha-1 Liver Disease

What is liver disease?

The liver is one of the largest organs in your body. It is vital to your health because it cleans your blood and helps fight infections. The liver makes essential proteins that travel throughout the body. It also stores vitamins, sugars, fats, and other nutrients from your food. The liver breaks down alcohol, drugs, and other toxic substances that may harm your body. “Liver disease” may refer to any number of diseases or disorders that stop the liver from working as well as it should.

What causes liver disease in Alpha-1?

Liver disease is a common complication of Alpha-1, though the severity varies greatly from person to person. The likely cause is a build-up of abnormal AAT protein in the liver, although more research is needed to fully understand the link between Alpha-1 and liver disease. The ZZ Alpha-1 variation leads to the production of an abnormal AAT protein in the liver. With 80-90% of this protein unable to exit the liver, it can accumulate and potentially cause damage.

How common is liver disease in people with Alpha-1?

Of newborns and children who have two deficient AAT genes, such as ZZ, about 1 in 20 will, in their first year, develop liver disease that may be serious. Other children may have abnormal liver blood tests and few symptoms of liver disease. In most cases, the liver abnormalities resolve by the time the child reaches their teens and many ZZ children remain completely healthy. Adults with Alpha-1 can also develop liver disease, which often becomes more severe in middle age and beyond.

Cirrhosis, or scarring of the liver, is the most common liver disease in adults related to Alpha-1. The risk of chronic disease in those with the MZ genotype is much less than that of people with Alpha-1. Research suggests that chronic liver disease might appear in MZ individuals only when the liver has been damaged first by something else. Things that could harm the liver are a virus, such as hepatitis B or C, or a chemical such as alcohol. There is no scientific evidence that carriers with the MS genes are at increased risk for liver disease.

What are symptoms of Alpha-1 liver disease?

- Eyes and skin turning yellow (jaundice)
- Swelling of the abdomen or belly (ascites)
- Vomiting blood or passing blood in the stool
- Itchy skin

How is Alpha-1 liver disease found?

Liver disease related to Alpha-1 can be found during routine exams and lab tests. These may involve measuring the blood's AAT level, blood tests of liver function, and ultrasound exams of the liver. A liver biopsy is rarely needed to make the diagnosis of liver disease due to Alpha-1. However, it may be helpful to find out how severe the liver disease is and to eliminate other causes of the liver disease.

Who should be tested for Alpha-1?

- People with COPD (chronic obstructive pulmonary disease), a group of lung diseases, including emphysema, and chronic bronchitis, that block airflow and make it difficult to breathe
- People with bronchiectasis
- Newborns, children, and adults with unexplained liver disease
- People with panniculitis, a skin condition that some people with Alpha-1 develop
- Parents, siblings, children, and extended family members of people diagnosed with Alpha-1

Treatment for Alpha-1 Liver Disease

How is Alpha-1 liver disease treated?

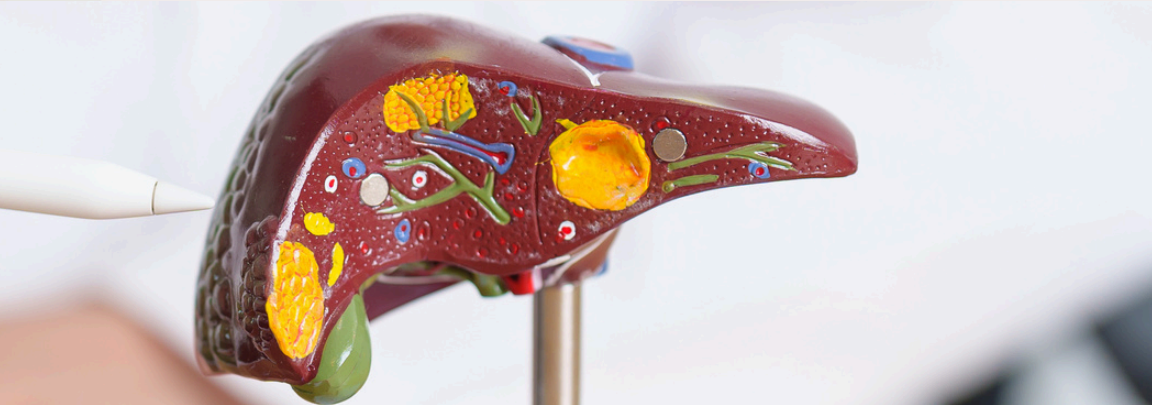
At this time, there are no specific treatments for Alpha-1 liver disease. In its most severe form, the only treatment is liver transplantation. Also, there is no treatment to prevent the onset of the liver disease. The focus of care is on managing health problems as they come up and keeping patients as healthy as possible. All patients with Alpha-1 should be immunized against hepatitis A and B. They should also have regular physical exams, liver function tests, and abdominal ultrasound exams. People 50 and older who have decompensated (worsening) cirrhosis due to Alpha-1 are at increased risk for hepatoma ("liver cell cancer"). As a result, they should get periodic CT imaging of the liver. Staying away from tobacco smoke and alcohol while eating a nutritious, well-balanced diet is also essential.

