LIVER UK

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

Primary biliary cholangitis

Your guide to understanding and living with PBC

Contents

"PBC usually develops slowly over time. It can be managed well with medicines, reducing the chance of serious liver damage."

Janeane Hails, Autoimmune Hepatology Specialist Nurse

This booklet will help you understand more about primary biliary cholangitis and give you help and advice to improve your condition.

Your doctor is the best person to speak to about your treatment, as they know your medical history.

Primary biliary cholangitis – key facts

Primary biliary cholangitis (PBC) is a long term liver condition.

PBC usually develops very slowly, over many years. Most people do not become seriously ill.

Around 25,000 people in the UK have PBC.

PBC can affect anyone but is much more common in women. PBC usually starts in middle age.

Like many other liver diseases, PBC is not caused by alcohol.

PBC is an autoimmune disease. This means it is caused by your immune system attacking your own body, in this case your bile ducts.

In PBC your bile ducts become inflamed and get damaged or even destroyed. This means bile builds up in your liver and damages it.

PBC can be managed with medicines that help stop damage to your bile ducts and liver. The most common medicines are ursodeoxycholic acid (Urso) and obeticholic acid (OCA).

PBC can cause itching and extreme tiredness (fatigue). Your doctor can help you manage these symptoms.

People with PBC are more likely to get other autoimmune diseases, including another liver condition called autoimmune hepatitis (AIH).

PBC used to be called primary biliary cirrhosis, but the name was changed because most people with it never develop cirrhosis (severe liver scaring).

"Liver UK hold online support groups, and I go to those when I can. It's good to chat to people who are in a similar situation and I find that really helpful."

Jayne

For more detailed information and to find out about our nurse helpline and support groups visit www.liveruk.org

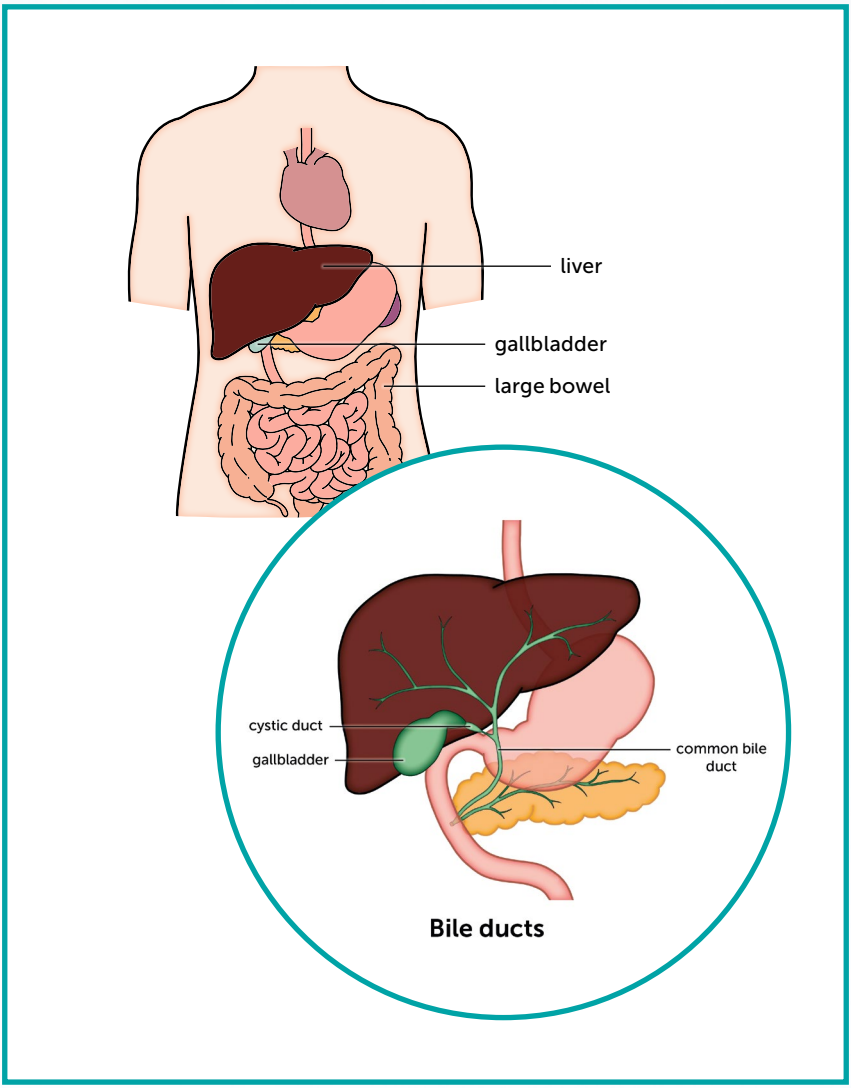
About your liver

Your liver is on the right side of your tummy, just under your ribs. It works like your body's factory and carries out hundreds of jobs that help keep you alive and well.

