Dear Alice,

What is lithium, and what does it do to you?

**Answer**

Dear Reader,

Lithium is an alkali metal that is found in nature, often in the form of a salt. It was discovered in 1817 by the Swedish chemist Johan August Arfwedson, and forty years later it was first used therapeutically to treat gout (which is a buildup of uric acid in the body). By 1949, the Australian physician John Frederick Joseph Cade found it had therapeutic effect on patients suffering from psychiatric disorders such as bipolar disorders or manic depression. It became available in the United States in 1970 as lithium carbonate (tablet) or lithium citrate (liquid) and since then has been approved by the U.S. Food and Drug Administration (FDA) to treat bipolar disorders, mania, and in some cases, acute depression. Although the complete details of lithium’s workings are not fully known, scientists discovered that lithium decreases the discharge frequency of neurotransmitters (which are chemical signals used in the brain), and that it specifically enhances the effects of serotonin on the brain, which seems to give it its mood stabilizing property. Symptoms of bipolar disorder that lithium is used to treat include:

- Energy loss
- Feelings of worthlessness
- Agitation (emotional or psychomotor)
- Distractibility or irritability
- Impulsiveness or difficulty concentrating
- Overly elevated mood or grandiosity (mania)

When used therapeutically, lithium isn’t metabolized by the body; this means that it’s broken down into smaller components or used for repair or energy. After it passes through your system, it is excreted by the kidneys and leaves the body with urine. Having healthy, working kidneys are important to making sure you can clear the drug from your system. If your kidneys aren’t able to handle the drug, your health care provider may choose a different therapy for mood stabilization.

It takes between one to three weeks for enough lithium to be present in your blood in order to notice an improvement in symptoms. People taking lithium are required to periodically have their blood levels checked to monitor how much of the drug is in her/his body over time. This
is because the drug must be kept at a certain level in the body for it to work properly. If the level goes too low, the drug may not work well; if it’s too high, unpleasant (and sometimes dangerous) side effects are more likely to occur. As with any drug, there are side effects with lithium. These typically decrease the longer you take the medication. The most common side effects of lithium are:

- Vomiting, nausea, or diarrhea
- Fine hand tremors
- Muscle weakness
- Decreased libido
- Needing to urinate frequently, increased thirst
- Low thyroid function (hypothyroidism)

More serious side effects can result from levels of lithium that are too high, referred to as lithium toxicity. Some of these are:

- Visual impairment
- Severe fatigue
- More severe hand tremors, unsteady gait
- Mental confusion and slurred speech
- Seizure
- Heart arrhythmias
- Coma

If kidney function and blood levels of lithium are monitored, many people find that lithium can be used effectively as a long-term therapy for mood disorders. For more general questions about mood stabilization, check out the National Institute of Mental Health [3], which has a useful summary of bipolar disorder and the ways that lithium is used to treat it.

Related questions

- Symptoms of mental illness? [6]
- Bipolar disorder: Am I at risk? [7]
- Fatigue and serotonin? [8]
- Manic-depression? [9]
- Schizophrenia ? Are genes involved? [10]
- Seasonal depression and light therapy? [11]

Resources

- Counseling and Psychological Services (CPS) (Morningside) [12]
- Mental Health Service (CUMC) [13]

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