

The gut-brain axis in Parkinson's disease

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Parkinson's disease (PD) is a progressive and complex disorder that affects multiple parts of the brain but also other organ systems. Symptoms start gradually, sometimes with a barely noticeable tremor in just one hand. Tremor is common, and the disorder also commonly causes stiffness and slowing of movements. More than 10 million people

worldwide are living with PD and the incidence increases dramatically with age.

We know very little about the cause of PD, but several factors appear to play a role, including genetics. The [gastrointestinal tract](#) has been postulated as an origin of PD pathology, which then spreads along the gut- [brain](#) axis to enter the brain. This so-called "Braak hypothesis" well explains the [gastrointestinal symptoms](#), particularly constipation, that are experienced by up to 80% of PD patients already during the pre-clinical disease stage and the presence of the key protein α -synuclein in multiple body sites outside the brain before movement symptoms appear.

In a new thesis author Xiaoying Kang, Ph.D. student at the Department of Medical Epidemiology and Biostatistics, aimed to expand our knowledge about PD etiology and how new therapies might be developed from the perspective of the gut-brain axis.

What are the most important results in your thesis?

We were able to shed new light on the relationship between several intestinal diseases and PD from a public health perspective. Our findings will also inform future therapeutic development about the potential of anti-inflammatory treatment for intestinal disorders to prevent the disease.

Why did you choose to study this particular area?

I became interested in neuroepidemiology after the double-master training in both neurology and epidemiology. Since I first read an article calling gut our "second brain," the gut-brain axis has become one of the most attractive research areas to me. So I choose to focus on my thesis project for this fascinating topic and also for the research resources that

were available to me to look into this interesting topic.

What do you think should be done moving forward in this research area?

Our findings need to be replicated and followed up before the knowledge can be translated into clinical practice. Since PD is a fairly common disease but unfortunately without curative treatments, a better understanding of disease causes is urgently needed to enable the discovery of effective preventive and/or curative treatments in the future.

More information: Xiaoying Kang, The gut-brain axis in Parkinson's disease: epidemiological studies on causes, underlying mechanisms and novel treatments. openarchive.ki.se/xmlui/handle/10616/47860

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