Your liver:

- **turns digested food from your gut into all the different chemicals your body needs**
- **breaks down toxins, alcohol, drugs and other harmful substances**
- **helps control the amount of sugar in your blood**
- **makes the chemicals that help your blood clot**
- **makes bile which helps you break down and digest fats**

Bile is made throughout the liver and carried through bile ducts to the gallbladder. It's then stored there until your body needs it.


liver
gallbladder
large bowel
cystic duct
gallbladder
common bile duct
Bile ducts

What causes primary biliary cholangitis?

Doctors don't know exactly what causes PBC. But we do know that it's an autoimmune condition, where your immune system attacks your own cells. See page 8 to find out about autoimmune diseases.

Primary biliary cholangitis (PBC) is not related to alcohol in any way.

PBC seems to be caused by a combination of two things. A genetic link that puts you at higher risk. And an environmental trigger that sets the actual disease off. The trigger is probably something in the environment around you such as tobacco, infection or chemicals in hair spray or nail varnish.

Close relatives have roughly 10 times the risk of developing PBC compared to someone without a family connection. That sounds a lot, but PBC is rare. So the risk to relatives is not as large as it seems.

The immune system and PBC

The immune system is your body's natural defence system. It identifies and protects against anything foreign to the body, including bacteria, viruses, and other people's blood or body tissue.

Sometimes something goes wrong – the immune system attacks healthy body cells by mistake, causing an autoimmune condition. In PBC, the immune system attacks the cells of the bile ducts in the liver.

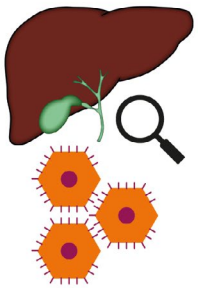
All the cells in your body carry markers called antigens. Different cells have different antigens. Bacteria, viruses, and other things that can cause infections all carry different antigens too. Your immune system uses these antigens to check if something should be in your body or not. Like checking an entry ticket.

The main defenders in a healthy immune system are white blood cells, called lymphocytes. There are two main types of lymphocytes – B cells and T cells.

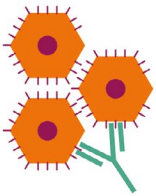
B cells look for antigens that should not be there. If they find one, they produce antibodies that lock on to the antigen. This flags up the cell to the T cells, which will then kill the cell or virus marked with the antibody. Some T cells are called 'killer T cells'.

When you have PBC, your B cells can also produce something called anti mitochondrial antibody (AMA). This is an autoantibody – so called because it attacks your own body. AMA makes your T cells attack your own healthy bile duct cells.

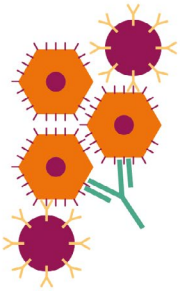
The damaged bile ducts can't carry bile anymore. So it builds up in your liver and causes damage and in some cases scarring (fibrosis).



Bile duct cells



AMA antibodies wrongly latch on to the cells, flagging them to be attacked



T cells attack the cells and damage the bile ducts

You can read more about autoimmune disease on our website www.liveruk.org/autoimmune-diseases

Symptoms of primary biliary cholangitis

You may not have any symptoms in the early stages of PBC. Sometimes it's only diagnosed when people have tests for something else.

You may feel a bit under the weather or have vague symptoms such as:

- feeling very tired
- sleeping more than usual
- having itchy skin for no apparent reason
- pain or discomfort in the tummy (abdomen).

The itching may feel like it's deep under your skin. Scratching the itch can damage your skin. So at first, your doctor may think you have a skin condition.

Some people develop harmless yellow spots around their eyes. These are caused by cholesterol deposits under the skin. You may also have dry eyes and a dry mouth.

"You might not have any symptoms – or they might be very vague, just 'feeling a bit off."

Jen

Symptoms of more advanced PBC

PBC can get worse over time. Some people will eventually get symptoms of advanced liver disease and cirrhosis. These can include:

- weight loss
- muscle wasting
- skin thinning
- feeling full or abdominal discomfort from an enlarged liver or spleen
- yellow skin or whites of the eyes (jaundice)
- a swollen abdomen caused by fluid collecting (ascites)

Other conditions can be linked to PBC and these can cause other symptoms. There is more about this in the section on complications and related conditions on page 28.

