

APRIL : 2024, VOL : 06, ISSUE : 04

V-Discover

**THE STUDENTS
DIGITAL MAGAZINE**

Theme : Neurological Disorders



SWAMY VIVEKANANDHA COLLEGE OF PHARMACY

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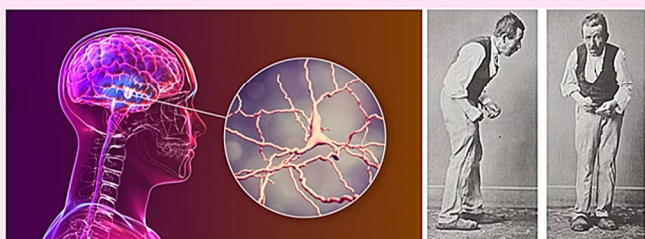
Parkinson's Disease - Elderly People

INTRODUCTION

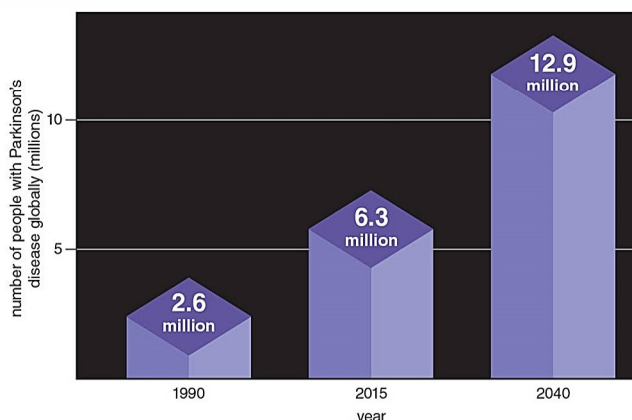


Parkinson's disease is a progressive disorder that is caused by degeneration of nerve cells in the part of the brain called the substantia nigra, which controls movement. These nerve cells die or become impaired, losing the ability to produce an important chemical called dopamine. Studies have shown that symptoms of Parkinson's develop in patients with an 80 percent or greater loss of dopamine-producing cells in the substantia nigra.

Neurological disorders are the world's leading cause of disability. And the fastest growing of these conditions is not Alzheimer's but Parkinson's disease.



Trends in the PD Incidence: From 1990 to 2015, the number of people living with Parkinson's more than doubled from 2.6 million to 6.3 million, according to a 2015 study in *Lancet Neurology*. By 2040, the number is projected to double again to at least 12.9 million, a stunning rise

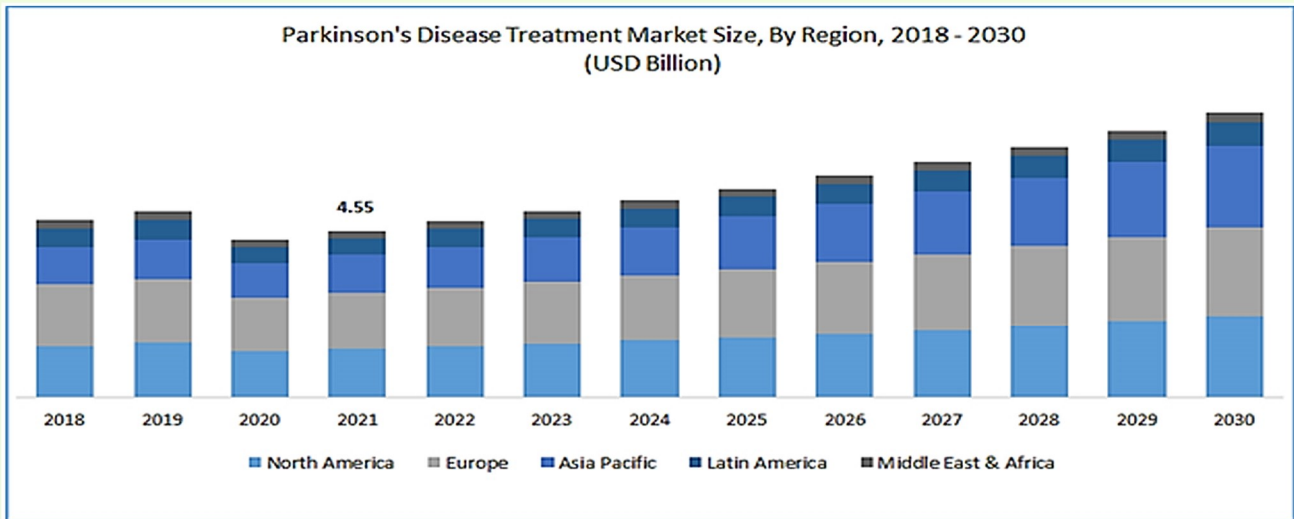


Parkinson's disease is a brain and nerve condition that affects the ability to control movements. Parkinson's disease is caused by the breakdown or destruction of nerve cells (neurons) in the substantia nigra (SN) region of the brain. Often, the problem develops gradually and gets worse over time. The few indicators of Parkinson's disease include trembling, muscle rigidity, poor mobility, maintaining bodily balance, and cooperation. Speaking and sleeping problems, trouble with thinking and memory, and behavioral

