

## Lithium Therapy: Important Information for Patients

### What is lithium and what is it used for?

Lithium is a mood stabiliser that can work well for people with treatment resistant depression when it is added onto an existing antidepressant medication. However, for the medication to work properly and safely, people taking it need to take special care. The biggest benefit associated with lithium is that it can help stabilise your mood. In other words, if you are feeling excessively depressed, it will help bring your mood back up.

Lithium is also used to treat and prevent episodes of mania (frenzied, abnormally excited mood) in people with bipolar disorder (a disease that causes episodes of depression, episodes of mania, and other abnormal moods), schizophrenia, disorders of impulse control and certain mental illnesses in children.

### Checks needed before you start to take lithium

Not everyone can take lithium. Before prescribing lithium your doctor will need to run some health checks to make sure that your body systems are functioning well enough to tolerate it:

**A kidney test:** lithium is removed from your body by your kidneys. It is therefore important for your doctor to check your kidneys are in good working order.

**A thyroid test:** This is a gland in your neck. If it is under-active you can feel very tired and lack energy, symptoms which can be mistaken for being depressed. Your doctor needs to check your thyroid is in good working order. Also, in the longer term, lithium can affect the way your thyroid works. Your doctor will regularly check on this with blood tests.

**A heart function test (ECG):** heart problems can affect whether lithium is suitable for you. If you are older, have had heart problems (or someone in your close family has heart problems such as problems of heart rhythm or Brugada syndrome – a genetic heart condition), your doctor will probably want to do a heart trace called an ECG (electro-cardiogram).

**Pregnancy and contraception:** As a general rule, it is best not to take lithium while pregnant or breastfeeding, as it can harm the baby. If you are a woman who might become pregnant, it is important that you use contraception whilst taking lithium. If you decide to keep taking lithium while pregnant, you will need extra health checks.

### Additional precautions:

Lithium is not safe to take if you:

- Are dehydrated
- Are on a low sodium (salt) diet
- Have Addison's disease (a rare disorder of the adrenal glands)
- Have an underactive thyroid that is not treated

## How to take lithium

It could take some time for lithium to have its full effect on your mood. Treatment with lithium is usually long-term unless you experience an adverse effect. When lithium is swallowed it goes from your stomach into your bloodstream. It then travels around your body and is finally removed from the body by the kidneys. Continue to take lithium even if you feel well. Do not stop taking lithium without talking to your doctor first. It is important that you do not stop taking lithium suddenly. It is recommended to reduce the dose gradually and with the advice of your doctor.

- Swallow the tablets whole
- Do not crush or chew them
- If you find the tablets difficult to swallow, ask your doctor if a liquid preparation would be suitable instead.
- Take your lithium at the same time each night. You need to take it at night because the blood tests to monitor your lithium levels need to be taken 12 hours after a dose.
- If you forget a dose, take your next dose at the correct time. DO NOT try to catch up on missed doses.
- It is important to take the prescribed dose and not to increase or decrease it. This will allow for the monitoring of lithium levels in your blood to make your therapy effective and safe.

You will start with a low dose and the dose will be increased as required to reach the right lithium dose for you. There is no standard dose of lithium, because the way your body absorbs and excretes lithium varies from person to person.

Lithium may make you drowsy. You should not drive or operate machinery until you know how this medicine affects you.

Check with your doctor or pharmacist before taking if you notice:

- The dose of your lithium has changed and no one has explained why
- You are given a different brand of lithium – this is because different brands release lithium into your stomach differently.

### *Storage and disposal of this medication*

Please follow the instructions given to you at your pharmacy. Keep this medication in the container it came in, tightly closed, and out of reach of children. Store it at room temperature and away from excess heat and moisture (not in the bathroom). Do not keep out-of-date or unwanted medicines. Take them to your local pharmacy which will dispose of them for you. Medicines should not be disposed of via a drain, toilet or household waste.

### *Special dietary instructions whilst taking lithium*

It's important to limit the amount of caffeine you consume while taking lithium. Caffeine may affect how the drug works in your body, so talk to your doctor about drinking tea, coffee, fizzy drinks such as cola or energy drinks or chocolate milk while taking this drug.

It is important to follow a proper diet, including the right amounts of fluid and salt during your treatment (as this can affect your lithium level). You should avoid sudden variations in the amount of fluid and salt taken, and avoid very restrictive diets. Your doctor will give you specific directions about the diet that is right for you. Follow these directions carefully. You should know that you may gain weight while you are taking this medication. Talk to your doctor about ways to control weight gain, such as eating a healthy, balanced diet and exercising.

Since thirst is a common side effect, it is important to drink water or low calorie drinks to quench thirst, rather than milk, juices and drinks containing sugar, which can lead to weight gain.

Note: Some forms of lithium contain **lactose** and **gelatine**.