Diagnosing primary biliary cholangitis

For most people, the first step in being diagnosed with PBC is going to see their GP. They will ask about any symptoms you have and how they affect your daily life. They will look at your medical history and may also ask whether any medical conditions run in your family. They may listen to your chest and ask you to lie on the couch while they feel your abdomen.

First tests

Your GP will organise some blood tests including:

- a full blood count, measuring your white blood cell, red blood cell and platelet levels
- measurement of other blood chemicals (such as glucose and calcium levels)
- tests to check your liver and kidneys
- measuring your thyroid hormone levels

Don't be alarmed by these tests. It doesn't necessarily mean that you have any kidney or thyroid problems, for example. Your GP will be trying to narrow down the reasons for your illness.

Your GP will talk your results through with you in person or on the phone. If you have PBC, the liver blood tests will have some abnormal results. So your GP will refer you to a specialist in liver diseases.

At the hospital

Your specialist will ask you to have further tests, including blood tests and possibly scans.

Liver blood tests

You will have blood tests for alkaline phosphatase (ALP) and gamma-glutamyl transferase (GGT).

Raised ALP and GGT show there is a problem with the flow of bile through your liver (cholestasis). But other conditions can cause this, such as gallstones. So the specialist will then do another blood test for autoantibodies.

An autoantibody called antimitochondrial antibody (AMA), together with raised ALP and GGT levels, is a clear sign of PBC.

Scans

Your specialist may suggest an ultrasound or a type of MRI scan called an MRCP to rule out other causes of raised ALP and CGT.

What happens next

Your specialist can usually diagnose PBC from blood test and scan results. Rarely, they may need a sample of liver tissue (a biopsy) to confirm the diagnosis. With PBC, this will show damaged bile ducts. But if you have raised ALP and GGT and autoantibodies, you won't usually need a biopsy.

Visit our website to read more detailed information about tests
www.liveruk.org/tests

Ongoing tests

Your specialist will carry out other tests periodically, to see how far your condition has developed. This is called staging.

Other conditions are more likely in people with PBC, including other autoimmune conditions. So you may have tests for these too.

Many people feel anxious about these tests at first. Do remember that PBC generally develops slowly. Your doctor is just keeping an eye on you. Being asked to have a test certainly doesn't mean that your condition has got worse.

Liver stiffness tests

Developing scar tissue (fibrosis) can be a sign that liver disease is worsening. To measure liver scarring, doctors use a scan called FibroScan™ (also called VTCE or vibration controlled transient elastography). This can show how quickly or slowly PBC is developing. Your doctor may suggest you have a FibroScan at least every 3 years.

FibroScan is painless and takes about 10 to 20 minutes.

Blood tests

Some doctors will do a blood test called the ELF test. This stands for 'Enhanced Liver Fibrosis' test. It's another way of measuring liver scarring and is particularly useful for monitoring PBC.

Other blood tests you may have regularly include:

- thyroid hormone tests
- blood glucose
- cholesterol blood tests
- coeliac disease screening test

Bone density scans

As many as 1 in 2 people with PBC have some bone thinning (osteoporosis).

When you are diagnosed with PBC, your doctor will arrange a scan called a bone density scan (DEXA scan). This uses X-rays to measure bone density. It's painless and only takes a few minutes.

Your bone density may be normal or slightly lowered (osteopenia – pronounced oss-tee-oh-pee-nee-ah). Or you may have more significantly lowered bone density (osteoporosis).

Depending on your result, you will have Dexa scans between 1 and 5 yearly.

Tests for autoimmune hepatitis

Around 1 in 10 (10%) people with primary biliary cholangitis also have autoimmune hepatitis (AIH). This means that your immune system is mistakenly attacking your liver cells as well as your bile ducts.

If your doctor suspects you have AIH, they will do a blood test for an immune system protein called Immunoglobulin G or IgG. A higher than normal level can mean you have AIH.

If your IgG level is high, your specialist is likely to ask you to have a liver biopsy to be sure.

You have a liver biopsy in hospital, with a local anaesthetic. You will usually be able to go home the same day.
There is more about having a liver biopsy on our website www.liveruk.org/biopsy

"I found out you can choose where you're treated so I got a referral to my nearest specialist liver centre."

Jayne

Jen's story – living with PBC and AIH

When I was first diagnosed, it was very scary and unknown to me.

I was initially diagnosed with PBC after a routine blood text and referred to a liver specialist. Thankfully it was caught in the early stages and with medication has been pretty much under control for twenty years with no side effects.

