Parkinson Society British Columbia

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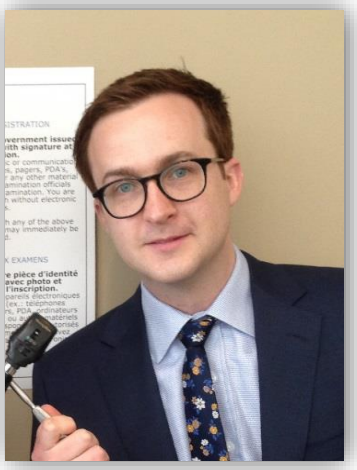
Research Profile:
Dr. Daryl Wile



Research Project:
Genetic and Neuroimaging Markers for Parkinson Disease: Correlation with Clinical Phenotype and Outcomes.

Project Grant: $50,000

Project Description:
Mapping the Brain to Find an Early Diagnostic Test for Parkinson's Disease

"By the time we identify people as having Parkinson's, they've probably had it for many years. If we can identify them much earlier, before they develop these bad signs and symptoms, and if a treatment is developed that can slow down the disease, maybe we can give it to them early enough that it makes a difference."

By the time most people with Parkinson's develop the stiffness, tremors or rigidity commonly associated with the illness; they have likely had more subtle symptoms for many years. If researchers could develop an early diagnostic test, it would not only help people plan their care, it might benefit their treatment.

At the University of British Columbia, Dr. Daryl Wile, a neurologist, is spending a year as a clinical movement disorders fellow. He's exploring the use of Positron Emission Tomography (PET) to develop an early diagnostic test. Wile, who will also work with patients during his yearlong fellowship, is searching for changes in the brain that occur even before people experience symptoms.

Wile will scan the brains of people who carry mutated forms of the gene LRRK2, which is associated with familial forms of Parkinson's disease, before they develop symptoms. By using radioactive tracers attached to different chemicals in the brain called neurotransmitters, Wile will discover what regions of the brain struggle to transmit signals. He'll compare these images to the PET scans of people without any genetic predisposition to Parkinson's disease. "We're

looking for abnormally low activity in certain brain regions where we know these cells live that make these neurotransmitters," Wile says.

If Wile can detect differences in the PET scans of people who carry the mutated LRRK2 gene, he hopes those changes are replicated in the brains of people with other forms of Parkinson's. That information would help him understand how Parkinson's progresses early on, before obvious symptoms occur.

The scans could also predict why some patients are more likely to suffer from depression or cognitive disorders than others, depending upon what forms of neurotransmitters are less active in particular regions of the brain. Although lack of dopamine is considered the immediate cause of movement problems in Parkinson's, abnormalities in other neurotransmitter systems such as serotonin might cause these other symptoms and might lead to dyskinesias, the involuntary movements many people with Parkinson's suffer after several years.

Wile hopes his work will help people get the treatment they need more quickly, once researchers develop new therapies. "If there's a treatment that's shown to definitely delay the progression of the disease, then we would want to start that as early as possible," Wile says.

Biography:
Wile completed a Bachelor of Science degree at the University of British Columbia followed by a Master of Science degree in Behavioral Neuroscience (auditory perception) at McGill University. He then decided to take his interest in neuroscience and apply it in medicine, completing medical school and residency training in Neurology at the University of Calgary.

A particular interest in movement disorders developed during this training, which led to a fellowship in movement disorders at the University of British Columbia, supported by Parkinson Society Canada. During that time Wile and his wife also welcomed three small children into their lives and have rediscovered interests in sandcastles, playgrounds and toy cars!