

Smoking cessation drug improves walking function in patients with spinocerebellar ataxia type 3

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A nicotinic drug approved for smoking cessation significantly improved the walking ability of patients suffering from an inherited form of ataxia, reports a new clinical study led by University of South Florida researchers.

The randomized controlled clinical trial investigated the effectiveness of varenicline (Chantix) in treating spinocerebellar [ataxia](#) type 3, or SCA3. The findings were published online earlier this month in *Neurology*, the journal of the American Academy of Neuroscience.

Lead author Dr. Theresa Zesiewicz and colleagues at the USF Ataxia Research Center collaborated with researchers from Beth Israel Deaconess Medical Center in Boston, MA, and from the David Geffen School of Medicine at UCLA in Los Angeles, CA.

Spinocerebellar ataxia impairs the brain and spinal cord causing progressive difficulty with coordination of movements, including walking. The uncoordinated movements, or ataxia, is a neurological symptom with no treatment or cure and can lead to serious fall-related injuries.

"This is the first clinical trial in patients with ataxia showing that nicotinic acetylcholine agonists improve symptoms associated with the ability to stand straight and walk," said Dr. Zesiewicz, professor of

neurology and director of the USF Ataxia Research Center. "Patients receiving varenicline could walk with more ease, with less help and faster than those in the [placebo group](#)."

The double-blind multicenter study evaluated 20 adult patients with genetically confirmed SCA3. Half the patients received 1 mg. of varenicline twice a day, and the other half received placebo. At the end of the eight-week study, patients taking varenicline performed significantly better on measures of gait, stance, rapid alternating movements and a timed 25-foot walk than those who did not. The drug was fairly well tolerated, with mild nausea being the most common side effect.

The study authors suggest that varenicline's ability to improve ataxia may be associated with the drug's ability to act at several different sites in the brain affected by nicotine.

Study co-author Lynn Wecker, PhD, a distinguished research professor at USF Health, is investigating the cellular and molecular mechanisms mediating the effects of varenicline and other nicotinic agonists. Dr. Wecker and colleagues, supported by a five-year grant funded by the National Institute of Neurological Disorders and Stroke, have shown that several drugs affecting neuronal nicotinic receptors improve gait and balance in an animal model of SCA3.

Further preclinical research is needed to understand how nicotinic acetylcholine agonists improve ataxia, and larger clinical studies with more patients are needed to identify other neurodegenerative diseases that may benefit from nicotinic medications, the authors conclude.

More information: "A randomized trial of varenicline (Chantix) for the treatment of spinocerebellar ataxia type 3," T.A. Zesiewicz, MD, FAAN; P.E. Greenstein, MB, BCh; K.L. Sullivan, MSPH; L. Wecker,

PhD; A. Miller, BS; I. Jahan, MD; R. Chen, MD and S.L. Perlman, MD, FAAN, *Neurology*, published online before print Feb. 8, 2012. [DOI: 10.1212/WNL.0b013e318247cc7a](https://doi.org/10.1212/WNL.0b013e318247cc7a)

Provided by University of South Florida

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