Unfortunately ten years ago I developed AIH and was extremely ill and hospitalized for a month. Then I started on steroids and azathioprine. I was very up and down in the early stages while the medicines got the disease under control. I believe this is the same for a lot of people.

I've now been in remission for a long time and actually feel great. I live a very busy, normal life and I tend to not think about my liver too much. I look after it as much as I can and have regular monitoring and appointments with the hospital so I'm looked after.

You can read more about AIH at www.liveruk.org/AIH

Treating primary biliary cholangitis

You'll start treatment as soon as you are diagnosed. The aim of your treatment is to

- slow down the development of your PBC
- prevent or delay complications
- manage any symptoms you have and improve your quality of life

Your ALP levels show how well your treatment is working. Your doctor will check to see if they're back within the normal range.

Treatment is life long, but try not to be alarmed by this. Your treatment should slow down development of your PBC.

The 2 main treatments are called ursodeoxycholic acid (Urso) and obeticholic acid (OCA). If your first treatment doesn't help, there are alternatives such as bezafibrate.

Your doctor may discuss the best treatment for you at a multi-disciplinary team meeting (MDT). This is a group of all the health professionals involved in PBC care, including your consultant and specialist nurse.

If medicine isn't controlling your PBC, a liver transplant is also an option. See page 27 for more information.

"The clinical nurse specialist is so helpful and much easier to get hold of than my consultant if I've got any questions!"

Yvonne

Ursodeoxycholic acid (Urso or UDCA)

This is likely to be your first treatment. It's pronounced er-so-dee-ox-ee-kol-ik acid. So it's usually called 'Urso' for short! Urso is a bile acid and works by replacing more damaging bile acids. This helps to protect your liver and bile ducts.

Urso comes as a capsule that you swallow. You may start on a low dose and gradually increase to the full dose. Your total dose is based on your weight. So if your weight changes significantly, you may need a change in your dose.

At the start, you may have 3 doses of Urso a day, while your doctor monitors your response to the treatment. Once your doctor is happy with your dose, you may switch to a single dose at bedtime. Some people continue to take Urso in 2 or 3 doses a day. Always follow your doctor's advice.

Urso occurs naturally in the body, so has few side effects. The commonest is diarrhoea. You may also notice that your poo looks pale. If you notice other possible side effects, tell your doctor or nurse.

You'll have regular blood tests to check how well your treatment is working. Urso controls PBC in around 6 out of 10 people. It's less likely to work well in people diagnosed before the age of 50.

Obeticholic acid (OCA)

If blood tests show that Urso isn't working well enough, your doctor may suggest adding another medicine called obeticholic acid (sometimes called OCA). This helps to protect the liver by reducing levels of bile salts.

You may have a lower dose of Urso and take OCA as well. Or you may take OCA on its own.

OCA is a tablet you take once a day. You start at the lowest dose. Your doctor will check your ALP and bilirubin blood levels regularly. After 6 months, if the levels are still high, they'll increase your dose.

After a year, if there's been no significant improvement in your liver test results your doctor may decide to stop giving you OCA.

OCA has more side effects than Urso. But most people take it without any major problem. If you do have side effects, the commonest are itching and tiredness. Less often, it can also cause

- dizziness and palpitations
- constipation
- mouth, joint or abdominal pain

At the time of printing there was a discussion about OCA licensing. For the latest information, check our website www.liveruk.org/OCA-licensing.

Bezafibrate

If Urso hasn't controlled your PBC as well as your doctor would like, adding bezafibrate can often help. Or your doctor may suggest you take it on its own.

Bezafibrate doesn't usually cause too many side effects. You may lose your appetite or have stomach upsets. Uncommonly, it can affect the kidneys, so you'll have regular blood tests to check.

