Acute Fatty Liver of Pregnancy

This publication is for women diagnosed with acute fatty liver of pregnancy (AFLP), their family members, and for those who would like to better understand the condition.

The British Liver Trust works to:
• support people with all kinds of liver disease
• improve knowledge and understanding of the liver and related health issues
• encourage and fund research into new treatments
• lobby for better services.

All our publications are reviewed by medical specialists and people living with liver disease. Our website provides information on all forms of adult liver disease and our Helpline gives advice and support on enquiries about liver health.

For the latest updates to this information, please refer to our website www.britishlivertrust.org.uk

A list of reference sources for this information is available on our website or by contacting info@britishlivertrust.org.uk

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The liver

Your liver is your body’s ‘factory’ carrying out hundreds of jobs that are vital to life\(^1\). It is able to repair itself (even renewing large sections)\(^2\), however the liver’s ability to repair itself is limited and continuous injury can lead to permanent scarring. Your liver is very tough and able to function even when most of it is damaged\(^3\) which means you may not notice any symptoms for some time.

Your liver has around 500 functions\(^1\).

Importantly it:
- filters and cleans the blood\(^2\)
- fights infections and disease\(^2\)
- destroys and deals with poisons and drugs\(^1\)
- makes vital proteins which make your blood clot when you cut yourself
- produces bile to help break down food in the gut\(^3\)
- processes food once it has been digested\(^1\)
- stores energy that can be used rapidly when the body needs it most\(^1\)
- regulates fat breakdown and distribution in the bloodstream\(^1, 2\)
- stores sugars, vitamins and minerals, including iron\(^1, 3\)
- gets rid of waste substances from the body\(^2\)
- produces and maintains the balance of hormones\(^1\)
- produces chemicals – enzymes and other proteins – responsible for most of the chemical reactions in the body, for example, repairing tissue\(^1, 3\)
- repairs damage and renews itself\(^2\)
Some women develop a type of fatty liver in the final trimester (last three months) of their pregnancy⁶,⁷; this is known as acute fatty liver of pregnancy (AFLP).

AFLP is a very rare condition (it occurs in about 1 in 20,000 pregnancies⁷) and is more common in first pregnancies, male babies and twins⁸.

What is the cause of acute fatty liver of pregnancy?

It is not known what causes this pregnancy specific liver condition but some feel it is a variant of pre-eclampsia (raised blood pressure and protein in the urine caused by pregnancy). It has also been linked to an inherited enzyme deficiency called long chain acyl-CoA dehydrogenase (LCHAD)⁹ in the baby.

LCHAD deficiency is a rare autosomal recessive disorder. This means a gene must be inherited from both parents for an individual to be affected.

Often men and women do not know they are a carrier of this changed (mutated) gene, as their bodies are able to continue to metabolise fatty acids normally. However, when both mother and father carry the gene and both genes are passed on to the baby, the baby is then unable to metabolise some fatty acids and a build-up can occur in the womb.⁸

The un-metabolised free fatty acids return from the baby, via the placenta, to the mother’s blood stream. This can result in hepatic stress for the mother, causing fat infiltrations to build up in the liver (fatty liver disease).

What are the symptoms of acute fatty liver of pregnancy?

Often symptoms of AFLP are non-specific and can be mistaken for another condition, making early diagnosis difficult. Symptoms of AFLP may include:

- nausea and vomiting
- lack of appetite
- abdominal pain and indigestion
- non-specifically feeling unwell (malaise)
- excessive tiredness (fatigue)
- jaundice – a condition in which the whites of the eyes go yellow and, in more severe cases, the skin also turns yellow (for more information see useful words)
- excessive thirst
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If you are pregnant and experiencing any of these symptoms you should make an urgent appointment to see your midwife or GP. If your symptoms are severe or begin to get worse, you should go straight to hospital. Acute fatty liver of pregnancy is a very serious condition that can cause rapid liver and kidney failure and can be life-threatening for both mother and baby if not diagnosed.

Diagnosis

Your doctor should ask you about your medical and family history to aid diagnosis. If you, your partner or a close family member are known to be LCHAD deficient, you may be at increased risk of AFLP.

Diagnosis of AFLP can be challenging, as often symptoms are similar to other conditions. It is important to exclude all other possible causes of your symptoms so you may have blood tests to rule out acute viral hepatitis, pre-eclampsia, HELLP syndrome (see useful words section) and intrahepatic cholestasis.

As well as monitoring your symptoms, your doctor may also request blood tests called liver function tests (LFTs). Liver function tests are performed to gain an idea of how your liver is functioning; they measure various chemicals in the blood made by the liver.

