Whittemore Peterson
Institute for Neuro-Immune Disease

Neuro-Immune Disease

What is Neuro-Immune Disease?

The term neuro-immune disease refers to a group of complex multi-symptom diseases characterized by acquired dysregulation of both the immune system and the nervous system. These diseases most often follow an infectious or flu-like illness which does not fully resolve and may result in life long disease and disability. Included in this definition are similarly presenting illnesses such as myalgic encephalomyelitis (ME), chronic fatigue syndrome (CFS), fibromyalgia, post Lyme disease, Gulf War illness (GWI) and cases of autism spectrum disorder.

Neurological:
- Cognitive impairment
- Disordered sleep
- Perceptual and sensory disturbances
- Postural orthostatic tachycardia syndrome (POTS)
- Ataxia
- Severe headaches
- Mental fatigue
- Seizures

Immunological:
- Abnormal NK cell number and/or function
- Inflammatory cytokine profile indicating abnormal levels of inflammation

Infectious Signs and Symptoms:
- Swollen and tender lymph nodes
- Sore throat
- Night sweats
- Recurrent flu-like symptoms
- Abdominal pain and nausea
- Weakness and extreme malaise
- Painful muscles, joints, and nerves
- Chronic and/or recurring infections
- New onset or increased severity of allergies
- Post exertional malaise or exercise intolerance (ME and CFS)
- Loss of previous levels of physical and mental functioning
- Worsening of symptoms with stress

Turning Today's Discoveries Into Tomorrow's Cures

Promising Research In Neuro-Immune Disease

Whittemore Peterson Institute (WPI) research continues the critical search for the underlying cause of neuro-immune diseases. Detailed studies at the institute continue to investigate the possibility of novel pathogens in the pathogenesis of neuro-immune disease. Using next generation sequencing, a highly sophisticated method of research, along with the support of ME/CFS doctors and their patients, WPI researchers are engaging in more precise and timely discovery. Other studies into novel immune deficits and unique patterns of inflammation hold the promise of accurate biomarkers of disease and more effective treatments for patients who suffer from neuro-immune diseases.

Who Does Neuro-Immune Disease Impact?

- Anyone can become ill with a neuro-immune disease
- 1 in 300 suffers from ME/CFS
- 1 in 150 suffers from fibromyalgia
- 1 in 110 children are in the autism spectrum
- Lyme disease is a fast growing epidemic (many sufferers develop a chronic illness)
- Hundreds of thousands of armed services members have Gulf War illness (GWI)

Current Research Projects

- New strategies to decipher the pathophysiology of ME/CFS: NIH RO1- five-year grant
- Pathogen and biomarker discovery in Gulf War illness two-year grant
- Evaluation of inflammatory markers of disease
- Evaluation of the presence of immune deficits in ME
- Evaluation of genetic susceptibility to ME/CFS and GWI

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