Treating advanced primary biliary cirrhosis

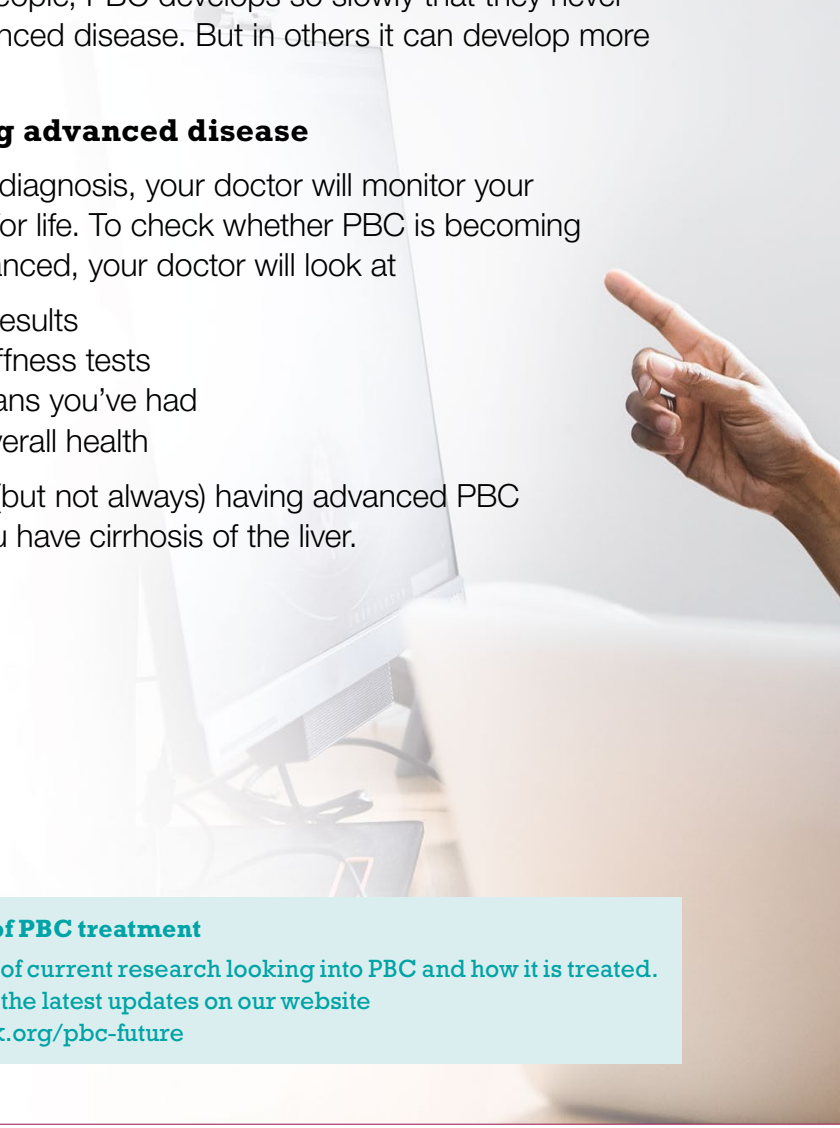
In some people, PBC develops so slowly that they never have advanced disease. But in others it can develop more quickly.

Detecting advanced disease

After your diagnosis, your doctor will monitor your condition for life. To check whether PBC is becoming more advanced, your doctor will look at

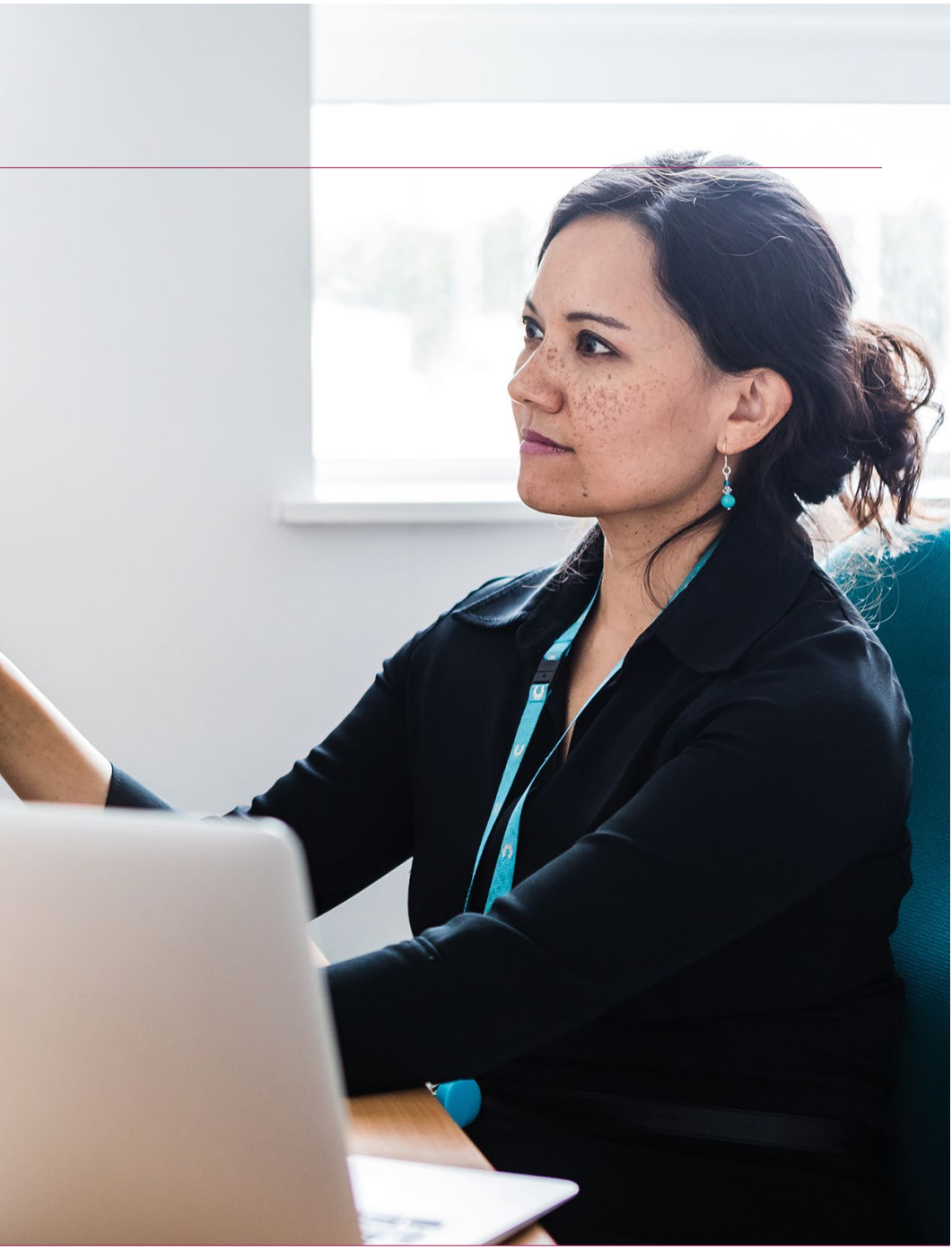
- blood results
- liver stiffness tests
- any scans you've had
- your overall health

