

How can I be sure that I have Parkinson's disease?

Bernadette Schöneburg, M.D.

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Overview

- Background
- Diagnostic Criteria
- Supportive tests
- Atypical features
- Mimicking disorders

Parkinson's Disease

- Originally described by James Parkinson in 1817
- "Essay on the Shaking Palsy"
 - Descriptions of 6 cases, three of whom he personally examined; three he observed on the streets of London
- Charcot later in the 19th century gave credit to Parkinson by referring to the disease as “maladie de Parkinson” or Parkinson's disease

What is Parkinson's Disease (PD) ?

- Progressive neurologic disorder of largely unknown cause that results in the loss of specific cells in your brain that produce a chemical called dopamine
- Dopamine - a messenger responsible for transmitting signals within the brain that allow for coordination of movement
- Loss of dopamine leaves patients less able to control their movement, rendering them slow, stiff and/or shaky

How can I be sure I have PD?

- The road to diagnosis can be quite arduous and prolonged
- There is no blood test or Xray for PD
- Definitive diagnosis
 - Pathological confirmation at autopsy
- In clinical practice, diagnosis is based on
 - Thorough history
 - Physical examination

Questions you may be asked ...

- Do you shake ?
- Slower in your usual activities?
- Hand writing smaller?
- Trouble buttoning buttons, tying shoe laces etc?
- Difficulty standing up from a chair?
- Don't swing your arms?
- Hunched over, walking "like an old man"?
- Voice quiet or soft?

What are the signs and symptoms of PD?

- Main Symptoms
 - **Tremor** (shaking)
 - » 80% of people with PD
 - **Bradykinesia** (slowness of movement)
 - » Facial expression, Finger taps
 - **Rigidity** (stiffness)
 - » Passively move limbs
 - **Postural instability** (difficulty with balance)
 - » Pull test
- If any 2 of these features are present, we can confidently say that you have *parkinsonism*

Diagnostic criteria - UK Parkinson's Disease Society Brain Bank and the National Institute of Neurological Disorders and Stroke

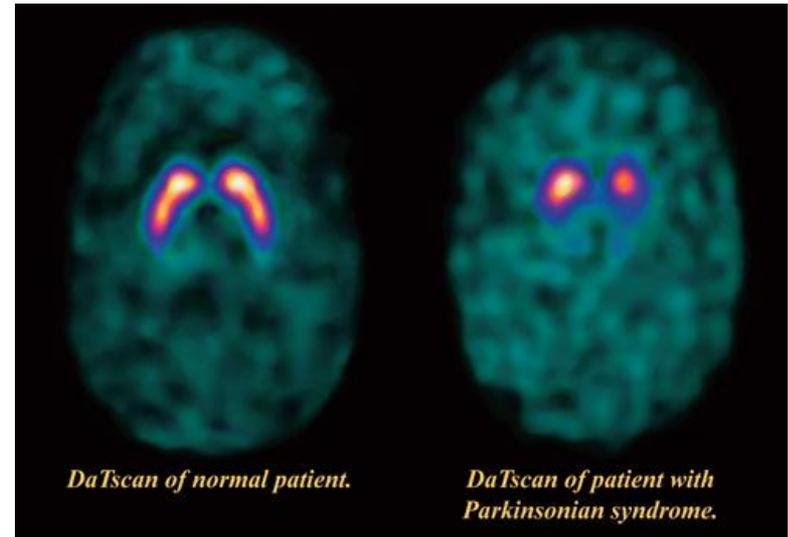
- Bradykinesia + 1 other sign:
 - Shaking
 - Stiffness
 - Postural instability
- Possible
 - At least 2 features
 - Sustained response to levodopa
- Probable
 - At least 3 features
 - Sustained response to levodopa
- Definite
 - Pathologic confirmation
- Supportive features:
 - Symptoms start on one side of the body
 - Tremor at rest
 - Slow progression
 - Response to levodopa for at least five years
 - Dyskinesia

How sure are we that you truly have PD?

- The rate of misdiagnosis can be relatively high, especially when the diagnosis is made by a non-specialist
- Using these criteria, specialist can make a diagnosis of PD with ~ 90% accuracy

Are there any blood test or brain scans that can diagnose PD?

- No
- Dopamine Transporter Scan (DaTscan)
 - Approved in 2011
 - Shows level of dopamine activity in the brain, which is lower among people with PD
- Confirms clinical suspicion of parkinsonism
- The difficult part is figuring out what is causing the parkinsonism



What is the difference between parkinsonism and Parkinson's disease?

- Parkinsonism
 - » At least 2 symptoms (tremor, rigidity, slowness, balance problems)
- The vast majority of patients (~85%) with parkinsonism have Parkinson's disease
- However, certain medications, vascular problems, and other neurodegenerative diseases can cause parkinsonism (Atypical parkinsonian disorders)



When should an Atypical Parkinsonian Syndrome be suspected?

- In patients with:
 - Rapid onset or progression
 - Poor response to medications (dopamine)
 - Early falls
 - Eye movement abnormalities
 - Early memory or behavioral changes (dementia)
 - Early autonomic dysfunction - postural hypotension, urinary and bowel incontinence



What are the Atypical Parkinsonian Disorders ?

- Previously known as Parkinson's plus syndromes
 - Progressive Supranuclear Palsy (PSP)
 - Corticobasal Degeneration (CBD)
 - Multiple System Atrophy (MSA)
 - Dementia with Lewy bodies (DLB)
 - Vascular Parkinsonism
- Differentiating between these disorders may be difficult as they share many clinical features of PD
- Early diagnosis is important because treatment and prognosis differ greatly from those with PD

What are the Atypical Parkinsonian Disorders ?