In AFLP, doctors will be looking for abnormal levels of the liver enzymes alanine aminotransferase (ALT) and aspartate aminotransferase (AST). Sometimes levels of other enzymes called gamma-glutamyl transferase (GGT) and alkaline phosphatase (ALP) will also be raised. However, ALP levels are often moderately increased in the third trimester of pregnancy in women with no liver problems and do not always indicate AFLP.

Blood tests will also check for any abnormalities in your white blood cells, kidney function, clotting ability, uric acid, blood glucose and lactic acid level, all of which can be abnormal in AFLP. These blood tests, taken at regular intervals throughout pregnancy, will identify the disease if present.

You may also be sent for an Ultrasound, MRI (magnetic resonance imagining) or CT (computed tomography) scan to look for any sign of liver abnormality.

Treatment

If you are diagnosed with AFLP hospitalisation is usually required, so your blood clotting and glucose levels can be carefully monitored, in preparation for delivery of the baby. Your specialist will decide the safest option for the baby’s delivery; it may still be possible for you to give birth naturally with careful monitoring of you and your baby. Birth by caesarean may be recommended.
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After delivery, you and your baby will be closely monitored in hospital. You may be transferred to a high dependency or critical care unit for closer monitoring and treatment; you may remain unwell for several days. It is important that your liver function improves before you are allowed home to prevent further complications. Provided there has been no permanent damage your liver will return to normal after your baby has been born, but it may be some time before you are feeling fully well.

In rare cases, complications such as an infection or pancreatitis (inflammation of the pancreas) can develop. If you continue to be unwell after the delivery of your baby, and the function of your liver does not improve, your specialist may consider liver transplantation as a treatment option.

If AFLP is not diagnosed or treated promptly, it can result in loss of life to both mother and baby.

Looking after yourself

If you are worried that you may have acute fatty liver in pregnancy, you should contact your doctor or midwife.

It is important that any concerns you have are acknowledged by your healthcare professionals, friends and family. If you are feeling unwell either during your pregnancy or after, it is important that you see a doctor.

Recurrence of acute fatty liver in future pregnancies can occur. Due to the rarity of AFLP, it is unclear how likely it is that AFLP will complicate a future pregnancy. If you have had AFLP your consultant will usually offer you a follow-up appointment to discuss future pregnancies.

However, if you remain worried about future pregnancies you should speak to your doctor who will refer you back to a specialist.

As AFLP can run in families, it is important to make family members aware of the increased risk.

If you have had AFLP your baby may need to be tested for LCHAD deficiency and other fatty acid oxidation defects, as these are hereditary conditions (passed on through the genes) that may affect the health of your child. You can also undergo genetic testing to see if you are a carrier of the disorder.

You may find it helpful to get in touch with others who have experience of AFLP; you can do this via online support groups and local support groups in your area. You can also access counselling services through your GP or via the British Association for Counselling & Psychotherapy (BACP). See the 'Who else can help' section.
You may find that you need to try a few different sources of support, to find the one that is right for you, as everyone is affected differently. It is important not to remain isolated with any worries or concerns you have. Remember that you can always talk to your midwife or GP.

It is also important that your partner and family have someone to talk to. This can be an anxious time for everyone. Remember the support sites are for them too.

**Alcohol and smoking**

AFLP is not caused by alcohol. However, the Department of Health recommends that if you are pregnant or are planning a pregnancy, you should avoid drinking alcohol to minimise harm to your baby.

When you drink, the alcohol passes across the placenta to the baby. A baby cannot process alcohol in the same way that you can and this can seriously affect the baby’s development.

If you do choose to drink, in order to minimise the risk to your baby, you should limit this to no more than one or two units of alcohol once or twice a week. You should avoid getting drunk. Additionally, it is recommended to avoid alcohol completely in the first three months of pregnancy as it increases the risk of miscarriage.

Smoking is dangerous to everyone’s health. If you are pregnant, smoking or exposure to passive smoking can cause harm to your baby as it can restrict the oxygen supply to your baby. Oxygen is essential for your baby's healthy growth and development.

If you have acute fatty liver of pregnancy it is advised that you stop smoking. People with liver disease are more vulnerable to infection and to poor health overall, so smoking or exposure to passive smoking is not advisable.

**Complementary and alternative medicines**

Many complementary and alternative medicines available suggest they can ease the symptoms of liver disease. Taking any complimentary or alternative medicines is not recommended for women with AFLP as most of these are processed by the liver, so can be toxic to people with liver problems.

If you have any concerns about your health or are showing any symptoms of AFLP (see ‘Symptoms’ section) you should contact your midwife or GP immediately.
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Useful Words

**Acute** – a short sharp illness that may be severe but from which most people will recover in a few weeks without lasting effects.