Generally (but not always) having advanced PBC means you have cirrhosis of the liver.



The future of PBC treatment

There is lots of current research looking into PBC and how it is treated. You can find the latest updates on our website www.liveruk.org/pbc-future



Cirrhosis and PBC

Cirrhosis is a late stage of liver disease. It means that a large part of healthy liver tissue has been damaged and replaced by fibrous scar tissue.

Cirrhosis can be called 'compensated' or 'decompensated'. If it's compensated, your liver is still healthy enough to manage all important functions. If it's decompensated, it's too damaged to work well and this can cause a number of medical problems. Your doctor may suggest regular tests to pick up any complications as early as possible, when they are easier to manage.

It commonly takes around 25 years to develop cirrhosis from early stage PBC.

Around 1 in 6 people (17%) diagnosed with early stage PBC have advanced disease 10 years later.

For more information about cirrhosis and its complications visit www.liveruk.org/cirrhosis

Liver transplant and PBC

Cirrhosis can cause a number of other serious health problems. For some patients the best way to deal with these may be a liver transplant. Your damaged liver is removed during surgery and replaced with a healthy, donor liver. Around 1 in 10 liver transplants in the UK are carried out for PBC.

Liver transplant is usually very successful. Although PBC can come back in a transplanted liver, it tends to develop very slowly and is unlikely to become advanced.

A transplant is major treatment and a big step to take. Your doctor may suggest it if you have life-threatening liver damage. But they may also suggest it if itching is severely impacting your quality of life

Liver cancer

If you have cirrhosis, you're more at risk of a type of liver cancer called hepatocellular carcinoma (HCC). Your doctor may suggest an abdominal ultrasound every 6 months to check for this. They may also do regular blood tests. They may call these checks 'surveillance'. When diagnosed early, HCC can be cured. So it's important to have these tests.

"My condition was successfully managed with medication for 10 years before I had more symptoms."

Samantha

Complications and related conditions

With PBC, you have a higher chance of developing other medical conditions, partly because your liver isn't working so well, which affects the chemical balance of the body. Having one autoimmune condition also increases your risk of developing another.

Osteoporosis (bone thinning)

Liver disease increases risk of bone thinning. You will have regular bone density scans (Dexa scans). You may have a medicine called a bisphosphonate to strengthen your bones, as well as daily calcium and vitamin D tablets.

Thyroid disease

Around 1 in 4 people have autoimmune thyroid disease, causing low levels of thyroid hormones. This can make fatigue worse. If your thyroid hormones are low, your doctor will prescribe tablets to bring your levels back up.

Diabetes

People with PBC have an increased risk of diabetes. Your doctor will monitor this with blood tests. If you develop diabetes, you may need treatment to control your blood sugar.

