

# Parkinson's Disease

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# What is Parkinson's Disease?

- A degenerative disorder of the CNS
- characterized by tremors and impaired muscular coordination
- Belongs to a group of conditions called motor system disorders, which are the result of the loss of dopamine-producing brain cells
- The group of nerve cells it affects makes dopamine
- A chemical important for transmitting signals from one group of brain cells to another to make movement possible

# What causes PD?

- Low levels of dopamine cause symptoms of Parkinson's disease
- The shortage of this neurotransmitter chemical occurs when nerve cells in a part of the brain that produces dopamine fail and fall apart
- Exact cause of this deterioration is not known and studies are ongoing to determine if there is a genetic cause of Parkinson's disease

# Symptoms

- Anything to do with movement of muscles such as Blinking slows down or stops, difficulty swallowing, impaired walking and balance, muscle aches and pain, loss of hand movements, slowed movements, etc.

# Treatments available

- Medications control symptoms, mostly by increasing the levels of dopamine in the brain these include:
  - Levodopa
  - Sinemet
  - levodopa and carbidopa (Atamet)  
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  - Pramipexole (Mirapex),
  - ropinirole (Requip),
  - bromocriptine (Parlodel)
  - Selegiline (Eldepryl, Deprenyl)
  - rasagiline (Azilect)
  - Amantadine or anticholinergic medications -- to reduce early or mild tremors
  - Entacapone -- to prevent the breakdown of levodopa

Designed to increase amount of dopamine by:

Replacing dopamine

Mimicking dopamine

Prolonging effects of dopamine by inhibiting its breakdown

# Deep Brain Stimulation

- Less common are surgeries for the very severe who no longer respond to the medications (do not cure PD but may help some patients)
  - In deep brain stimulation (DBS), the surgeon implants electrical stimulators in specific areas of the brain to help with movement
  - Another type of surgery destroys brain tissues that cause Parkinson's symptoms

# Some Side effects of taking the above medications

- Hallucinations
  - nausea,
  - vomiting,
  - Diarrhea,
  - Delirium
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- As well as becoming ineffective over time.

# Diagnosing PD

- There is no “true” test to diagnose
- Individuals may sometimes be misdiagnosed as having another disorder, or could be misdiagnosed of having the disease



# Economic burden of PD

- At least \$14.4 billion a year in U.S.
- Additional \$6.3 billion in indirect costs such as work or traveling to see a neurologist.
- If it were slowed by 50%, a 35% reduction in these excess costs

# Living with PD

- Managing nutrition and medications – to maintain the highest quality of daily living with PD.
- doing activities that may benefit you and your symptoms; to keep you going and getting PD off your mind
- “Parkinson’s is a part of my life, but it is not life itself.”  
–David, 56, three years after diagnosis

# References

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