

Environmental Toxins and Parkinson's Disease: A Global Perspective

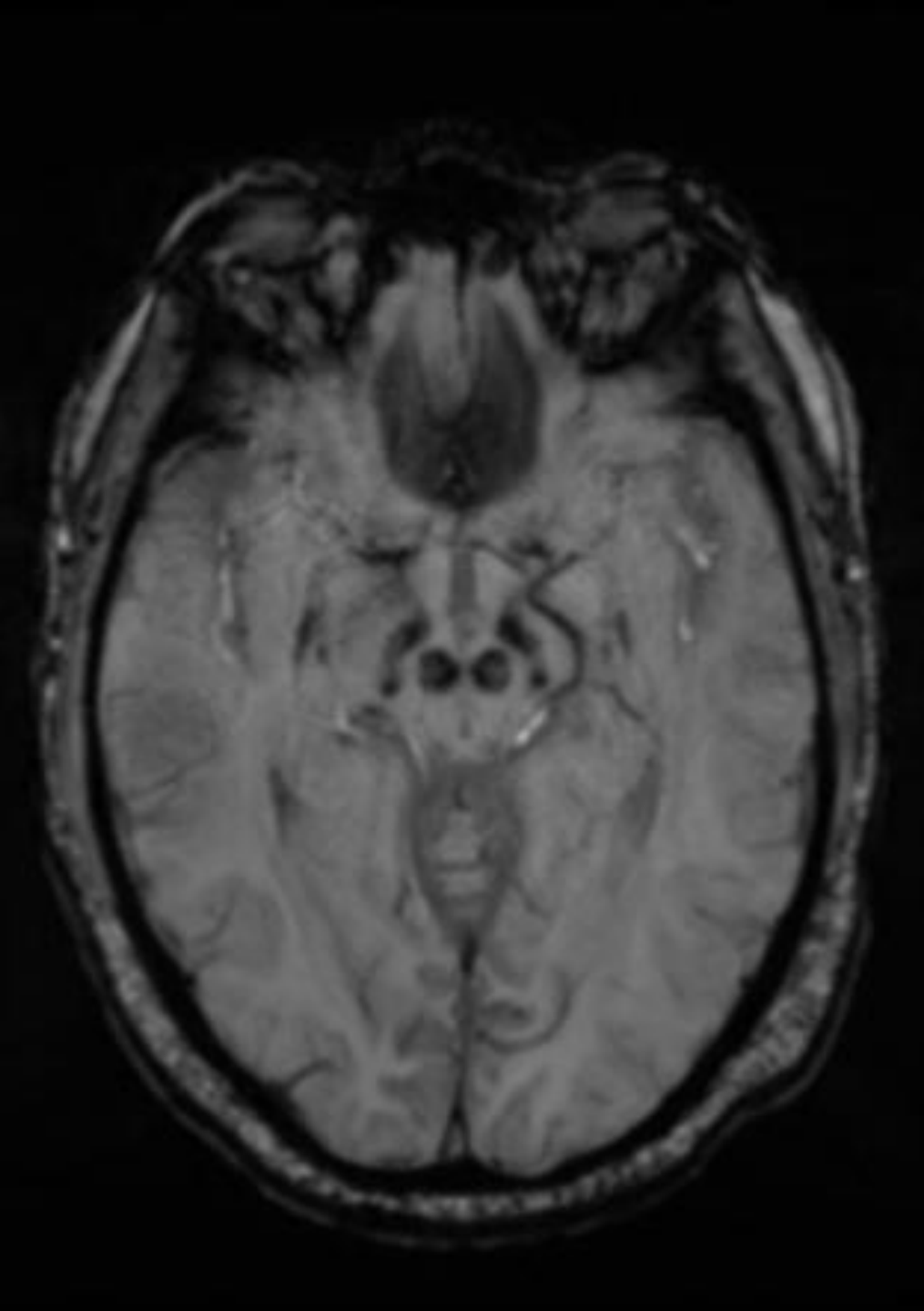
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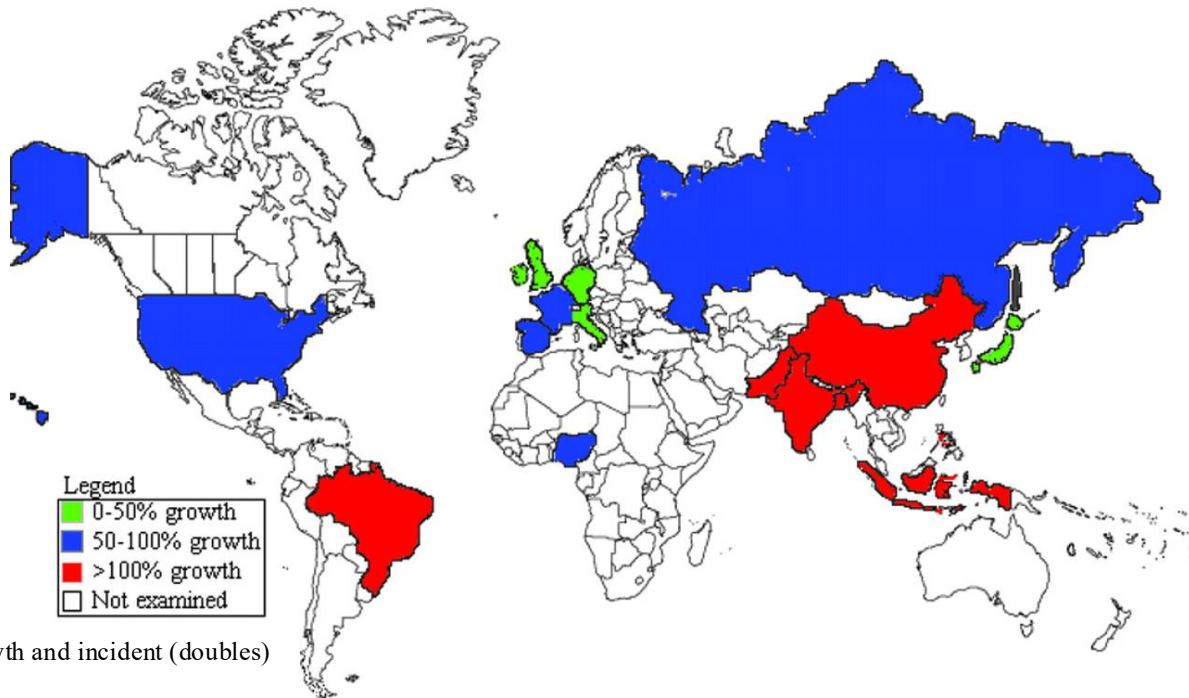


