

Lithium Induced Tremors

Tremors are a neurological condition characterized by rhythmic shaking movements in different parts of the body. Lithium-induced tremors affect between 4-65% of patients. They typically manifest early during treatment although they can appear at any point in time.

Tremors can occur in patients taking lithium even at therapeutic plasma levels and may also be an early indicator of lithium toxicity. These tremors are typically symmetrical, fine hand tremors and are most often postural, becoming apparent when the arms are held against gravity. In acute lithium toxicity, tremors may be present at rest and worsen with voluntary movement.

Assessment

There is no assessment beyond a clinical observation or referral to neurology. Review the patient's tremor for movements and then determine if it is lithium-related by ruling out all other causes and doing the first line adjustments.

Patient factors

- Personal or 1st degree family history of essential tremors, hyperthyroidism, alcohol or benzodiazepine withdrawal, anxiety. Elderly and those with a personal or family history of tremors are at increased risk.

Medications

- Sympathomimetics, use of decongestants, inhaled B-2 agonists, psychostimulants, norepinephrine reuptake inhibitors and caffeine
- Others include VPA, lamotrigine, D2 antagonist/partial agonists
- Lithium: Latest level, changes in severity with higher levels

Treatment Strategies

First-Line Adjustments

Before adding new medications, optimize the current lithium regimen and lifestyle.

- Treat the patient, not the level. Cases of lithium toxicity with therapeutic serum concentrations have been reported. For patients with bipolar disorder spectrum, recent guidelines suggest a maintenance lithium level in the range of 0.6-0.8 mEq/L, with select patients needing a higher (0.8-1.0 mEq/L) or lower (0.4-0.6 mEq/L) range, depending on response and tolerability.
- Treat other modifiable patient risk factors. For example, substance use (i.e. alcohol or caffeine intake) and anxiety.
- Modify other medication exposures. Review medications above for potential removal as they can also cause tremors or increase risk of tremors.
- Use single daily dosing.
- Use a sustained-release lithium product.
- Make gradual lithium dose reductions if possible. Reduce the serum level while maintaining therapeutic efficacy.

Pharmacological Intervention

If tremors persist and interfere with activities of daily living, beta blockers are the first-line treatment.

- Propranolol 30-100 mg/day in divided doses. Best-studied; blocking both B1 and B2 receptors appears more effective for tremor suppression than B1-selective agents
- Nadolol 20 or 40 mg/day. Less effective compared to propranolol but has a longer duration of action which may be convenient
- For patients with asthma or COPD, selective beta-blocker, metoprolol 25-50 mg/day.

Monitoring for Toxicity

Fine hand tremors that occur as an adverse effect of lithium therapy should be distinguished from coarser hand tremors that indicate lithium toxicity. If a fine tremor is present, manage the adverse effect as stated above. If a coarser hand tremor is present, discontinue lithium and the patient should be treated for lithium toxicity. Lithium-induced tremors are fully reversible with discontinuation of lithium treatment. Discontinuation may be considered when the tremor cannot be managed or tolerated by the patient.

References

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