Unlike Alpha-1 lung disease, "augmentation therapy" — periodic injections or doses of the missing or deficient AAT protein — does NOT help the liver. Some symptoms of liver disease caused by Alpha-1 can be treated with medications.

These include jaundice, internal bleeding, itchiness, and a buildup of fluid in the belly.

There are drugs in development that may help prevent the build up of misfolded alpha-1 antitrypsin in the liver. Ongoing clinical trials are evaluating the safety and effectiveness of these new therapies.

Liver transplantation is surgery to remove a sick liver and replace it with a healthy one. A transplant is needed when a patient's diseased liver gets worse over time until it is working so poorly that the patient may die. In people with severe scarring of the liver (cirrhosis) caused by Alpha-1, a liver transplant may be necessary. A healthy liver should make normal AAT. Due to the lack of donated organs, there is no guarantee that a donated liver will be available. For this reason, the decision to put someone on a transplant waiting list may be made long before a person truly needs one.



Alpha-1 Foundation Programs, Services, & Resources

Alpha-1 Foundation (A1F)

alpha1.org | (877) 228-7321
The Alpha-1 Foundation provides resources, education, and information on testing and diagnosis for healthcare providers and people affected by Alpha-1. It funds cutting-edge research to find treatments and a cure and supports worldwide detection of Alpha-1.

A1F Patient Information Line

alpha1.org/patient-information-line | (800) 245-6809
Provides support to newly diagnosed Alphas and their families seeking basic information and help on a range of Alpha-1 related topics such as Alpha-1 testing, connecting with a peer guide, finding an Alpha-1 specialist, and requests for resources.

A1F Clinical Resource Centers (CRCs)

alpha1.org/find-an-alpha-1-specialist
An integrated network of research institutions and physicians specializing in Alpha-1 treatment, education, and care. CRCs provide comprehensive care to Alphas, including specialized care for lung disease and liver disease.

A1F Support Group Network

alpha1.org/find-a-support-group | (877) 346-3212
A collective of Alpha-1 support groups around the country committed to providing support and improving the quality of life of people affected by Alpha-1.

Alpha-1 Kids

alpha1.org/alpha-1-kids | (877) 346-3212
Information, support, and resources for families of Alpha infants, children, teens, and young adults transitioning to independent care.

The Alpha-1 Research Registry

alpha1.org/join-the-alpha-1-research-registry
(877) 228-7321 ext. 252
A confidential database of Alphas with one or two abnormal Alpha-1 genes that gives patients the opportunity to provide information to help advance research on the condition through questionnaires and clinical trials. It provides access to experts on Alpha-1 care. People enrolled have the ongoing opportunity to participate directly in clinical trials of new therapeutic approaches, in addition to other research opportunities.

A1F Genetic Counseling Services

alpha1.org/genetic-counseling | (855) 476-1227
A1F partners with the University of Florida to provide free genetic counseling services to Alphas, their family members, healthcare providers, and other individuals considering testing or in need of support. Genetic counseling services help patients understand their genetic risk for developing lung and liver disease, as well as communicating that information to family members.

ALPHA-1 FOUNDATION

The Alpha-1 Foundation (A1F) is committed to finding a cure for Alpha-1 Antitrypsin Deficiency (Alpha-1) and to improving the lives of people affected by Alpha-1 worldwide.

ALPHA1.ORG
1 (877) 2 CURE A1 | 1 (877) 228-7321

Unrestricted educational grants provided by:

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