

Lithium is a mineral we must consume from our food supply. As a mineral, it is distributed throughout the world in soil and water, but the distribution varies considerably leaving many falling short of the estimated required dose of 1 milligram per day (Schrauzer, 2002). High-dose pharmaceutical lithium is currently the most widely used medication for the treatment of bipolar disorder. However, low-dose nutritional lithium can be used among nondrug treatments for mood and behavioral disorders. Lithium studies have shown improvement in irritability, anger, and aggression in children with ADHD.

Lithium treatment has been shown to be as effective as Ritalin in young adults with ADHD. In a randomized, double-blind, crossover trial, 32 adults (average age 25) with ADHD were treated with Ritalin up to 40 mg/day or lithium up to 1,200 mg/day. The participants took the first medication for 8 weeks, then did not take any medication for 2 weeks (to allow the first medication to leave the body), then took the second medication for another 8 weeks. Lithium and Ritalin were equally effective in improving many symptoms: hyperactivity, impulsivity, learning problems, irritability, aggressive outbursts, antisocial behavior, anxiety, and depression (Dorrego et al., 2002).

Lithium was also shown to be as effective as the antipsychotic haloperidol for decreasing behavioral symptoms. One study was conducted on 61 treatment-resistant, hospitalized children aged 5-12 with conduct disorder. Conduct disorder occurs in up to 45% of children and adolescents with ADHD. The children were randomized to haloperidol, lithium carbonate, or placebo for 4 weeks. Haloperidol and lithium both significantly reduced hyperactivity, hostility, and aggression compared to baseline and compared to placebo. Although both medications equally reduced symptoms, haloperidol interfered with daily functioning more than lithium. "The [blinded] staff agreed that lithium carbonate reduced explosiveness, and because of this, other positive changes took place, whereas haloperidol made the child only more manageable" (Campbell et al., 1984).

In 2014 Dr. Deepmala discussed a compelling case study in the *Journal of Child and Adolescent Psychopharmacology*. H. was a six-year-old girl diagnosed with ADHD, disruptive behavior disorder, anxiety, and mood disorder. She was treated with antipsychotics, mood stabilizers, antidepressants, and stimulants but her condition did not improve. After exhausting many different medication regimens, H.'s parents agreed to begin lithium carbonate. "With the addition of lithium, H.'s symptoms improved remarkably. Her inattention, hyperactivity, and restlessness attenuated, and irritability reduced by 60-70%. Sleep initiation improved. Improvement in her academic performance was noted, as concentration improved and hyperactivity decreased. Mood regulation was significantly improved as well" (Deepmala & Coffey, 2014).

Lithium works by balancing neurotransmitters; it increases the action of monoamine oxidase, an enzyme that regulates neurotransmitters. Lithium decreases the neurotransmitter glutamate which can damage brain cells if levels become too high. Lithium may also work as a central nervous system depressant to calm hyperactivity, reduce aggression, and improve sleep in ADHD patients. More research is needed to determine if lithium can address the underlying structural and functional abnormalities common in ADHD as well.

References.

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