



Parkinson's Disease

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Why in News?

Scientists have found a new **genetic variant** associated with [Parkinson's disease](#), offering insights into the evolutionary roots of various familial forms of parkinsonism and paving the way for improved understanding and treatment of the condition.

What is Parkinson's Disease?

- **About:** Parkinson's disease is a **progressive neurodegenerative disorder** that impairs movement and can lead to immobility and dementia over time.
 - The disease usually **occurs in older people**, but younger people can also be affected. Men are affected more often than women.
 - The prevalence of PD has doubled in the past 25 years. India shares around **10%** of the global burden of Parkinson's disease.
- **Causes:** The exact cause of Parkinson's disease is not fully known yet, but it is believed to involve a **combination of genetic and environmental factors**.
 - It is primarily characterized by the loss of dopamine-producing neurons in the brain, leading to motor and non-motor symptoms.
- **Symptoms:** Motor symptoms include **slow movement, tremors, rigidity**, and walking difficulties.
 - Non-motor symptoms include cognitive issues, mental health disorders, sleep disturbances, pain, and sensory problems.
- **Treatment:** There is no cure for Parkinson disease, but therapies including medicines, surgery and rehabilitation can reduce symptoms.
 - **Levodopa/carbidopa**, a combination medicine that increases the amount of dopamine in the brain, is the most common medication.
- **World Parkinson's Day:** Every year, **11th April** is observed as World Parkinson's Day.
 - The day aims to amplify awareness and understanding about Parkinson's disease internationally.

What are the Current Major Advancements in Understanding Parkinson's Disease?

- Geneticists and neuroscientists are exploring genetic variations to understand Parkinson's better. Two primary approaches are used: linkage analysis and genome-wide association studies (GWAS).
 - **Linkage Analysis:** Focuses on rare families with **inherited parkinsonism**, identifying gene mutations associated with the disease.
 - Recent research identified a new genetic variant called **RAB32 Ser71Arg** linked to Parkinson's in multiple families globally.
 - **Genome-wide Association Studies (GWAS):** Under this genetic data from Parkinson's patients and healthy individuals were compared, identifying over 92 genomic locations and 350 genes potentially related to Parkinson's risk.

What are the Other Key Neurological Diseases?

- [Alzheimer's disease](#)
- [Multiple sclerosis \(MS\)](#)
- [Huntington's disease](#)
- [Cerebral palsy](#)
- [Guillain-Barre syndrome](#)

UPSC Civil Services Examination Previous Year Question

Q. Consider the following statements:

1. Genetic changes can be introduced in the cells that produce eggs or sperms of a prospective parent.
2. A person's genome can be edited before birth at the early embryonic stage.
3. Human induced pluripotent stem cells can be injected into the embryo of a pig.

Which of the statements given above is/are correct?

- (a) 1 only
- (b) 2 and 3 only
- (c) 2 only
- (d) 1, 2 and 3

Ans: (d)

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