

### Medication

Lithium Carbonate

### Purpose

Lithium produces neurochemical changes in the brain, including serotonin receptor blockade.

There is evidence that the use of lithium can show a decrease in neuronal atrophy and/or an increase of neuronal growth

### Therapeutic Uses

Lithium is used in the treatment of bipolar disorders

Lithium controls episodes of acute mania, and helps prevent the return of mania or depression

### Contraindications/ Precautions

Lithium is pregnancy risk category D. This medication is teratogenic, especially during the first trimester

Discourage clients from breastfeeding if lithium therapy is necessary

Use cautiously in clients who have renal dysfunctions, heart disease, sodium depletion, or dehydration

Use cautiously in older adult clients and clients who have thyroid disease, seizure disorders, or diabetes

### Complications

Complication	Nursing Action and Education
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GI distress: nausea, diarrhea, abdominal pain	Administer medication with meals or milk. Effects are usually transient
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Fine hand tremors: can interfere with purposeful motor skills and can be exacerbated by factors (stress, caffeine)	Administer beta-adrenergic blocking agents (propranolol). Adjust to the lowest dosage possible, given in divided doses, or use long term acting formulas. Report an increase in tremors
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Polyuria, Mild Thirst	Use potassium sparing diuretic (spironolactone). Maintain adequate fluid intake by consuming 1,500 to 3,000 mL of fluid from beverages and food sources.
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Weight gain	Assist client to follow a healthy diet and regular exercise regimen
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### Complications (cont)

Renal toxicity	Monitor I&O. Adjust dosage, and keep dose low. Assess baseline kidney function, and monitor kidney function periodically.
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Goiter and hypothyroidism: with long term treatment	Obtain baseline T3, T4, and TSH levels prior to starting treatment, then annually. Administer levothyroxine to manage hypothyroid effects. Monitor for manifestations of hypothyroidism (cold, dry skin, decreased HR, weight gain)
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Bradydysrhythmia, hypotension, and electrolyte imbalances	Maintain adequate fluid and sodium intake.
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Lithium toxicity: common adverse effect	Notify the provider if any nausea, vomiting, diarrhea, mental confusion and slurred speech.
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### Interactions

Interaction	Nursing Action and Education
Diuretics: sodium is excreted with the use of diuretics, Reduced blood sodium decreases lithium excretion, with can lead to toxicity	Monitor for indications of toxicity and notify to provider. Maintain a diet adequate in sodium, and drink 1.5 to 3L of water each day from food or beverage sources.
NSAIDs (Ibuprofen and Celecoxib): Concurrent use will increase renal reabsorption of lithium leading to toxicity	Avoid use of NSAIDs. Use aspirin as a mild analgesic
Anticholinergics: antihistamines and tricyclic antidepressants can induce urinary retention and polyuria, leading to abdominal discomfort	Avoid medications with anticholinergic effects

### Nursing Administration

Monitor plasma lithium levels during treatment	Obtain lithium levels with each dosage change. Once therapeutic level is obtained, monitor monthly. Older clients require more frequent monitoring. Maintain range between 0.6-1.2 mEq/L
Severe toxicity	provide supportive measures. Hemodialysis may be indicated. Monitor labs. Take with food to minimize GI distress. Emphasize high risk of toxicity. Provide nutritional counseling. Stress the importance of sodium and fluid intake.

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