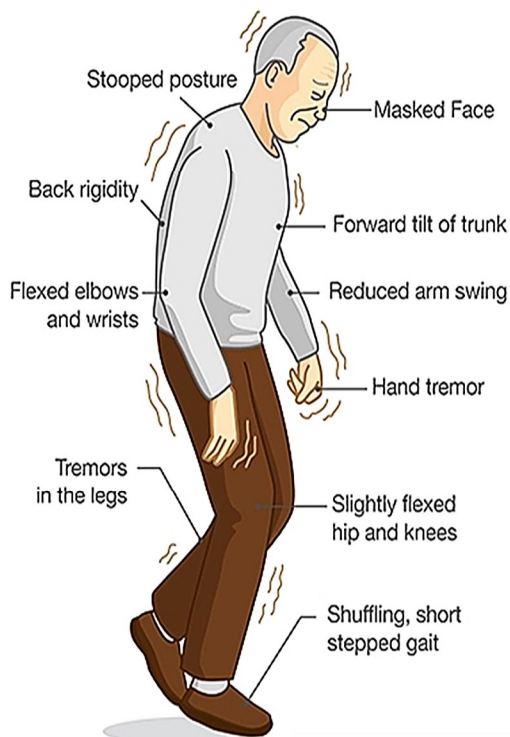
Parkinson's Disease Therapeutics market

The major factors that propel market growth include the significant prevalence of Parkinson's disease globally. For instance, according to the World Health Organization (WHO), in the past 25 years, the prevalence of Parkinson's disease (PD) has increased, with predictions for 2019 estimating that over 8.5 million people worldwide have PD. More people are becoming disabled and dying from PD than any other neurological condition. According to current estimates, PD claimed 329,000 fatalities in 2019, a rise of over 100% since 2000, and 5.8 million disorder life years, a growth of 81 percent since 2000.

Early Signs of Parkinson's Disease



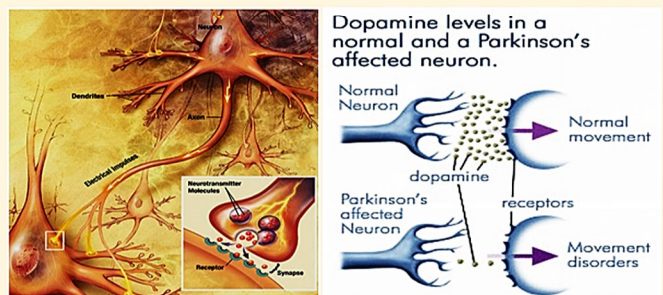
Parkinson's disease is a neurodegenerative disorder that primarily affects movement. Its symptoms typically develop slowly over time, and they can vary from person to person. It's important to note that Parkinson's disease affects each person differently, and not everyone will experience all of these symptoms. Additionally, the progression of symptoms can vary widely among individuals.



