



The new name for the British Liver Trust
and Children's Liver Disease Foundation

Acute liver failure in children



Help, support and guidance
for children and families

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Welcome

Welcome to your guide to understanding acute liver failure (**ALF**). It provides information on causes, symptoms, diagnosis, complications and treatment.

This information has been written for:

Parents and carers of children and young people with acute liver failure.

Others who may also find this information useful:

- young people with acute liver failure
- healthcare professionals

You may also find it helpful to read the following booklets:

- Introduction to liver disease in children
- Liver transplantation

Use this QR code to view our resources or visit **www.liveruk.org**



What is ALF?

Acute liver failure is a rare, serious condition. It happens when liver cells suddenly die or stop working normally. It may happen suddenly over a few days or more gradually over weeks.

What can cause ALF?

Some possible causes include:

- Infections
- Metabolic diseases
- Autoimmune liver disease
- Blood disorders
- Medication (including alternative medicines)
- Paracetamol overdose (often accidental)
- Recreational drugs, especially ecstasy
- Poisonous substances
- Complications caused by another illness

In many cases it is not possible to find a specific cause.



What are the signs and symptoms of ALF?

The early symptoms of acute liver failure are often similar to common childhood illnesses. This can make it difficult for families and healthcare professionals to recognise the condition.

The signs and symptoms can vary but may include:

- General symptoms of feeling unwell
- Abdominal pain
- Nausea and vomiting
- Weight loss
- Jaundice
- Poor blood clotting (coagulopathy), which may cause bruising and bleeding
- Low blood sugar levels (hypoglycaemia)
- Fluid and salt imbalance, including swelling (oedema), such as abdominal swelling and swelling of the lower legs
- Encephalopathy (changes in brain function) can cause symptoms ranging from a loss of concentration and irritability to drowsiness



Why does my child need to go to a specialist hospital?

Your child will be transferred from a local hospital to a specialist centre so they can be looked after by a team who have more experience looking after children with ALF.



The team caring for your child will:

- **Recognise and treat complications as early as possible.**
- **Look for the cause of the ALF and, if found, start appropriate treatment.**
- **Support your child's vital functions. Your child may need to be cared for in the intensive care unit.**
- **Prepare your child for a liver transplant in case this becomes necessary.**

There may be clues about the cause of your child's current illness from their previous overall health and development. You are likely to be asked many questions by a number of different people. Some of the questions may seem strange but are important. You may be asked about changes in your child's behaviour. This can suggest the development of encephalopathy, which can be caused when the liver is not working properly.

What tests may be needed?

The tests will vary for each child and the clinical team will discuss these with you.

Tests may include:

- Blood tests including liver blood tests and tests to measure blood clotting. Your child will probably have to have a number of blood tests over the course of days to weeks. This is the best way of monitoring if the liver is getting better or worse and planning the next treatment.
- Urine tests
- X-rays and scans
- A liver biopsy – this may be a specialist type of biopsy called a transjugular biopsy, which is safer for children if their blood isn't clotting properly. A piece of liver is removed through a vein in the neck.
- In some cases, skin and muscle biopsies will be needed.

Some test results are available on the same day, but others can take longer.

The purposes of the tests are:

- To find out the cause of the ALF.
- To assess how severe the liver failure is and whether it is getting better or worse over time.
- To detect any possible complications at an early stage.



What are the complications of ALF?

Complications may include:

Abnormal bleeding

The liver plays an important role in producing proteins, called blood clotting factors, which help the blood to clot. If the liver isn't working properly, these may not be produced, which can lead to bleeding in any part of the body.

Measuring the rate of blood clotting is a useful way to assess whether the liver is getting better or worse. Blood clotting may only be treated if there is bleeding, or your child needs any procedures that may put them at risk of bleeding. Blood clotting factors may need to be given to treat this.

