

Lithium profoundly prevents brain damage associated with Parkinson's disease

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Lithium profoundly prevents the aggregation of toxic proteins and cell loss associated with Parkinson's disease (PD) in a mouse model of the condition.

Preclinical research is now underway at the Buck Institute for Research on Aging to determine correct dosages for a drug that continues to be the gold standard for the treatment of bipolar disorder. The Buck is currently working toward initiating a Phase IIa clinical studies of lithium in humans in conjunction with standard PD drug therapy. The research appears in the June 24 online edition of the *Journal of Neuroscience Research*.

"This is the first time lithium has been tested in an [animal model](#) of PD," said lead author and Buck Professor Julie Andersen, PhD. "The fact that lithium's safety profile in humans is well understood greatly reduces trial risk and lowers a significant hurdle to getting it into the clinic."

According to Andersen, lithium has recently been suggested to be neuroprotective in relation to several neurodegenerative conditions including Alzheimer's disease, Huntington's disease and [amyotrophic lateral sclerosis](#) and has been touted for its anti-aging properties in simple animals. "We fed our mice levels of lithium that were at the low end of the therapeutic range," said Andersen. "The possibility that lithium could be effective in PD patients at subclinical levels is exciting, because it would avoid many side effects associated at the higher dose range." Overuse of lithium has been linked to [hyperthyroidism](#) and

kidney toxicity.

PD is a progressive, incurable [neurodegenerative disorder](#) that affects 1 million Americans and results in tremor, slowness of movement and rigidity. It is the second most common neurodegenerative disease after Alzheimer's. Between 50,000 and 60,000 new cases are diagnosed each year. Age is the largest risk factor for the PD. Onset usually begins between the ages of 45 and 70 years.

Andersen's research focuses on lithium as a potential treatment for PD as well as its efficacy in combination with drugs currently used to control the symptoms of the disease. An internet search reveals stories from PD patients who are using lithium "off label" as part of their treatment regime; others report benefits from low dose lithium salts which are available as a supplement in some health food stores. "This finding gives us an opportunity to explore lithium as a recognized therapeutic for PD, in doses that are safe and effective" said Andersen.

More information: Lithium protects against oxidative stress-mediated cell death in alpha-synuclein over-expressing in vitro and in vivo models of Parkinson's disease. JNR: 852471-744204

Provided by Buck Institute for Age Research

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