Medical Xpress

Study establishes connection between gut microbiota and Parkinson's disease

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Parkinson's disease sufferers have a different microbiota in their intestines than their healthy counterparts, according to a study conducted at the University of Helsinki and the Helsinki University Central Hospital. Researchers are now trying to determine what the connection between intestinal microbes and Parkinson's disease is.

"Our most important observation was that patients with Parkinson's have much less bacteria from the Prevotellaceae family; unlike the control group, practically no one in the patient group had a large quantity of bacteria from this family," states DMSc Filip Scheperjans, neurologist at the Neurology Clinic of the Helsinki University Hospital (HUCH).

The study was published in Movement Disorders, the Clinical Journal of the International Parkinson and Movement Disorder Society.

The researchers have not yet determined what the lack of Prevotellaceae bacteria in Parkinson's sufferers means – do these bacteria perhaps have a property which protects their host from the disease? Or does this discovery merely indicate that intestinal dysfunction is part of the pathology? "It's an interesting question which we are trying to answer," Sheperjans says.

Another interesting discovery was that the amount of bacteria from the Enterobacteriaceae family in the intestine was connected to the degree of severity of balance and walking problems in the patients. The more Enterobacteriaceae they had, the more severe the symptoms.

"We are currently re-examining these same subjects to determine whether the differences are permanent and whether intestinal bacteria are associated with the progression of the disease and therefore its prognosis," explains Sheperjans. "In addition, we will have to see if these changes in the bacterial ecosystem are apparent before the onset of motor symptoms. We will of course also try to establish the basis of this connection between intestinal microbiota and Parkinson's disease – what kind of mechanism binds them."

The researchers also hope that their discoveries could ultimately be used to develop a testing method which would improve the diagnostics in Parkinson's disease and perhaps finally find a way to treat or even prevent Parkinson's by focusing on gut microbiota.

Led by Scheperjans and Petri Auvinen from the University of Helsinki Institute of Biotechnology, the research project has received funding from the Michael J. Fox Foundation for Parkinson's Research and the Finnish Parkinson Foundation. The study recruited 72 Parkinson's disease patients through HUCH and Hyvinkää Central Hospital, as well as an equal number of healthy control subjects.

More information: "Gut microbiota are related to Parkinson's disease and clinical phenotype." *Movement Disorders.* Article first published online: 5 DEC 2014 onlinelibrary.wiley.com/doi/10 … 2/mds.26069/abstract

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