

## Coronavirus (COVID-19) and lithium monitoring Information for Health Care Professionals

**Version 2** includes confirmation of the arrangements for blood testing that are in place in primary care during the outbreak.

### General information

Lithium is predominantly used in the following situations:

- The acute treatment of mania or hypomania
  - Prophylaxis in bipolar disorders
  - The control of aggressive behaviour or intentional self-harm
  - Treatment and prophylaxis of recurrent depression where treatment with other antidepressants has been unsuccessful
- **Lithium has a narrow therapeutic index. Levels below 0.4mmol/L are sub-therapeutic whilst those above 1.2mol/L are toxic in most patients. Toxicity is serious and clinical consequences include seizures and irreversible renal damage.**
  - **Even when lithium levels are within range the risk of long-term side effects which include, hypothyroidism, weight gain and renal impairment remain.**
  - **Changes in renal function, fluid balance and electrolyte levels can lead to lithium toxicity**
  - **Significant alterations in lithium levels can occur with commonly prescribed and over the counter medication such as NSAIDs.**

**Due to the above, it is important that patients' blood tests are monitored regularly in accordance with NICE guidance – however, see below for advice for monitoring guidance during the coronavirus outbreak.**

### NICE recommendations for monitoring

#### Serum lithium levels

- Take a trough (12 hours post dose) 1 week after initiation and 1 week after each dose change, then weekly until levels are stable **and then every 3 months for the first year.**
- **After the first year**, measure plasma lithium levels every 6 months, except in the following higher risk patients, where 3 monthly monitoring is recommended:

#### Higher risk lithium patients:

- Older people (65 years +)
- People taking drugs that interact with lithium
- People who are at risk of impaired renal or thyroid function, raised calcium levels, or other complications
- People who have poor symptom control
- People with poor adherence
- People whose last plasma lithium level was  $\geq 0.8\text{mmol/L}$

- Monitor lithium dose and plasma lithium levels more frequently if urea levels and creatinine levels become elevated, or eGFR falls over 2 or more tests, and assess the rate of deterioration of renal function.

Other monitoring

- **U&Es including eGFR and Ca, and TFTs** every 6 months (more often if evidence of renal impairment, raised calcium levels or an increase in mood symptoms that might be related to impaired thyroid function).
- **Weight or BMI** or waist circumference during the last year
- **Consider ECG** if clinical signs of cardiovascular disease or increased risk
- **Yearly Health Check** for people with bipolar disorder should include weight, or BMI, diet, nutritional status and level of physical activity, cardiovascular status (including pulse and blood pressure), metabolic status (including HbA1c and lipids, and liver function).

**Patients with no symptoms of COVID-19 and who ARE NOT self-isolating**

- Continue lithium treatment.
- Ideally continue with usual monitoring, however patients who have been taking lithium for >1 year, who are having 6-monthly monitoring, and are stable, could have the interval of their monitoring extended. The decision should be made on a case by case basis.

**Patients with no symptoms of COVID-19 and who ARE self-isolating**

- Continue lithium treatment.
- Patients who have been taking lithium for >1 year, who are having 6-monthly monitoring, and are stable, could have the interval of their monitoring extended. The decision should be made on a case by case basis.
- Patients who have been taking lithium for < 1 year or who are in the “higher risk lithium patient” group (see above) **MUST** continue to have their regular lithium monitoring.
- Most patients who take lithium have their monitoring carried out in primary care. Local arrangements for urgent blood testing of patients by GP practices should be followed and patients should contact their GP practice to arrange in the usual way. GP practices are following local guidance and may use CALM clinics ([Oxfordshire](#)) or hot hubs (Buckinghamshire) as appropriate.

**Patients with symptoms of COVID-19 and NO symptoms of toxicity**

Mild COVID symptoms:

- Continue lithium treatment.
- Continue with usual monitoring.
- Advise patient to maintain adequate fluid intake and report any worsening of COVID-19 symptoms.
- Be aware that any intercurrent illness, especially one associated with fever or reduced oral intake may result in lithium toxicity despite no change in dosage.
- Ask about lithium side effects and advise the patient to report the development of any new side effects immediately.

Moderate to severe COVID symptoms or in “higher risk lithium patient” group (see above)

- Arrange an urgent serum lithium level and renal function test.
- Most patients who take lithium have their monitoring carried out in primary care. Local arrangements for urgent blood testing of patients by GP practices should be followed and patients should contact

their GP practice to arrange in the usual way. GP practices are following local guidance and may use CALM clinics ([Oxfordshire](#)) or hot hubs (Buckinghamshire) as appropriate.