Infection

The liver plays an important part in fighting infection. ALF makes it more likely for a child to get an infection. Your child may be given intravenous (through the vein) antibiotics and anti-fungal medicines to prevent infection. Any specific infection identified will be treated.



Encephalopathy

Encephalopathy can occur because the liver is unable to clear toxins from the blood properly. This can lead to irritation and swelling of the brain.

Encephalopathy can be very difficult to assess and it can change from one minute to the next. For example, one minute a young child may be very sleepy and the next minute they may be sitting up in bed drinking a bottle.

If there is a decrease in your child's level of consciousness, leading to drowsiness, irritability or behaviour which is out of character, they may need to be cared for in an intensive care unit. A ventilator (breathing machine) may be needed to help your child breathe. This can give them the rest they need while allowing the medical team to provide further treatment.

Other treatments, such as a type of dialysis, may also be needed to help remove harmful toxins from the body.



Poor kidney function

When the liver fails, the kidneys may not work as well as they should. In this case, children are given fluids via a drip and a medicine to help them pass urine. They may also need a urinary catheter to accurately measure their urine output. Some children may need help from kidney dialysis for a short time.

When is liver transplantation needed for children with ALF?

Some children make a complete recovery without the need for liver transplantation. The liver has the ability to recover quickly despite significant injury and sometimes a full recovery is possible.

If your child's liver will not recover by itself and the doctors think that a liver transplant is the best option, your child will be referred to the transplant coordinator. They will register your child and provide you with more information on the transplant process. Supportive care and treatment will continue.

Your child will have to wait for a suitable liver, which is matched in terms of blood group and size. Children with ALF are given priority. Most children receiving a liver transplant will make a full recovery and although they will require lifelong medication, the majority will be able to lead a normal life.



Looking after yourself

If your child gets ill very quickly, the stresses and demands placed on you may affect you physically. It is important that you look after yourself and accept any support offered.

When you are in hospital with your child you should try to take rest breaks when possible. Remember to eat and catch up on sleep whenever you can.

There is a lot to understand and come to terms with in a short space of time and asking questions is really important. You will be offered opportunities to meet with the team looking after your child and you can talk to the team about any questions you have. It might help you to write these down as they come to you so you remember what you would like to ask.

Where can I find help and support?

Other family members, for example grandparents, can feel isolated and helpless. As well as the concern for their grandchild, they will also be worried about their children.

It often helps if you keep everyone informed about your child's condition and have booklets for other family members to read so they understand what is happening.

Booklets can be downloaded from Liver UK's website, ordered using the form on the website, or obtained from your healthcare team.

Liver UK's Children and Families Team can also provide you with support and advice at the time your child is ill and in the future. Get in touch using the details at the back of this booklet for more information.

Useful resources

Useful websites

Liver UK
www.liveruk.org

Information and support for everyone living with a liver condition.



How Liver UK can help



A diagnosis of liver disease can be worrying, and you may have a lot of questions. The Liver UK Children's and Families Team are here for you and for your family and friends.

Whether you have questions or just need someone to listen, we can help.

Find out how we can help you:
liveruk.org/support

Call our helpline to talk to one of our team: **0800 652 7330**





How we produce information

Feedback and information services

Your feedback is important to us and will help us improve our information. To provide feedback, email: **patient-info@liveruk.org**

For more information on how our information was developed, visit our website: **www.liveruk.org**

Thanks

All our information resources are reviewed by medical experts and families.

We would like to thank all our clinical experts and parent and family reviewers.



Disclaimer

This resource provides general information but does not replace personal medical advice. It is important to contact your medical team if you have any worries or concerns.





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To make a gift in support of our work today, please scan the QR code or visit

www.liveruk.org/donate

Liver UK is the UK's leading charity dedicated to supporting adults, children and young people affected by liver disease or liver cancer. Our mission is to transform liver health by raising awareness, promoting prevention, and improving care and support for everyone affected.



liveruk.org
info@liveruk.org
0300 1311 292