Pathophysiology of Parkinson's Disease

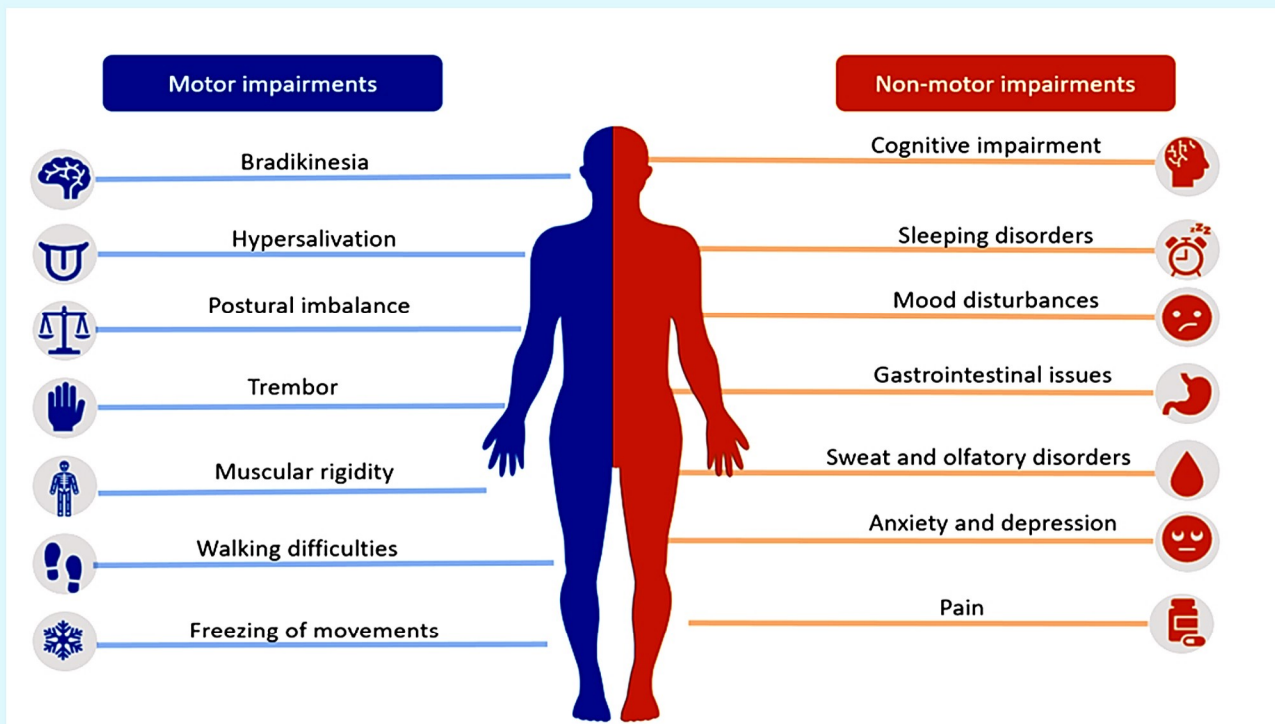
The Role of Dopamine

Dopamine, like other neurotransmitters, transmits chemical messages from one nerve cell to another across the synapse, a space between the presynaptic cell and the postsynaptic receptor. Dopamine is secreted into the synapse from membrane storage vesicles in the presynaptic membrane. It crosses the synapse and binds to the postsynaptic membrane, where it activates dopamine receptors.



As less and less dopamine is produced by the neurons affected by Parkinson's disease, far less dopamine is available to bind to the dopamine receptors on the post-synaptic membrane.

Management of Parkinson's Disease



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Treatment Strategies



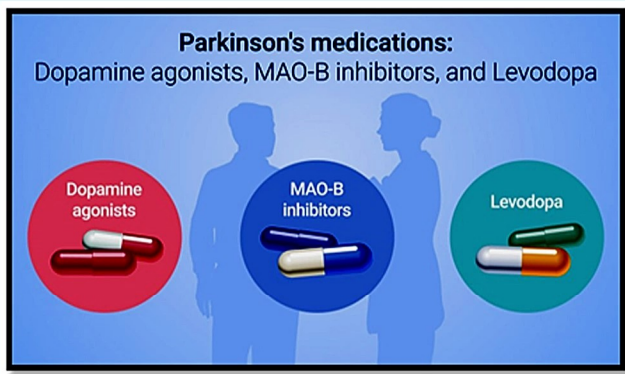
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Management of Parkinson's Disease by Medication



Management of Parkinson's Disease



Surgical approaches to disease modification in Parkinson disease

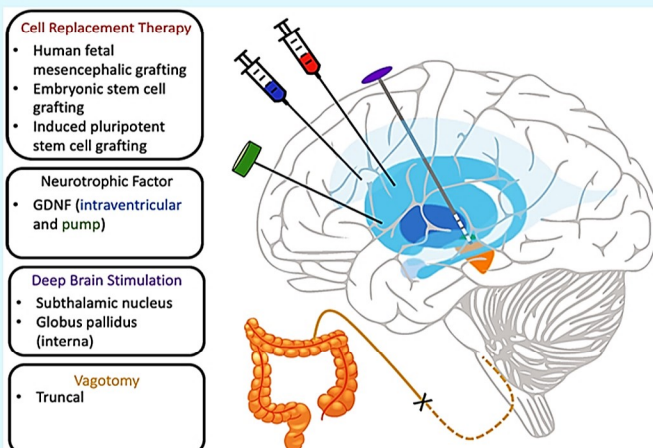
Surgical approaches proposed to impart disease modification in PD:

(1) cell transplantation therapy with stem cell-derived dopaminergic neurons to replace damaged cells;

(2) clinical trials of growth factors to promote survival of existing dopaminergic neurons;

(3) subthalamic nucleus deep brain stimulation early in the course of PD; and

(4) abdominal vagotomy to lower risk of potential disease spread from gut to brain.



