

Neuroimmunology Protocol

Assessment	
Health history	<input type="checkbox"/> Chronic stress <input type="checkbox"/> History of autoimmune disease <input type="checkbox"/> History of immunodeficiency <input type="checkbox"/> History of toxic exposure
Symptoms	<input type="checkbox"/> Fatigue <input type="checkbox"/> Joint pain <input type="checkbox"/> Myalgia <input type="checkbox"/> Sleep disturbances <input type="checkbox"/> Flu-like symptoms <input type="checkbox"/> Relapsing fever <input type="checkbox"/> Night sweats <input type="checkbox"/> Difficulty concentrating/brain fog <input type="checkbox"/> Neuropathy <input type="checkbox"/> Weakness <input type="checkbox"/> Dizziness <input type="checkbox"/> Migraines <input type="checkbox"/> Visual disturbances <input type="checkbox"/> Tremors <input type="checkbox"/> Changes in bowel, bladder, and/or sexual function <input type="checkbox"/> Changes in mood and behavior <input type="checkbox"/> Deterioration in cognitive function <input type="checkbox"/> Chronic/reoccurring infections <input type="checkbox"/> Changes in skin health
Physical signs	<input type="checkbox"/> Positive Lhermitte sign <input type="checkbox"/> Gait abnormalities <input type="checkbox"/> Slurred speech <input type="checkbox"/> Muscle hypertonicity and/or fasciculation <input type="checkbox"/> Ptosis
Labs	<input type="checkbox"/> hs-CRP <input type="checkbox"/> Cytokines: e.g., IL-6, TNF- α , IL-1 β , IL-10, IL-1ra, IL-2, IL-4, IL-8, IL-12, IL-17, and IFN- γ <input type="checkbox"/> Lipid mediators: e.g., PGE2 <input type="checkbox"/> MMP-9, TGF β <input type="checkbox"/> MCP <input type="checkbox"/> CBC—WBC populations and relationship e.g., neutrophil/lymphocyte ratio <input type="checkbox"/> Antibodies: IgM, IgG, IgA and/or IgE tests <input type="checkbox"/> Homocysteine

Assessment

Labs	<input type="checkbox"/> ANA (antinuclear antibodies) <input type="checkbox"/> Erythrocyte sedimentation rate (ESR) <input type="checkbox"/> Serum fasting glucose <input type="checkbox"/> Fasting insulin <input type="checkbox"/> Hemoglobin A1C <input type="checkbox"/> Vitamin B ₁₂ ; methylmalonic acid <input type="checkbox"/> Serum folate <input type="checkbox"/> RBC magnesium <input type="checkbox"/> 25-Hydroxyvitamin D <input type="checkbox"/> Organic acid test (OAT) <input type="checkbox"/> Thyroid panel (TSH, anti-TPO, FT4, FT3, rT3) <input type="checkbox"/> 4pt cortisol <input type="checkbox"/> Assess for leaky gut: Lipopolysaccharide (LPS) and anti-LPS levels; Zonulin <input type="checkbox"/> Total iron binding capacity (TIBC), serum iron, and saturation <input type="checkbox"/> Ferritin <input type="checkbox"/> Omega-3 index (fatty acid [FA] status [i.e., EPA and DHA]) <input type="checkbox"/> Lyme testing: sensitive enzyme immunoassay (EIA) or immunofluorescent assay (IFA) followed by a Western immunoblot Oxidative stress: <input type="checkbox"/> Urinary F2-isoprostanes, serum ox-LDL <input type="checkbox"/> GSH, GSSG, SOD
Rx/OTC directions	<input type="checkbox"/> Antihistamines <input type="checkbox"/> Antibiotics <input type="checkbox"/> Immunosuppressant medications <input type="checkbox"/> Anti-inflammatories <input type="checkbox"/> Corticosteroids <input type="checkbox"/> Immunoglobulin therapy <input type="checkbox"/> Interferon therapy <input type="checkbox"/> Growth factors
Other considerations	Increased risk for/associated with: <ul style="list-style-type: none"> • GI concerns/dysbiosis/leaky gut • Opportunistic & chronic infections • Chronic fatigue syndrome • Autoimmune conditions

Notes

Recommendations

Focus	Nutritional & Lifestyle Recommendations	Notes
Nutrition	<input type="checkbox"/> Nutrient-dense, high-protein food plan <input type="checkbox"/> Anti-inflammatory food plan <input type="checkbox"/> Hydration <input type="checkbox"/> Avoid: excitotoxins, artificial sweeteners, refined foods and sugars	
Lifestyle	<input type="checkbox"/> Stress management <input type="checkbox"/> Restorative movement	
Foundational nutrients and nutritional bioactives	<input type="checkbox"/> Alpha-lipoic acid (ALA) ^{1,2} <input type="checkbox"/> B vitamins (including folate as 5-methyltetrahydrofolate, B ₁₂ , B ₆) ^{3–5} <input type="checkbox"/> Coenzyme Q10 (CoQ10) ^{6–10} <input type="checkbox"/> Omega-3 fatty acids (EPA and DHA) ^{11–14} <input type="checkbox"/> Hemp extract (<i>Cannabis sativa</i>) ^{15–19} <input type="checkbox"/> N-acetyl cysteine ^{20–22} <input type="checkbox"/> Magnesium ^{3,23} <input type="checkbox"/> Medium-chain triglycerides (MCT) ^{24,25} <input type="checkbox"/> Phosphatidylserine ^{26,27} <input type="checkbox"/> Probiotics (<i>Lactobacillus acidophilus</i> , <i>Lactobacillus casei</i> , <i>Bifidobacterium bifidum</i> , <i>Lactobacillus plantarum</i> , and <i>Lactobacillus fermentum</i>) ^{28–30} <input type="checkbox"/> Specialized pro-resolving mediators (SPM) ^{31–33} <input type="checkbox"/> Vitamin D ₃ ^{34–37}	

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