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How lithium treats bipolar disorder

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Sustained increases in gray matter volume may be the key to explaining how lithium helps to treat bipolar disorder, according to a study published online this week in *Neuropsychopharmacology*. As lithium is thought to lower the risk of developing Alzheimer's disease and protect against dementia development in bipolar disorder patients, this research could potentially lead to future research into the effects of lithium on other neurodegenerative diseases.

The international collaborative team of In Kyoon Lyoo, Stephen Dager, Perry Renshaw and colleagues took 22 bipolar disorder patients who had never taken mood-stabilizing or

antipsychotic medications and treated them with either lithium or valproic acid (VPA). The results of a longitudinal brain imaging study showed noticeable increases in gray matter volume in the lithium-treated patients, but not in the VPA-treated ones. These increases were sustained over 16 weeks of treatment and were associated with an improvement in symptoms. This suggests that lithium causes regeneration of gray matter that normalizes deficits in the brains of bipolar disorder patients.

Interestingly, while VPA-treated patients experienced a similar improvement in symptoms, they did not have an increase in gray matter volume. This suggests a different but also effective mechanism of action for this drug – a theory which will require further study.

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