**Alkaline phosphatase (ALP)** – an enzyme found in certain cell membranes of the liver. Increases in ALP and another liver enzyme called gamma-glutamyl transferase (GGT) can indicate obstructive or cholestatic liver disease (where bile is not properly transported from the liver because of a problem with the bile duct).

**Alanine aminotransferase (ALT)** – a liver enzyme, it enters the blood following liver trauma. An ALT test is used to monitor and assess the amount of this enzyme in the blood and is a marker of liver irritation and inflammation.

**Aspartate aminotransferase (AST)** – is a liver enzyme, but it is less specific to the liver than ALT (see above). A raised AST level may also indicate muscle damage elsewhere in the body.

**Bilirubin** – a yellow pigment and waste product from the breakdown of haemoglobin. Increases of bilirubin in your blood can indicate liver disease, especially disease of the bile ducts (see jaundice).

**Cholestasis** – a condition where the flow of bile from the liver is reduced.

**Enzyme** – a protein that speeds up a chemical reaction within a cell without being changed or used up in the reaction. Each enzyme has a specific job and there are many types of enzyme for the various different reactions.

**Free fatty acids** – by-products, created from the breakdown of fat, from fat cells. Free fatty acids circulate in the bloodstream.

**Gene** – a segment of a chromosome (or unit of DNA) that carries the instructions or code for making a specific protein or set of proteins responsible for, or contributing to, a specific physical trait or action.

**Gamma-glutamyl transferase (GGT)** – a liver enzyme in your blood, it is measured to check for liver damage. Blood levels can also be higher in response to alcohol and various drugs, with the absence of liver disease.

**HELLP syndrome** – haemolysis, elevated liver enzymes and low platelets, a group of symptoms that occur in pregnant women who have pre-eclampsia or eclampsia.
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**Intrahepatic** – within the liver.

**Jaundice** – a condition in which the whites of the eyes go yellow and in more severe cases the skin also turns yellow. This is caused by accumulation in the blood of bilirubin: a yellow pigment and a waste product normally disposed of by the liver in bile (see bilirubin).

**Metabolism** – the physical and chemical processes by which food is transformed into energy. This occurs by absorbing substances and using them in the body or by removing toxins and disposing of them from the body as waste products.

**Mutation** – a change in the DNA of a cell, or the change this causes to the characteristics of the individual, not caused by normal genetic process. Some mutations result in the gene no longer providing the information (coding) for the correct protein or producing a reduced amount of the protein.

**Pre-eclampsia** – a condition in which a pregnant woman develops high blood pressure, excessive fluid retention and sometimes protein in her urine.

**Viral hepatitis** – hepatitis caused by a virus. The most common forms of viral hepatitis in the UK are hepatitis A, B, C, D & E. The British Liver Trust has more detailed publications on each of these.

**Virus** – a microscopic particle that infects living cells by getting inside them and reproducing (replicating). Viruses cannot reproduce by themselves and can only multiply from within the cells of their living host.

**Who else can help?**

**British Association for Counselling & Psychotherapy (BACP)**
BACP House
15 St John’s Business Park
Lutterworth, Leicestershire
LE17 4HB
Information helpdesk: 01455 883316
General enquiries: 01455 883300
Fax: 01455 550243
Email: enquiries@bacp.co.uk
Web: www.bacp.co.uk
BACP can provide advice on a range of services to help meet the needs of anyone seeking information about counselling and psychotherapy.
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Royal College of Obstetricians and Gynaecologists (RCOG)
27 Sussex Place
Regent's Park
London NW1 4RG
Tel: 020 7772 6200
Web: www.rcog.org.uk
The RCOG encourages the study and advancement of the science and practice of obstetrics and gynaecology and publishes a clinical guideline on obstetric cholestasis (OC).

Sands (Stillbirth and neonatal death charity)
28 Portland Place
London W1B 1LY
National Helpline: 020 7436 5881 Monday to Friday 9.30am to 5.30pm and Tuesday & Thursday 6pm to 10pm
Email: helpline@uk-sands.org
Web: www.uk-sands.org
A charity established by bereaved parents to support anyone affected by the death of a baby.

Tommy’s, the baby charity
Nicholas House
3 Laurence Pountney Hill
London EC4R 0BB
Tel: 0207 398 3400
Fax: 0207 398 3479
Email: mailbox@tommys.org
Web: www.tommys.org
A charity funding research into and providing information on the causes and prevention of premature birth.

Wellbeing of Women
27 Sussex Place
Regent’s Park
London NW1 4SP
Tel: 0207 772 6400
Fax: 0207 724 7725
Email: wellbeingofwomen@rcog.org.uk
Web: www.wellbeingofwomen.org.uk
A charity working to improve the health of women and babies. They do this through raising funds to invest in medical research and the development of specialist medical professionals working in the field of reproductive and gynaecological health.
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References