- **Progressive Supranuclear Palsy (PSP)**
- *Progressive* disease, causes weakness (*palsy*) by damaging certain parts of the brain above the nuclei that control eye movements (*supranuclear*)
- 1:100,000 people over the age of 60
- Symptoms include:
 - Loss of balance while walking
 - Unexplained falls
 - Personality and behavioral changes
 - Slurring of speech
 - Eye movement abnormalities
- Rapid progression (5-8 years), minimal response levodopa
- Supportive treatment: Speech and physical therapy; antidepressants

What are the Atypical Parkinsonian Disorders ?

- **Corticobasal Degeneration (CBD)**
- Progressive neurological disorder that results in loss of cells in the cerebral cortex and basal ganglia
- Symptoms:
 - Slowness, stiffness that starts on one side
 - Dystonia - Twisting/pulling of one limb
 - Myoclonus - Muscle jerking/twitching
 - Apraxia - Difficulty performing familiar movements with one limb despite being physically capable
- Rapid progression : 6-8 years; minimal response levodopa
- Supportive treatment: botulinum toxin (Botox) for dystonia, antidepressants, speech and physical therapy may be helpful

What are the Atypical Parkinsonian Disorders ?

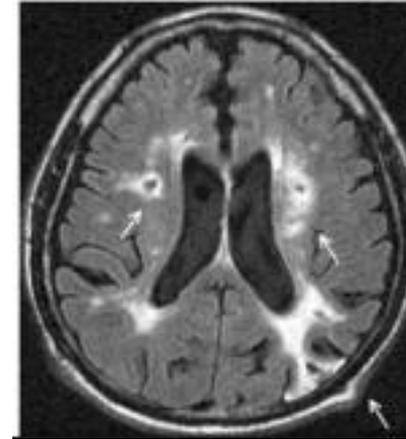
- **Multiple System Atrophy (MSA)**
- Progressive neurological disease that affects mobility as well as the autonomic nervous system
- Symptoms include:
 - Slowness, stiffness on both sides of body
 - Poor balance
 - Difficulty with coordination, clumsiness
 - Autonomic dysfunction
 - » Blood pressure problems (orthostatic hypotension)
 - » Fainting spells
 - » Bladder control problems
- Rapid progression : 5-8 years; minimal response levodopa
- Supportive treatment: speech and physical therapy; Lightheadedness may improve with certain medications (fludrocortisone, midodrine)

What are the Atypical Parkinsonian Disorders ?

- **Dementia with Lewy bodies (DLB)**
- Second most common form of dementia after Alzheimer's disease
- Symptoms:
 - Dementia + parkinsonism
 - Progressive intellectual and functional deterioration
 - Early hallucinations, confusion that fluctuates, problems with attention, problem solving, planning, the ability to produce and recognize figures)
- There are no known therapies to stop or slow the progression of DLB
- Certain medications (donepezil, rivastigmine patch) may be beneficial

What are the Atypical Parkinsonian Disorders ?

- **Vascular Parkinsonism**
- Parkinsonism caused by multiple small strokes
- MRI is indicated
 - Cannot make a definitive diagnosis but may support clinical suspicion
- Symptoms:
 - Stiffness and slowness primarily affects legs
 - Walking difficulty
 - “Lower half or lower body parkinsonism”
- No specific treatment
 - 10-30% may respond to levodopa
 - Reduce risk factors:
 - » High blood pressure, diabetes, heart disease, cholesterol problems, smoking etc



What are the conditions that mimic PD?

- Medication
- Essential Tremor
- Normal Pressure Hydrocephalus

What are the conditions that mimic PD?

- **Medications**
 - Any drug that blocks the action of dopamine is likely to cause parkinsonism
 - Drugs used to treat psychiatric disorders – neuroleptics (haldol, thorazine etc)
 - Anticonvulsants - valproic acid
 - Mood stabilizers - Lithium
 - Drugs to control nausea – Metoclopramide (Reglan), prochlorperazine (compazine)
- If parkinsonism is caused by one of these medications , symptoms should gradually disappear once the drug is stopped
- If symptoms persist, we may have “unmasked” underlying neurodegenerative PD

What are the conditions that mimic PD?

- **Essential Tremor (ET)**
 - Most common form of tremor
 - Different from the PD tremor
 - » Affects both hands, occurs primarily with action (when performing a task like writing or eating)
 - » Often involves head/neck and even voice
 - » Does NOT affect legs
 - Progressive disorder but tremor remains the only problem
 - Treatment: various medications (propranolol, primidone)

What are the conditions that mimic PD?

- **Normal Pressure Hydrocephalus (NPH)**
 - Cerebrospinal fluid inside the brain does not drain properly
 - Results in a trio of problems:
 - » Difficulty walking, slowed thinking, and loss of bladder control
 - Diagnosed by history, physical exam, MRI of brain, lumbar puncture (spinal tap)
 - The treatment involves surgery where a shunt is placed to help drain the excess fluid

To sum it up....

- PD is a clinical diagnosis
- There are many medications and other conditions that can mimic PD
- There are no blood tests or brain scans that can diagnose PD
- DATscan may be helpful in certain cases:
 - Parkinsonism from mimickers like ET, NPH, vascular or drug induced parkinsonism, or AD
- Specialists can make the correct diagnosis with ~90% accuracy
- Early diagnosis is important as there are many treatments available that can improve your quality of life

Learn more about it....