Gene Therapy Approaches

Gene therapy helps in Parkinson's disease

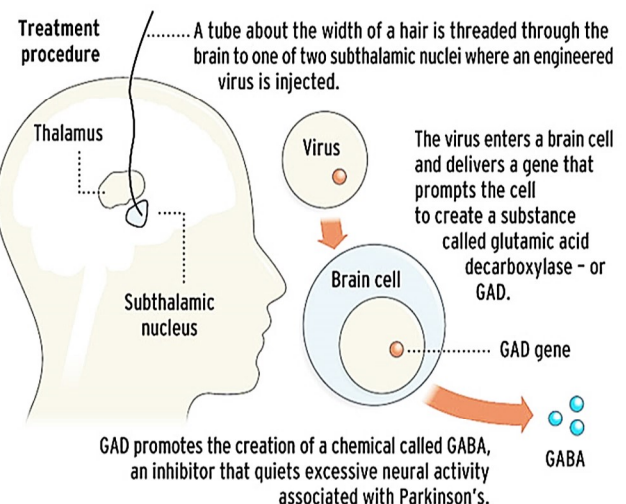
Gene therapy helps in Parkinson's disease treatment by genetically modifying populations of cells that are either directly impaired or capable of reducing the disease symptoms. These genetic modifications can either increase or reduce the expression of specific genes or gene sets, or even restore the normal function of the product of these genes.

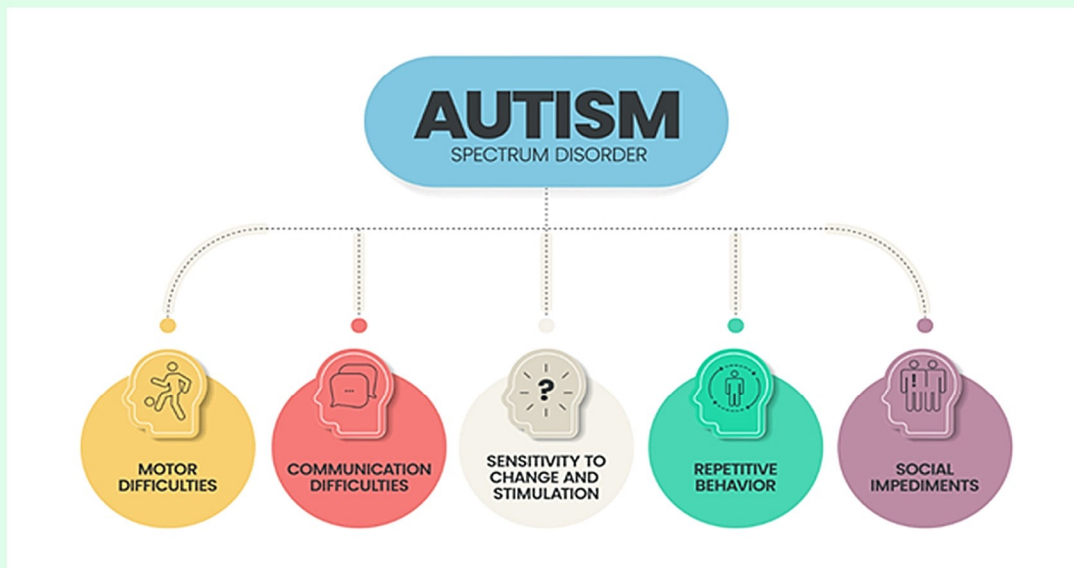
Gene therapy approach being studied has the potential to treat people with genetic forms of Parkinson's disease. For example, some people with Parkinson's disease have mutations in the GBA1 gene.

This gene contains the instructions to produce an enzyme called beta-glucocerebrosidase (GCase) that is needed for cells to function properly. Gene therapy can be used to deliver a working copy of the GBA1 gene to help restore the GCase enzymes.

New step in Parkinson's treatment

Preliminary evidence suggests that an experimental gene therapy procedure could ease Parkinson's symptoms with no side effects.