High blood cholesterol

People with PBC sometimes have raised 'good' cholesterol. This doesn't necessarily mean you have a higher risk of heart disease. If you have more generally raised cholesterol, or other risk factors for heart disease, your doctor may suggest tablets called statins.

Other autoimmune conditions linked to PBC

About 1 in 3 people develop Sjogren's syndrome. This causes dry eyes and mouth ('sicca complex'), vaginal dryness and difficulty swallowing from lack of saliva. You may need eye drops, artificial saliva or a vaginal moisturiser, and regular eye or dental check ups.

Around 1 in 4 people (25%) develop Raynaud's disease. Small blood vessels constrict when it's cold, causing fingers or toes to turn white, blue or red. It's often painful when the circulation returns. If mild, you can control Raynaud's by keeping hands and feet warm – wearing gloves in cold weather for instance. If more severe, your doctor may prescribe tablets.

About 1 in 12 people (8%) develop scleroderma. This skin condition has a wide range of symptoms. It can cause Raynaud's symptoms, thickened skin, indigestion and difficulty swallowing. Your doctor will treat any symptoms you have.

Up to 1 in 8 people (12%) develop coeliac disease. This causes an allergic reaction to wheat protein (gluten). Eating any wheat can cause abdominal pain, bloating and diarrhoea, so you'll need a gluten free diet.

There is more information about Sjogren's syndrome, Raynaud's disease, scleroderma and coeliac disease on the NHS website.

Managing itching and fatigue

PBC can cause itching and extreme tiredness (fatigue). These can also be treatment side effects.

Itching

4 out of 5 people with PBC are troubled by itching at some point. This doesn't mean your PBC is getting worse. It may actually improve in more advanced PBC.

You could try:

- Using moisturising cream to soothe your skin
- Wearing loose clothing and avoiding scratchy or irritating fabrics such as wool
- Taking cool showers

There are several medicines that can help with itching. So ask your doctor as soon as it becomes a problem.

Colestyramine helps to get rid of the bile acids that cause the itching. It comes as a powder that you mix with water or fruit juice.

It's very important to take colestyramine at least 4 hours before or after any other medicines, as it can stop them from being absorbed properly.

There are several other medicines for itching that your doctor may suggest. So ask to try something else if colestyramine doesn't work for you.

When itching is severely affecting quality of life, doctors may consider a liver transplant. Your doctor may also know of research studies that are looking into new treatments for itching.

More than half of all those with PBC have fatigue and 1 in 5 people have it severely.

Fatigue

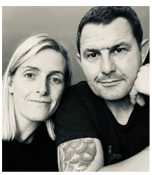
Fatigue caused by a disease isn't just feeling a bit tired. Of course sleeping and eating well will help. But you can't fight your way through it. It's more a case of learning how to manage it.

Try keeping a diary of how you're feeling. It'll help you spot the times of day you're at your best, or activities that make your fatigue better or worse. You may be able to adjust your routine to suit you better. For example, lots of people find fatigue is worse later in the day. So it can help to prioritise important things in the morning.

Improving sleep quality may help too. We have plenty of tips on our website.

Explain to your family and friends how fatigue affects you and let them support you. Although we don't like to ask, loved ones are often keen to help and just don't know how.

If you are finding it hard to manage, speak to your specialist nurse or consultant. They can check whether there is any other medical reason for your tiredness, such as anaemia, thyroid disease or the medications you're taking.



"A support network can help you learn from others so that you can begin to understand what to expect."

Justin's wife Lisa had a liver transplant for PBC in 2021

Your questions answered

Can I drink alcohol?

PBC isn't caused by alcohol. But because alcohol damages your liver it's better to avoid it if you have a liver condition. If you have cirrhosis you should not drink alcohol at all. Regularly drinking alcohol increases your risk of developing liver cancer.

The guidelines on low-risk drinking are the same as for anyone else:

- Don't drink more than 14 units of alcohol in one week
- Spread your drinking over several days
- Have 3 days in a row without alcohol every week

Can I take complementary or alternative medicines?

It's important to get your doctor's advice before trying any of these products. Doctors do not generally recommend them for liver disease. Most of them are not classed as medicines so they don't go through the same strict testing for quality or effectiveness. They could have no effect – or could even be harmful, including causing damage to your liver.

Does milk thistle help symptoms of liver disease?

Do not use milk thistle without speaking to your doctor. It could cause problems if you take certain medicines including warfarin, diazepam, the antibiotic metronidazole, and sirolimus (an immunosuppressant used after liver transplant). There is no good evidence to support using milk thistle as a natural treatment for liver disease.

Do I need to stop smoking?