What is Parkinson's Disease?

- A progressive neurological disorder with evolving layers of complexity
- It results with Lewy bodies and loss of dopaminergic neurons in substantia nigra
- 2nd most common neurodegenerative disease
- Common symptoms
 - Tremors
 - Rigidity
 - Slow movement
 - Balance issues
- Environmental factors are increasingly recognized as triggers.



Global Disparities



- Agricultural workers at higher risk
- Affects 10 million people worldwide
- Highest prevalence increase in Middle Asia and middle/low-income countries
- Men are at higher risk than women
- Countries with fewer environmental regulations have higher exposure
 - U.S., China, and Brazil have high pesticide use
 - European Union have stricter bans on Parkinson's Disease linked chemicals



Environmental Factors

- **Polychlorinated Biphenyl's** (PCB is used in electrical equipment (environmental pollutants))
 - Been found in high concentrations in the brain of people who had PD
 - Greater risk in women, but not men
- **Exposure to metals** (iron, manganese, lead, mercury, and copper)
 - Various metals have been related to development of PD
- **Traumatic brain injury**
 - Risk of developing PD
- Rural areas and agricultural workers show higher rates
- Developing countries may face greater risks due to weaker regulations

How Toxins Affect The Brain

- Exposure associated with PD
 - pesticides, herbicides, and industrial chemicals
 - Paraquat used in the U.S. but banned in 32 countries
 - Trichlorethylene
- Toxins disrupt mitochondrial function and increases oxidative stress
- Leads to death of neurons in the substantia nigra
- Results in dopamine deficiency (motor symptoms)





Cultural Practices

- Cultural norms around farming, pesticide use, and environmental awareness vary by region.
- In some communities, organic or traditional practices may reduce risk.
- Cultural knowledge exchange can help promote safer, sustainable farming methods
- How the illness is managed and access to care

My Contribution/Learning

- Research global case studies of Parkinsons and environmental exposure
- Awareness to different individuals
 - Not to use specific toxins or metals
- Learned how environmental health connects to social justice and public policy
- Lifestyle changes and medication

Cultural Exchange and Learning

- Gained insight into how different communities understand and address environmental health risks
- Importance of access to healthcare
- Cultural practices in farming influence exposure levels
- Insight in aging and mental health

Thank You!



- Thank you to my scholar Ece
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