

Patient information from BMJ

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Acute liver failure

When liver function gets worse very quickly in someone who does not already have liver disease, it's called acute liver failure (or acute hepatic failure). It is a rare medical emergency that needs immediate treatment.

What is acute liver failure?

When doctors say that a condition is “acute” it means that it develops quickly. Unlike chronic liver disease (“chronic” means long-term), acute liver failure (ALF for short) happens quickly.

Depending on the cause, the damage to the liver can sometimes be reversed with treatment. But ALF is often fatal.

The liver does many jobs in the body, including helping with digestion and removing harmful toxins. ALF can be caused by several things, including:

- deliberate acetaminophen overdose, as with a suicide attempt
- accidental acetaminophen overdose, when someone takes too much acetaminophen for pain or fever over a number of days. This can happen if someone takes multiple cold and flu remedies without realizing that each one contains acetaminophen. Acetaminophen overdose is the most common cause of ALF
- prescription drugs. Some medications can cause liver damage as a side effect. These include: some antibiotics; nonsteroidal anti-inflammatory drugs (NSAIDs) such as ibuprofen, diclofenac, and naproxen; some drugs used to treat epilepsy and other types of seizure
- some herbal supplements
- some toxic mushrooms
- viral hepatitis and some other infections
- autoimmune hepatitis. “Autoimmune” means that the body’s immune system attacks some of the body’s tissues instead of fighting infections. In this case the immune system attacks the liver
- a condition called shock liver (also called ischemic hepatitis). This happens when the liver doesn’t get enough blood supply

Acute liver failure

- Wilson disease. This is a rare condition where the liver does not properly filter out and dispose of excess copper in the blood.

Despite the many things that can cause it, ALF is rare.

What are the symptoms?

The symptoms of ALF come on quickly. The main ones are:

- yellowing of the skin and the whites of the eyes (jaundice)
- confusion and sleepiness. These symptoms happen because of swelling in the brain caused by the reduced liver function
- feeling very unwell
- pain in the right side of the chest
- pain and swelling in the abdomen (tummy)
- nausea and vomiting.

If you are with someone and they develop these symptoms suddenly, call an ambulance. If they have ALF it's a medical emergency that is life threatening without treatment.

If you are taken to the hospital and your doctor suspects that you have ALF he or she will do some tests. These tests are not just to show whether you have ALF, but to try to show what has caused it. Knowing the cause helps your doctor decide on the best treatment.

Blood tests can tell your doctor:

- whether you have too much acetaminophen or other toxic substances in your system
- how well your liver is working, and
- whether you have viral or autoimmune hepatitis.

A urine test may also be used to test your levels of acetaminophen and other toxins. Your doctor may also want to do a chest x-ray, and a pregnancy test if you are a woman.

Your doctor will assess how much swelling there may have been in your brain. The less your brain is affected the more chance you have of making a good recovery.

What treatments are available?

People with ALF will be treated and monitored in an intensive care unit. The best treatment depends on what has caused the liver failure.

Liver transplant

For people in a very serious condition the only treatment likely to help is a liver transplant. Everyone with ALF is assessed as to whether they need a liver transplant. But a suitable liver is not always available. And, even though most people do well after a liver transplant, there is no guarantee that you will make a good recovery.

Acute liver failure

Treatment for acetaminophen overdose

Acetaminophen overdose, whether deliberate or accidental, is the most common cause of ALF. Most people with this type of liver failure will usually be given a drug called acetylcysteine, which can often reverse the damage to the liver.

Treatment for acute liver failure from other causes

Acetylcysteine is often also given to people with liver failure from other causes, as it has been found to improve the chances of recovery.

Treatments for ALF caused by other toxic substances include intravenous (IV) fluids, charcoal, and antibiotics. Antivirals can also be tried for hepatitis B. Wilson disease can be treated with measures to reduce copper levels. But liver failure caused by Wilson disease is very hard to treat.

What to expect in the future

Survival rates from ALF vary according to the cause.

- About 70 in 100 people who have ALF caused by acetaminophen overdose will recover without a transplant.
- Between 25 and 40 in 100 people who have ALF caused by drugs other than acetaminophen or by hepatitis B survive.
- People with ALF caused by Wilson disease are unlikely to survive without a liver transplant
- About 88 in 100 people with ALF who have a liver transplant are still alive a year later. At three years, the figure is about 82 in 100.

Some people have ongoing liver problems after they recover from ALF and will need long-term treatment and regular appointments to check their progress.

People who recover from ALF need to make sure they get the right nutrition for the rest of their lives. You need to eat a healthy diet and take nutrition supplements prescribed by your doctor.

You will need to avoid certain medications for a while after your recovery. Your doctor will advise you which ones, but these will include acetaminophen and NSAIDs such as ibuprofen.

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