Smoking increases your risk of developing liver cancer and at least 50 other health conditions. If you smoke the best thing you can do for your health is quit. You don't have to do it by will power alone. Using local free stop smoking services boosts your chance of quitting by three times.

Find your local free service by visiting the NHS website www.nhs.uk/live-well/quit-smoking/nhs-stop-smoking-services-help-you-quit/ or speak to your GP or pharmacist.

Should I try to "detox" my liver?

You might see foods or diets being recommended to cleanse or "detox" your liver. But this isn't physically possible. Some of these diets can be dangerous for people with liver disease.

Can I have children?

Yes, there's no reason PBC should stop you having a family. It's a good idea to talk to your medical team, so they can check the medicines you are taking are safe. They can also advise you if there are any extra checks or things to think about.

For lots more information and advice, from diet to money to mental health, visit www.liveruk.org/living-with-liver-disease

Useful words

Ascites – build-up of fluid in your tummy (abdomen). Ascites causes your abdomen to swell and can be painful.

ALP (Alkaline phosphatase) – An enzyme in your blood. ALP is part of a liver blood test. Too much ALP in your blood can be a sign of liver disease, especially diseases related to your bile ducts.

AMA (antimitochondiral antibody) – a protein found in the blood of 95 out of 100 (95%) people with PBC.

Autoimmune disease – a disease where your immune system attacks and damages part of your own body.

Autoimmune hepatitis (AIH) – inflammation of the liver caused by an overactive immune system.

Cholangitis – inflammation of the biliary system (bile ducts and gallbladder).

Cirrhosis – scarring of the liver caused by liver damage.

Coeliac disease – an autoimmune disorder that causes sensitivity to gluten in your diet. Can affect people with PBC.

DEXA scan – bone density test that checks for bone thinning (osteoporosis).

ELF test – 'Enhanced Liver Fibrosis' blood test, which measures how much scarring (fibrosis) there is in your liver.

Fibroscan – A brand name for a scanning device that measures liver stiffness (fibrosis).

GGT (Gamma-glutamyltransferase) – An enzyme in your blood. GGT is part of a liver blood test. Too much GGT in your blood can be a sign of liver disease, especially diseases related to your bile ducts.

Hepatic encephalopathy (HE) – changes in your brain from a build-up of toxins, caused by liver disease. Can become serious if not treated.

IgG (Immunoglobulin G) – an immune system protein measured in blood tests for autoimmune diseases.

Jaundice – yellowing of the skin and whites of the eyes. May be caused by a blocked bile duct or advanced liver disease.

MDT – short for multi-disciplinary team. Group of medical experts who meet to discuss a patient's test results and decide on the best treatment.

MRCP – stands for Magnetic resonance cholangiopancreatography. A scan that looks at the liver, gallbladder and bile ducts.

Osteoporosis – bone thinning that can develop in people with PBC.

Primary biliary cirrhosis – the old name for primary biliary cholangitis.

UDCA – shortening of ursodeoxycholic acid, a treatment for PBC often called 'urso'.

Varices – swollen blood vessels that can develop in people with liver disease, often in the foodpipe (oesophagus).

Notes

More information and support

Liver UK

Scan the code with your phone or visit **www.liveruk.org/PBC** to read and download all of our information about primary biliary cholangitis.

Liver UK are here to support you. Whether you have questions or just need someone to listen, we can help.

Call our nurse helpline **0800 652 7330**

Join a support group to meet other people in a similar situation email **outreach@liveruk.org**

Chat in our online forum **liveruk.org/healthunlocked**

Useful websites

Mind **www.mind.org.uk**
Advice and support to empower anyone experiencing a mental health problem.

NHS **www.nhs.uk**
Information on conditions related to PBC as well as general advice on eating well, alcohol, physical activity and stopping smoking.

Special thanks

All our publications are produced with medical experts and people living with liver disease.

We would like to thank:

Our patient focus group and case studies.

Our patient reviewers Jennifer Voller and Yvonne Fletcher.

Our clinical reviewers Dr Neil Halliday, Royal Free Hospital London and Janeane Hails, Addenbrookes Hospital, Cambridge.

We welcome your comments on this booklet, please email patient-info@liveruk.org

About Liver UK

Liver UK is the leading UK charity for adults affected by liver disease. We are entirely funded by donations including gifts in Wills. Our mission is to transform liver health by improving awareness, prevention, care and support.

LIVER UK

Donate to Liver UK

We are entirely funded by donations.

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

Publication date: October 2024
Next Review: October 2027
Registered Charity Number: 298858
Charity registered in Scotland: SC042140