- If a blood test cannot be carried out in primary care and needs to be arranged by OHFT, this should be taken at the patient's home, using personal protective equipment and techniques as recommended by the Trust. See [Covid-19 OH 'Carrying Out Essential Care': Standard Operating Procedure](#).
- Advise the patient to maintain adequate fluid intake.
- Ask about lithium side effects.
- Stopping lithium suddenly is associated with a high risk of relapse, so any decision to withhold lithium temporarily or recommend a dose reduction until blood test results are reported, should be made on a case by case basis (be aware that any intercurrent illness, especially one associated with fever or reduced oral intake may result in lithium toxicity despite no change in dosage).
- Use the blood test result to determine whether a dose reduction is necessary (see below).
- Increase the frequency of subsequent lithium monitoring accordingly.

#### Patients with symptoms of COVID-19 AND symptoms of toxicity

- STOP lithium.
- Arrange an urgent serum lithium level and renal function test.
- Consider whether urgent medical referral is necessary.
- Most patients who take lithium have their monitoring carried out in primary care. Local arrangements for urgent blood testing of patients by GP practices should be followed and patients should contact their GP practice to arrange in the usual way. GP practices are following local guidance and may use CALM clinics ([Oxfordshire](#)) or hot hubs (Buckinghamshire) as appropriate.
- If a blood test cannot be carried out in primary care and needs to be arranged by OHFT, this should be taken at the patient's home, using personal protective equipment and techniques as recommended by OHFT. See [Covid-19 OH 'Carrying Out Essential Care': Standard Operating Procedure](#).
- Be aware that suddenly stopping lithium is associated with a high risk of relapse.
- Consider if and when the lithium could be restarted – seek advice and refer back to the consultant psychiatrist if appropriate. Use the blood test result to guide subsequent dosing (see below).
- Increase the frequency of subsequent lithium monitoring accordingly.

#### Signs of toxicity

- Marked hand shaking ('tremor')
- Stomachache 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
- Feeling unusually sleepy

#### Taking a serum lithium level

Lithium has a half-life ( $t_{1/2}$ ) of 12-27 hours increasing to 36 in the elderly due to decreased renal function, so it is necessary that blood levels are taken at least 12 hours after the last dose (a "trough"). Normally Lithium is prescribed as a night-time dose and levels should be carried out between 12-14 hours post-dose (i.e. the following morning). Where dosing is twice a day, the morning dose should be withheld until after the sample for levels is taken.

Lithium level and action to be taken	
Serum lithium level	Action
Levels < 0.4 mmol/L – in keeping with level agreed with specialist team and patient is mentally well	Do not alter dose.
Levels < 0.4 mmol/L and patient mentally unwell	If lower than level specified by specialist team review compliance, consider other factors e.g. drug interactions, excess fluid intake and recheck level/consult specialist team.
> 1.0 mmol/L with no signs of toxicity	If there is an explanation for the high level e.g. dehydration, timing of level i.e. not 12hrs post dose, interacting medicines, address these issues where possible and recheck the level.  Otherwise, consider dose reduction, seek specialist advice if necessary, and recheck the level in 1 week.
> 1.0 mmol/L with no signs of toxicity and the usual trend is for high end of range	If level is consistent with range specified by specialist team do not alter dose. If not, decrease the dose, encourage fluids and recheck in 1 week.
> 1.0 mmol/L with no signs of toxicity and no explanation for high level	Recheck level, investigate renal function and if repeat level is higher than original target level specified, consult specialist for advice.
<b>If patient shows signs of toxicity</b>  (Blurred vision, muscle weakness, drowsiness, coarse tremor, dysarthria, ataxia, confusion, convulsions, nausea & vomiting, ECG changes)	Stop lithium immediately, measure lithium level, urea and electrolytes, creatinine and eGFR. <b>Refer to hospital if clinical condition warrants.</b>

Information for patients
<p>Remind patients to:</p> <ul style="list-style-type: none"> <li>• Seek advice if they feel unwell.</li> <li>• Ensure that they drink enough fluids – this is particularly important during episodes of illness e.g. when a patient has a temperature or diarrhoea.</li> <li>• Not suddenly stop taking lithium unless on medical advice.</li> <li>• That several medicines can interact with lithium and increase the risks of toxicity, including over the counter preparations that people may purchase to treat pain and fever, such as ibuprofen. Do not take ibuprofen – take paracetamol instead.</li> </ul> <p>Patient information leaflet: "<a href="#">Staying well on lithium</a>"                      This is also available at <a href="http://www.choiceandmedication.org/oxfordhealth">www.choiceandmedication.org/oxfordhealth</a></p>



**Need more information/advice?**

Please contact the Medicines Advice Service: 01865 904365 or [medicines.advice@oxfordhealth.nhs.uk](mailto:medicines.advice@oxfordhealth.nhs.uk)