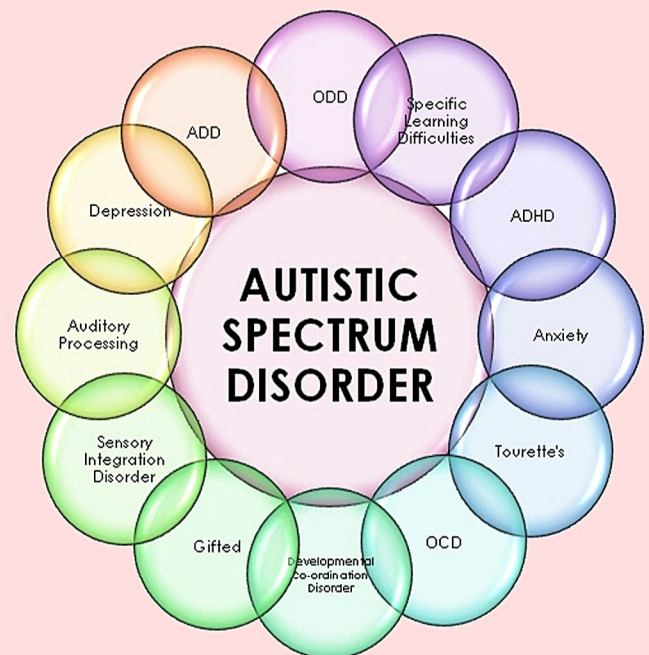
AUTISM - CHILDREN'S

Autism, also known as autism spectrum disorder, is a developmental disorder characterized by communication, social, and behavior challenges. The condition is lifelong and symptoms can vary considerably from one person to the next. Autism is referred to as a spectrum disorder because there is so much variation in terms of the type of symptoms people experience and the severity of those symptoms.

Autism Spectrum Disorder (ASD) is defined as a disorder in neuro-development from an early age, characterized by a series of difficulties in communication and relations and by restrictive and repetitive behavior and interests (Baron-Cohen, Meng-Chuan and Lombardo, 2013). This disorder has a series of very heterogeneous symptoms, which determine the level of affection of the person with this disorder and which can be placed in a continuum (Wing, 1995).



THREE LEVELS OF AUTISM



A person can also have different levels across the two domains- for example, someone might have level 1 autism for social communication and level 2 for restricted/repetitive behaviors. Each of those criteria has its own degree of support.

The 3 Levels of Autism



Level 1

Requiring support

- Trouble understanding and following social rules
- Rigid or inflexible behavior
- Some stress during transitions
- May benefit from therapy or life skills coaching



Level 2

Requiring substantial support

- Atypical social behavior, like walking away mid-conversation
- High interest in specific topics
- Noticeable distress when faced with change
- May need school accommodations like reading help or social skills support



Level 3

Requiring very substantial support

- Severe communication deficits, such as being nonspeaking
- Repetitive behaviors like rocking or spinning
- Extreme distress when asked to switch tasks
- May need one-on-one time with an education assistant and may use augmentative and alternative communication (AAC) tools, like picture symbols

Symptoms of autism

Trouble making eye contact



Difficulty listening



Slow to respond to verbal requests



Not able to sustain a long back-and-forth conversation



Sensitive to changes in noise, light, or other sensory outputs



Great ability to remember detailed facts and numbers



Diagnosing Autism Spectrum Disorder

Diagnosis of Autism Spectrum Disorder includes the assessment of patterns of child behaviour. The clinicians first look at the way how your child is interacting with others, followed by his communication and response. The diagnosis will be conducted by the trained specialists who talk to

the child and ask questions to parents and other caregivers. However, there will be no medical tests.

If you doubt that your child is not developing normally, bring it to the notice of your primary healthcare provider like developmental & behavioural paediatrician, child psychiatrist or other providers who can conduct a diagnostic evaluation of Autism.

Behavior Programs



Education and Learning Programs



Medications



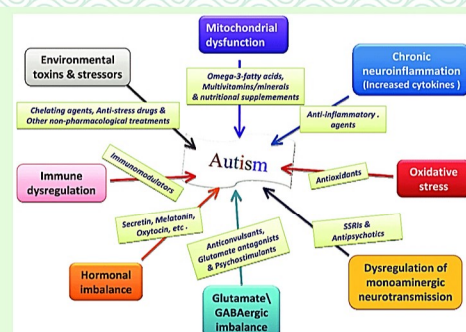
Other Treatments and Therapies



Autism cannot be cured, but early detection of Autism benefits your child in several ways. Autism can be managed with some non-medical therapies that are tailored to a child's individual needs. The treatment options for Autism may include Applied Behavioral Analysis (ABA), speech therapy, occupational therapy, physical therapy and medications.

Drug therapy and different targets in autism

The recent approaches to autism treatment included various non-pharmacological and pharmacological therapies such as food supplement, detoxification, diet, treatment of GI disturbances, treatment of chronic inflammation in the brain and intestines and immunologic treatments, etc.



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