Q & A with Featured American Brain Foundation Researcher: **Salim Chahin, MD**

Q: What is multiple sclerosis (MS) and how does it affect the eye?

A: Multiple sclerosis is a disease of the central nervous system. Inflammatory cells attack the nervous system and injure the fatty layers around nerve fibers (axons) often resulting in permanent injury. Over time, patients with MS can lose brain cells and nerve fibers. Common symptoms of MS include loss of motor function and loss of sensation, as well as visual complaints and fatigue. Similar to the brain, the back layer of the eye, or the retina, has been shown to lose cells and nerve fibers in MS.

Q: What does your research involve?

A: My research involves discovering new methods to measure and investigate the cause of fatigue, a common and disabling symptom in multiple sclerosis (MS). Magnetic resonance imaging (MRI) of the brain shows that cell loss in the brain can be related to fatigue as a symptom in people with MS. The retina provides an attractive model to study loss of cell bodies (or neurons) and their projections (axons). The thickness of the part of the retina containing neurons and axons can be reliably measured using optic coherence tomography (OCT) and has been shown to be thinner in eyes of people with multiple sclerosis. We aim to study how the thickness of the neuron layer in the retina relates to fatigue. We also are looking at fatigue measurement and how fatigue and nerve cell loss in MS relates to vision and other symptoms of the disease.

Q: How will that help patients with MS?

A: Understanding fatigue's relationship with other physical, cognitive, and visual outcomes, as well as the impact that nerve cell loss has on fatigue, will help shed further light on the causes of this disabling symptom, lead to more accurate measurements of fatigue, and hopefully identify better, more targeted treatment options for fatigue in MS patients.

Q: What made it possible to do your research?

A: I have received support from a National Multiple Sclerosis Society/American Brain Foundation Clinician-Scientist Development Award. Donations to the American Brain Foundation help scientists continue important research to develop treatments and cures for neurological diseases.