

# Cognitive Decline to Dementia & Alzheimer's Disease: Unsuspected Parasite-Dental-Oral Infections

By Simon Yu, MD

Do you have friends or family members suffering with dementia and Alzheimer's disease? They might have unsuspected dental-oral parasite infections, triggering chronic neuroinflammation, cognitive impairment, dementia and Alzheimer's disease. My mother, a retired neurologist, passed away at age 90 with Alzheimer's disease at home in New York City in April 2020 and one month later, we will have a delayed bare-bones funeral service due to the COVID-19 pandemic.

I have been pondering if there a better way to treat Alzheimer's disease (AD) for many years since my Internal Medicine training, including investigating qEEG brain mapping and neurofeedback therapy. Here is a short version of my "fact finding" on AD while I am in a process of finishing an AD review paper for a peer reviewed journal in memory of my mother. I hope this short condensed piece will be useful and help you take proactive action for any family members suffering from Alzheimer's disease.

Alzheimer's disease, a progressive neurodegenerative disorder, is the most common form of dementia. The cause of AD has been one of the great medical mysteries since Dr. Alois Alzheimer [first described the disease in 1906](#). Chronic neuroinflammation is a new catchphrase for the explanation of chronic inflammation in neurodegenerative diseases such as Amyotrophic lateral sclerosis (ALS), Multiple sclerosis (MS), Parkinson's disease, and Alzheimer's disease; I call it "Dementia Spectrum Disorder." At least 5.7 million Americans and 40-50 million people worldwide suffer from AD. It is the sixth (or higher) leading cause of death in the United States, and the incidence has been rapidly rising worldwide.

Identifying abnormal amyloid tau protein changes and tau protein disposal problems are only the tip of the iceberg. This paper's position is that occult infections and coinfections from viruses, bacteria, fungi, parasites, and dental infections are the driving force for chronic neuroinflammation; exacerbated by lifestyle, diet and nutrition, occupational exposure, environmental toxins, heavy metals and air pollution. Genetic variants help determine susceptibility and preexisting conditions exacerbate. As we have a deeper understanding of the modifiable individual risk factors, we can prevent and even reverse early stages of mild to moderate cognitive impairment and Alzheimer's disease.

A literature review identified many contributing risk factors for neurodegeneration in AD and investigated some of the lesser-known risk factors such as heavy metals, toxins, parasites, bacterial infections, and hidden dental/oral bacteria, parasites and fungi contributing to neuroinflammation.

**Table: Risk factors for Alzheimer's and Other Neurodegenerative Disease**

Demographic & Social	Genetic Variants	Diet/Nutrition & Lifestyle	Preexisting Conditions	Environment/ Toxins	Pathogens
Age	APOE4	Nutrition	Cancer	Air pollution	Bacteria
Gender	ABCA7	Alcohol	CVD/CHF	Water damage	Mycobacteria
Race/Ethnicity	CLU	Drugs	Diabetes	Workplace	Mycoplasma
Income	CR1	Smoking	Lipid disorder	Military	Fungi/Mold
Education	PICALM	Exercise	Obesity	Solvents	Lyme
Geography	PLD3	Activities	Stroke/TBI	Mercury	Parasites
Employment	TREM2	Learning	Anxiety/Dep	Lead, Copper	Viruses
Marital Status	SORLI1	Prescriptions	Stress/Trauma	Aluminum	Dental/Oral

**Source:** Author's research, see forthcoming paper. For genetics, <https://www.mayoclinic.org/diseases-conditions/alzheimers-disease/in-depth/alzheimers-genes/art-20046552>

Due to the complexity of neurobiology, multiple risk factors, and social interactions of many interacting factors, my upcoming review article will focus on parasites and dental-oral infections. It will explore the cranial valveless vein, glymphatic (glia-lymphatic) drainage system of brain, and gut-brain connection which influence the cranial trigeminal nerve and cranial vagus nerve.

Acute and chronic parasite diseases of the central nervous system are associated with high morbidity and mortality, with lingering residual secondary neurological cognitive dysfunction. Many human parasites, such as *Toxoplasma gondii*, *Entamoeba histolytica*, *Trypanosoma*, *Taenia solium*, *Echinococcus* spp., *Toxocara canis*, *T. cati*, *Angiostrongylus cantonensis*, and *Trichinella* spp., may involve the CNS.

Many believe parasite-related neurological and mental health problems are concentrated in tropical low-income third world countries. Parasite-related problems have been sadly ignored by modern Western medical communities. However, the frequent use of immune-suppressive medications, international travel, migration of populations, and global warming has changed the landscape of geographic distribution of parasites. Foreign unrecognized parasites are invading general populations and public health officials are unaware because no reliable parasites tests are available except for acute parasite infections showing in stool samples or blood tests. CNS symptoms include headache, dizziness, epileptic seizures, increased intracranial pressure, sensory disturbances, meningeal syndrome, cerebellar ataxia, behavioral changes, and cognitive decline in stages, sometime sudden or gradual over a prolonged period. Early symptoms of CNS invasion are often nonspecific; therefore diagnosis can be difficult.