### *Blood tests after starting lithium*

While you are taking lithium you need to have regular blood tests to see how much lithium is in your blood stream. It is important that these blood tests are taken **at least 12 hours after** you took your last dose of lithium.

Your doctor will decide how often blood tests are needed; a blood sample will usually be taken shortly after you start taking lithium, and again regularly until the level of lithium in your blood is right. The doctor is aiming for between 0.4 mmol/L and 1.0 mmol/L of lithium in your blood (mmol/L = millimoles per litre). This may vary slightly depending on your age and illness.

After that you will be asked to have a regular blood tests (usually every three months or so) to check that you still have the right level of lithium in your blood.

Depending on the results of these tests your doctor may: keep your dose the same, increase it, or decrease it.

Your doctor is also likely to do regular blood tests (usually every six months or so) to check that your kidneys and thyroid are working well. These tests are important as lithium can make your thyroid less active and affect your kidney function.

### **What happens if the levels of lithium in your blood are too high?**

**Lithium is poisonous in large amounts and can make you very ill** – blood levels over 1.5mmol/L of lithium per litre of blood serum are toxic and can be fatal, so your doctor should monitor your dosage and blood levels very carefully by giving you regular blood tests.

If you get one or more of the following problems at any time, speak to your doctor or other healthcare professional immediately. If this is not possible, ring the NHS non-emergency service on 111.

- Severe hand shake ('tremor')
- Stomach ache along with feeling sick and having diarrhoea
- Muscle weakness
- Being unsteady on your feet
- Muscle twitches

- Slurring of words – so that it is difficult for others to understand what you are saying
- Blurred vision
- Confusion

A small number of people may not have any immediate symptoms of toxicity when the level of lithium in their blood is too high. Regular checks can prevent long-term problems.

The most common causes of too much lithium in your blood are:

1. **Getting dehydrated** (for example if you are in a hot climate, have sickness and diarrhoea, or have had too much alcohol to drink). To avoid this, drink plenty of water. If you have sickness and diarrhoea for more than a day or two, see your doctor to have your lithium level checked.
2. **Big changes in the level of salt in your diet** – do not go on a low salt diet – talk to your doctor first.
3. **Taking some other medications** – other medications can affect the way your kidneys deal with lithium. Always remind your doctor and pharmacist that you take lithium before you taken any new medicines. This includes medicines prescribed by your doctor, or bought from a pharmacy or other shop.

## What side effects can lithium cause?

Experiences of taking lithium vary from person to person. It is not possible to predict how you will respond to lithium before you take it but not everyone taking this medication will get side effects. Many side effects go away with time, but some may last for longer. They also happen more frequently with higher blood levels of lithium and some can be resolved by lifestyle changes.

If you get any medical problems or events that concern you, you should talk to your healthcare professional. See table below for known side effects of lithium. Please report any medical occurrences to a member of the study team even if they are not necessarily related to lithium.

Your doctor will need might need to: rule out anything else that might be causing that effect; adjust your lithium dose; or prescribe additional medication to help you manage the side effects. It is also possible that changing your diet and the time of day when you take your dose could help.

All of the possible side effects will be listed in detail in the patient information sheet that comes with your medication. If you are not given one of these leaflets, ask your pharmacist for one.

We've arranged the potential side effects of lithium in the table below according to how serious they can be, from early (mild) side effects, to serious side effects and signs of serious overdose:

