Motor symptoms of Parkinson disease

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Diagnosis of Parkinson disease is based on motor symptoms

UK Brain Bank diagnostic criteria are based on 100 clinico-pathological cases

- For clinically probable diagnosis:
  - **Bradykinesia** + 1 of
    - Rigidity
    - Resting tremor
    - Postural instability
Diagnosis of Parkinson disease is based on motor symptoms

• For clinically definite diagnosis:
  • Gradual onset with slow progression, long course
  • More severe on one side
  • Good response to carbidopa/levodopa

• Exclusion criteria
  • To exclude other causes of symptoms
Core motor symptoms of Parkinson disease

- **Bradykinesia** – slowness, smallness, paucity
- Rigidity
- Resting tremor
- Postural instability
Bradykinesia: slowness of movements

- Reduced blinking
- Lack of facial animation
- Open jaw
- Slow limb movements
- Drooling
- Slower, stuttering speech
- Low voice
- Decreased arm swings
- Decreased stride
Bradykinesia: slowness of movements

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Bradykinesia: gait change

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Bradykinesia: gait change

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- Low voice
Bradykinesia: shuffling
Extreme bradykinesia: akinesia, or “freezing”

- Can present as stuttering of speech
- Can cause pauses in hand movements
- Can cause “freezes” of legs while walking
Core motor symptoms of Parkinson disease

- Bradykinesia
- Rigidity
- Resting tremor
- Postural instability
Rigidity: stiffness of muscles

- Often not felt by self
- If severe may feel stiff
- Noted during examination
- Felt evenly throughout movement
- Not the same as “cogwheeling”
- Affects limbs to different degrees
- More pronounced in trunk in akineto - rigid form
Core motor symptoms of Parkinson disease

- Bradykinesia
- Rigidity
- Resting tremor
- Postural instability
Tremor, or shaking

- “Resting”, “pill rolling”
- Also with still positions
- Absent to mild to severe
- Increases with stress
- Can interfere with hand use
- Can disrupt sleep
- Can be embarrassing
Tremor can be mild
Tremor can occur in legs
Tremor is exaggerated by walking
Core motor symptoms of Parkinson disease

- Bradykinesia
- Rigidity
- Resting tremor
- Postural instability
Postural instability causes falls

- Impaired ability to maintain upright posture
- Due to impaired postural reflexes
- Usually later in the disease course
Postural instability causes falls

- Impaired ability to maintain upright posture
- Due to impaired postural reflexes
- Usually later in the disease course
Drooling is an expression of bradykinesia

- Same amount of saliva, but:
  - Mouth open
  - Head down
  - Swallowing infrequent
Motor complications in advanced disease

• Worsening gait and posture
• Postural instability
• Freezing of gait
• Falls due to all of the above

• Swallowing difficulties

• ON – OFF fluctuations
• Dyskinesia
• Dystonia (sustained posturing)
ON – OFF fluctuations affect all movements
Dyskinesia: excessive flowy movements

- During ON state only
- First / worse on the more affected side
- Majority will develop eventually
- Many are not aware of it
- Only few will be bothered by it
- Due to the interaction between disease process and treatment
Rarely, dyskinesias can be severe
ON-OFF fluctuations: neurons losing capacity to store dopamine
ON dyskinesia and leg dystonia
Foot and toe dystonia
Posture changes: Camptocormia
Posture changes: Pizza syndrome
“Freezing” of gait and festination cause falls

- Can present as stuttering of speech
- Can cause pauses in hand movements
- Can cause “freezes” of legs while walking and cause falls
Overcoming freezing

- Any modification of the usual walking pattern can help
- Mind over matter
- Counting, singing, dancing, bicycling
- “5S” method
- https://www.youtube.com/watch?v=TmO8qdXgsoE
Overcoming freezing
Mind over matter
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