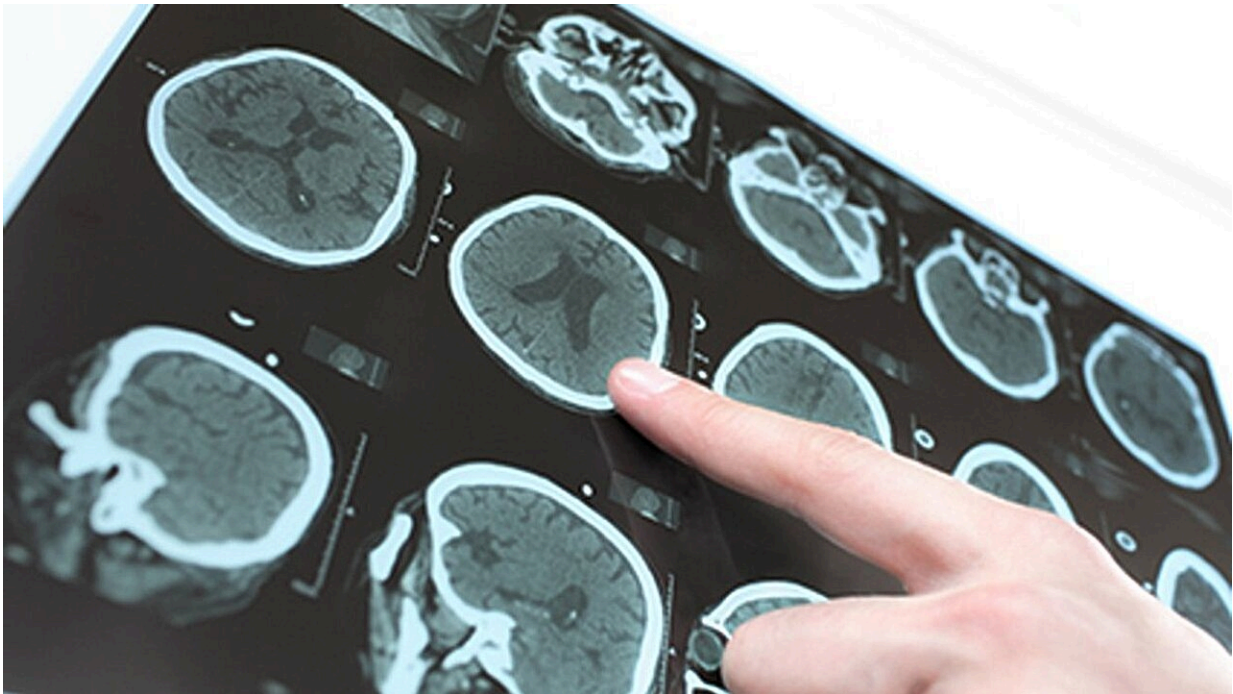


Structure, function of brain connectome tied to gray matter atrophy in Parkinson disease

July 8 2024, by Elana Gotkine



For patients with mild Parkinson disease (PD), the structural and functional architecture of the brain connectome is associated with progression of gray matter (GM) atrophy, according to a study [published](#) online June 25 in *Radiology*.

Silvia Basaia, Ph.D., from IRCCS San Raffaele Scientific Institute in

Milan, and colleagues examined the structural and functional connectivity of brain regions in healthy controls and its relationship to GM [atrophy](#) in patients with mild PD. Participants with PD underwent three-dimensional T1-weighted brain [magnetic resonance](#) imaging (MRI). At baseline and every year for three years, the extent of regional GM atrophy was assessed.

In healthy controls, the structural and functional brain connectome was constructed using diffusion tensor imaging and resting-state functional MRI. Disease exposure indexes were defined as a function of the structural or functional connectivity of all connected regions in the healthy connectome and atrophy severity of the connected regions in PD patients.

Data were included for 86 patients with mild PD and 60 healthy controls. The researchers found correlations for [disease](#) exposure indexes at one and two years with atrophy at two and three years. GM atrophy accumulation over three years in the right caudate nucleus and some frontal, parietal, and temporal brain regions was predicted by models including disease exposure indexes.

"This study showed that the structural and functional architecture of the [brain connectome](#) can play a role in the progression of gray matter atrophy in mild Parkinson disease," the authors write.

Several authors disclosed ties to the biopharmaceutical industry.

More information: Silvia Basaia et al, Brain Connectivity Networks Constructed Using MRI for Predicting Patterns of Atrophy Progression in Parkinson Disease, *Radiology* (2024). [DOI: 10.1148/radiol.232454](https://doi.org/10.1148/radiol.232454)

© 2024 [HealthDay](#). All rights reserved.

Citation: Structure, function of brain connectome tied to gray matter atrophy in Parkinson disease (2024, July 8) retrieved 8 July 2024 from <https://medicalxpress.com/news/2024-07-function-brain-connectome-gray-atrophy.html>

This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.