Early side effects (occurring within the first few days)	<p>These effects might happen as your body adjusts to lithium, but they usually get better or go away after a few weeks:</p> <ul style="list-style-type: none"> <li>- mild stomach cramps<sup>4</sup></li> <li>- mild diarrhoea and/or constipation<sup>1</sup></li> </ul>
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of treatment)	<ul style="list-style-type: none"> <li>- nausea (feeling sick)<sup>1</sup></li> <li>- feeling dizzy<sup>4</sup></li> <li>- slight muscle weakness<sup>1</sup></li> <li>- a dazed, confused feeling<sup>1</sup></li> <li>- needing the toilet more often<sup>1</sup></li> <li>- increased thirst<sup>1</sup></li> <li>- a metallic taste in the mouth<sup>4</sup></li> <li>- gaining weight<sup>1</sup></li> </ul>
Intermediate side effects (occurring a few weeks or months after starting treatment)	<p>These effects might continue after your body has adjusted to lithium, or you could get them after you've already been taking lithium for a while:</p> <ul style="list-style-type: none"> <li>- shaky hands<sup>1</sup></li> <li>- needing the toilet more often<sup>1</sup></li> <li>- feeling thirsty<sup>1</sup></li> <li>- gaining weight, possibly due to fluid retention<sup>1</sup></li> <li>- skin rash (this might indicate an allergic reaction)<sup>3</sup></li> <li>- itching<sup>3</sup></li> <li>- memory problems<sup>1</sup></li> <li>- loss of mental sharpness<sup>4</sup></li> <li>- loss of interest in sex; impotence<sup>4</sup></li> <li>- acne (spots) or psoriasis (a skin condition)<sup>2</sup></li> <li>- fluid retention which may affect your heart<sup>3</sup></li> <li>- overactive parathyroid (a small gland next to the thyroid), which can cause high blood calcium, back pain, blurred vision, depression and tiredness<sup>3</sup></li> </ul>
Long-term side effects	<p>If the level of lithium in your blood always remains within safe levels, you might not get any long-term side effects. However, the longer you take lithium for, the more likely it is that you might experience some of the following:</p> <ul style="list-style-type: none"> <li>- high blood calcium (this is associated with depression)<sup>3</sup></li> <li>- high blood magnesium (if very high this can cause nausea, vomiting, palpitations and severe constipation)<sup>3</sup></li> <li>- serious heart problems. Symptoms include: fainting; slow heart beat; disturbances of heart rhythm<sup>3</sup></li> <li>- permanent changes to your kidneys and disturbance of kidney function<sup>3</sup></li> <li>- changes to thyroid function<sup>3</sup>, such as: <ul style="list-style-type: none"> <li>• decreased thyroid function (hypothyroid). Symptoms include: sleepiness; tiredness; slowed thinking; depression; feeling cold; headaches; dry skin; constipation; aching muscles; gaining weight.</li> <li>• increased thyroid function (hyperthyroid). Symptoms include: nervousness; fast heartbeat; feeling emotional; feeling hot and being uncomfortable in the heat; sweating.</li> <li>• enlarged thyroid (goitre)</li> </ul> </li> <li>- If you experience any thyroid problems your doctor might</li> </ul>

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prescribe additional thyroid medications, or they might advise you to stop taking lithium.

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**Serious side effects** If the level of lithium in your blood always remains within safe levels, you might not get any serious side effects. However, when you're not feeling well, it's not always easy to take all the necessary steps to take lithium safely. If you experience any of these side effects, you should seek medical help urgently, as they could mean that that your lithium level is too high:

- loss of appetite
- persistent diarrhoea
- vomiting (being sick) or severe nausea (feeling very sick)
- serious hand tremors
- frequent muscle twitching
- muscle weakness and lack of coordination
- blurred vision, or a blind spot in your eye
- confusion
- drowsiness
- hallucinations
- memory loss
- severe discomfort
- swelling of your legs and feet
- increased pressure round your brain, causing headaches, possible vision problems and tinnitus (ringing in the ears)

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**Signs of serious overdose**

- loss of coordination
  - heavy shakes
  - muscle stiffness
  - difficulty speaking
  - confusion
- In very severe cases, this can lead to:
- stupor (not responding to your surroundings)
  - coma (deep unconsciousness)
  - death

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<sup>1</sup> Very common, affecting more than 1 in 10

<sup>2</sup> Common, affecting less than 1 in 10

<sup>3</sup> Rare/uncommon, affecting less than 1 in 100

<sup>4</sup> Unknown frequencies

## What will I be given before I start taking lithium?

Before you begin taking lithium you will be given a lithium treatment pack. This pack usually includes:

- An information booklet
- A lithium alert card

- A record book for your blood test results.

Additionally, with your medication, you should receive a 'patient information leaflet' from the manufacturer.

You should carry your 'Lithium Alert Card' with you at all times (in your wallet, for example) and show this card if you: buy new medicines or supplements; visit your dentist or other healthcare professionals; or are admitted to hospital.

In your 'Record Book' you should record every time you: see your GP; attend a clinic; are admitted to hospital; visit a pharmacy; request a new prescription or have a prescription dispensed. You should also note records of: your dose of lithium; your lithium blood levels; other blood test results; and your weight. Having this information in the record book helps your healthcare professional to have up-to-date information on your lithium therapy. It can also help you to understand how your treatment is going and what you need to be doing.

### How does lithium interact with other drugs?

You should always check with your doctor or pharmacist before taking any drugs together, or closely following one another, in case they could interact with each other badly. This includes non-prescription, over-the-counter-drugs, such as anti-inflammatory medication e.g. ibuprofen. These can make your body get rid of lithium more slowly, and therefore increase your lithium levels. Herbal and other complimentary medicines can also interact with lithium.

### About withdrawal

There is no evidence that lithium is physically addictive, but if you decide to stop taking it your original symptoms might come back. This is more likely to happen if you've been taking it for a long time, or come off it very suddenly, so if possible you should try to come off lithium slowly, by gradually reducing your dose over 2–3 months (or at least no less than 4 weeks). It's best to get your doctor's help if you can.

### What if I need to come off lithium quickly?

It's usually safe to stop taking lithium for a very brief period if you need to. For example, you should stop taking lithium 24 hours before a major operation. You can then restart it soon after the operation (you should discuss this with your anaesthetist).