

Lithium Toxicity

A plain-English guide for you and your family

WHAT IS HAPPENING

Lithium is a salt your doctor prescribes to steady wild mood swings in bipolar disorder. It works by calming overactive nerve signals in your brain. The tricky part: your kidneys filter lithium out of your blood every day, and that balance is delicate. If you get dehydrated—from sweating, vomiting, diarrhea, or not drinking enough—your kidneys hold on to more salt and lithium, so lithium builds up. Certain medicines (water pills, ibuprofen, naproxen) do the same thing. Early warning signs are a shakier hand tremor than usual, feeling queasy, or loose stools. If lithium keeps climbing, you might slur your words, feel confused, lose your balance, twitch, or even have a seizure. Your heart rhythm can go wobbly, and your kidneys can get hurt. This is why your doctor checks a lithium level in your blood regularly and asks about new medicines, fevers, or stomach trouble. If you notice new shaking, confusion, or trouble walking, call right away—catching it early prevents serious harm. With careful monitoring and staying hydrated, lithium is safe and life-changing for many people.

What you might feel

- Shaking hands (tremor)
- Confusion or slurred speech
- Nausea, vomiting, or diarrhea
- Muscle twitching or jerking movements
- Feeling very drowsy or sluggish
- Peeing far more than usual (polyuria)
- Seizures
- Slow or irregular heartbeat

Call the doctor right away if...

- Confusion, slurred speech, or not making sense
- Seizures or uncontrollable muscle jerking

- Very slow, fast, or irregular heartbeat
- Barely able to stay awake or unresponsive
- New kidney failure (very little urine or swelling)

What the care team will do

- Stop all lithium doses immediately and hold any medications that raise lithium levels (thiazide diuretics, NSAIDs, ACE inhibitors, ARBs)
- Start intravenous normal saline (0.9% sodium chloride) at 100 to 150 mL per hour to restore fluid volume and enhance kidney lithium clearance
- Draw stat serum lithium level, basic metabolic panel (BMP) for sodium, potassium, creatinine (kidney function), and obtain 12-lead ECG
- Place patient on continuous cardiac monitoring and pulse oximetry, and perform hourly neurologic checks (level of consciousness, speech clarity, tremor severity, muscle twitching)
- Measure strict intake and output every hour, and report urine output below 30 mL per hour or 0.5 mL per kilogram per hour immediately
- Notify the provider immediately if lithium level is 2.5 mEq/L or higher, or if patient shows confusion, seizures, unresponsiveness, or arrhythmias, because these require emergency hemodialysis
- Keep the patient NPO (nothing by mouth) if neurologic status is declining or if hemodialysis is being arranged, and maintain seizure precautions with padded side rails up
- Recheck serum lithium level every 4 to 6 hours until levels are steadily falling and patient symptoms improve, because lithium redistributes from tissues back into blood after initial clearance

Medicines you may be given — and why

Stop lithium immediately

Lithium is the poison causing the problem, so the first step is to stop it right away. This lets the body start clearing out the extra lithium through the kidneys. While the body works to get rid of it, doctors give intravenous (IV) normal saline (salt water through a vein) to help the kidneys flush lithium faster. If the lithium level is very high (2.5 mEq/L or above), or if the person has serious brain symptoms (confusion, seizures, coma) or kidney failure, hemodialysis is needed. Dialysis is a machine that cleans the blood directly when the kidneys cannot do it fast enough. Doctors also stop any other medicine that was raising lithium levels – like thiazide diuretics (water pills that reduce how much lithium the kidney removes), NSAIDs such as ibuprofen (pain pills that slow kidney clearance of lithium), and ACE inhibitors (blood pressure pills that can reduce kidney blood flow). Lithium levels are checked frequently (every 4–6 hours at first,

then every 12–24 hours) until they are safe and falling. Once the person recovers, lithium may be restarted at a lower dose if it is still needed, and the cause of the toxicity (dehydration, drug interaction, too-high dose) is fixed to prevent it from happening again.

Where this information comes from

- American College of Medical Toxicology (ACMT) lithium position statement 2018
- UpToDate clinical guideline on lithium toxicity
- Kidney Disease: Improving Global Outcomes (KDIGO) lithium guidance
- American Academy of Clinical Toxicology practice guidelines

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