The interaction of the trigeminal cranial nerve (CN V), vagus cranial nerve (CN X) and the glymph system are underappreciated significant contributors to epilepsy, multiple sclerosis, brain tumor, the development of neurologic disorders, and AD per [Patrick Stortebecker, MD, Ph.D.](#) from Sweden.

More recently, there has been an explosion of studies investigating the connections between among bacteria, oral parasites, periodontitis, and the onset and progression of neurodegenerative diseases like AD. Oral mucosal dendritic cells activate Th17-mediated inflammatory response when they encounter microorganisms. This triggers local and systemic inflammation and spread at distant peripheral sites, initiating comorbid diseases including atherosclerosis, AD, macular degeneration, chronic kidney disease, rheumatism, and others.

Migration of oral-dental bacteria and parasites to the CNS and brain can be explained by cranial valveless veins and the glymphatic drainage system once the endothelium mucosal barrier is interrupted at the site of periodontal and deep apical dental/jaw infections. With this knowledge, neurodegeneration may be delayed by early intervention of chronic bacterial, fungal and parasite infection in the dental/oral cavity and gut, influencing the trigeminal cranial nerve (CN V) and vagus cranial nerve (CN X), thereby reducing infection and endotoxin-induced neuroinflammation.

### **Two Case Studies:**

Early stage mild cognitive impairment: 53-year-old nurse with multiple complaints including Lyme, ADHD, job stress, memory loss, brain fog, insomnia, concentration and focus problems, Hashimoto's thyroid, and abscessed teeth was on multiple rounds of antibiotics. Her children were making fun of her because she was so forgetful. Treatment plan: Stress management, diet and nutritional support, two root canaled tooth extractions, and antiparasitic and antifungal meds azithromycin, tinidazole and nystatin for chronic infections based on her [dental DNA test](#) indicating multiple infections including *Treponema*

denticola and Entamoeba gingivalis. Patient is feeling better, sleeping better, has less brain fog, and describes the treatment as a true prevention to progressing from early dementia to Alzheimer's disease.

Mild to moderate AD: 63-year-old businessman, chief financial officer of a billion dollar company, was forced to retire because of memory loss and inability to function as a CFO. His memory loss started after sudden hearing loss at age 60, when he received a cochlear implant. He was losing weight, suffered from severe environmental allergies, and was previously treated for Lyme with antibiotics. He had been extensively evaluated and treated by major academic institutions and an AD clinic in the Midwest without significant improvement. In my evaluation, the patient had extensive dental infections including a jawbone infection that was corrected by referral to an oral surgeon. He was treated for parasite and fungal infections, received hormonal support and IV chelation therapy for mercury and lead toxicity, and daily oral chelation therapy and hyperbaric oxygen therapy (HBOT) at home. Overall, his memory decline has stabilized, he is still driving, his sense of humor is coming back, and he is reading his favorite books, but he still cannot use an Excel spreadsheet like before. Consider case this as a moderate success to slow down the progression of moderately advanced AD.

The literature search identified a number of studies which support the use of parasite medications, and aggressive detoxification of identified environmental toxicity, heavy metals, and dental infections. Think of Alzheimer's disease as both an infectious disease and metabolic disease. Consider using antibacterial, antifungal and antiparasitic medications as a part of treatment plan for early AD under a new understanding of the role of inflammation, infection and mitochondrial dysfunction in the development Dementia Spectrum Disorder and progression of AD.

The existing drugs used to treat AD based on the amyloid hypothesis have been disappointing. If we can address unsuspected multiple sources of infections, remove heavy metals and environmental toxins, and provide nutritional support, these drugs may become more effective and achieve a desirable response even in moderately advanced AD. Reexamining the application of these medications - acetyl cholinesterase inhibitors Donepezil (Aricept: 1996), Galantamine (Razadyne: 2001), Rivastigmine (Exelon: 2002), and NMDA receptor antagonist Memantine (Namenda: 2003) - along with screening and treatment for infectious pathogens, dental/oral infections, parasites and environmental toxins is a promising battle plan, and should be part of our multipronged, multimodal approach to the pandemic worldwide phenomenon of dementia and Alzheimer's disease.

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Dr. Simon Yu, M.D. is a Board Certified Internist. He practices Internal Medicine with an emphasis on Integrative Medicine to use the best each has to offer. For more articles and information about integrative medicine, patient success stories, and Dr. Yu's new book, [\*Accidental Blow Up in Medicine: Battle Plan for Your Life\*](#), visit his website at [www.preventionandhealing.com](http://www.preventionandhealing.com) or call Prevention and Healing, Inc., 314-432-7802. You can also attend a free monthly presentation and discussion on Integrative Medicine at his office on the second Tuesday each month at 6:30 pm. Call to verify the date. Seating is limited, arrive early.



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