

**Friday, October 22, 2021**

**8:45 a.m. to 9:30 a.m.**

Tennessee Academy of Family Physicians  
72<sup>nd</sup> Annual Scientific Assembly  
The Park Vista Doubletree Hotel, Gatlinburg, Tennessee  
October 19-22, 2021

**“Update on Diagnosis and Management of  
Parkinson’s Disease”**

**KARL MISULIS, M.D., PH.D.**

**Presentation Objectives:**

- 1) Identify and accurately diagnosis Parkinson’s disease and related conditions.
- 2) Use appropriate diagnostic techniques for evaluation.
- 3) Select best management approaches for Parkinson’s disease and related conditions.



# Update on Diagnosis and Management of Parkinsonism.

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# Topics

- Important Parkinsonian disorders.
- Diagnosis and differential diagnosis.
- Overview of management.
  - ▶ Rigidity.
  - ▶ Tremor.
  - ▶ Cognition.



## Important Parkinsonian Disorders.

- Parkinson disease.
- Multiple system atrophy
- Progressive supranuclear palsy..
- Corticobasal degeneration.
- Dementia with Lewy bodies.
- Drug-induced Parkinsonism.
- Vascular parkinsonism.



## Diagnosis and Differential Diagnosis.

- **PD**: most common; classic presentation often.
- **MSA**: Parkinsonism + cerebellar, corticospinal, autonomic.
- **PSP**: Parkinsonism with vertical gaze deficit.
- **CBD**: Asymmetric rigidity + alien hand, myoclonus/dystonia
- **DLB**: Dementia + Parkinsonism, often with hallucinations.
- **DIP**: neuroleptic history, often with dyskinesia.
- **VaP**: parkinsonism with signs of cerebrovascular disease.

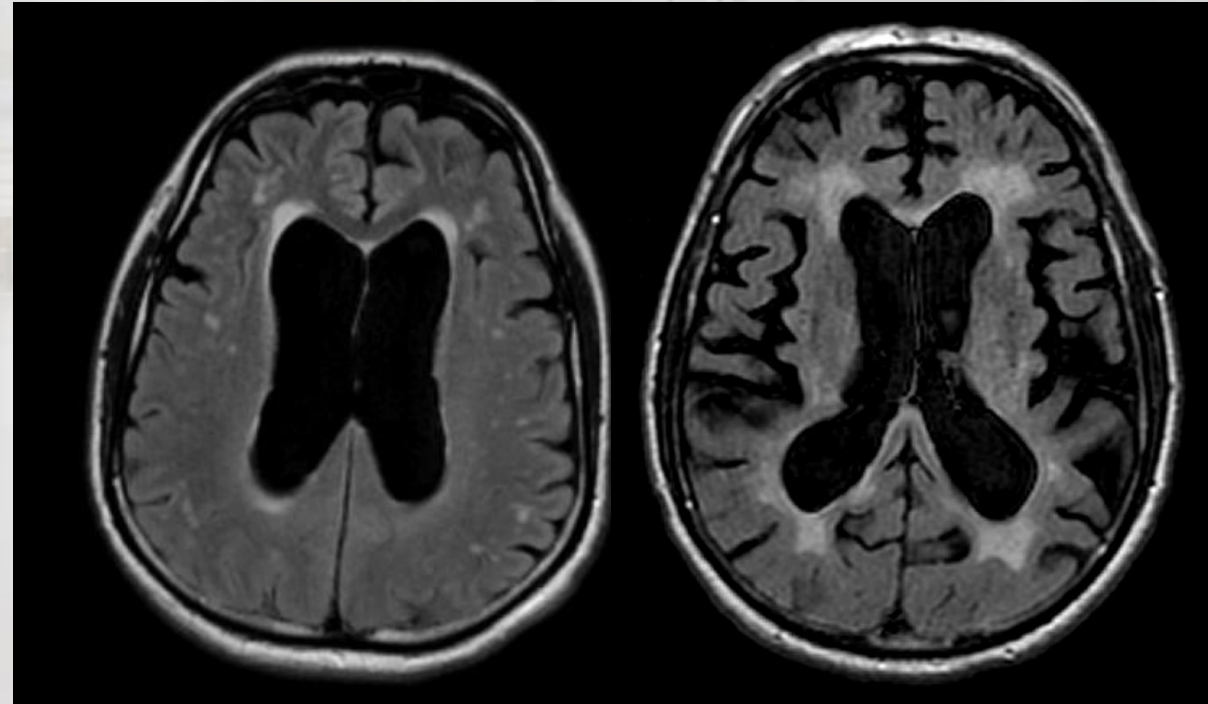


# Making the Diagnosis.

- **Clinical:**
  - ▶ Extraparamidal features — tremor, rigidity.
  - ▶ Absence of CST signs.
  - ▶ Absence of other cause — neuroleptic, vascular, other syndrome.
- **Imaging:**
  - ▶ MRI — for infarcts, hydrocephalus,
  - ▶ CT head — for infarcts, hydrocephalus.
  - ▶ DATscan — for Drug-induced parkinsonism, Tremor with PD features.
  - ▶ PET — differentiating parkinsonian syndromes.
- **Other:** Autonomic; Smell.
- **Response to therapy:** Dopaminergic meds.

# Normal Pressure Hydrocephalus

- Increased ventricular size with unimpressive cortical atrophy.
- over-diagnosed radiographically and clinically.
- Would not pursue if significant dementia or cortical atrophy.
- Before considering shunting, have to have detailed evaluation.



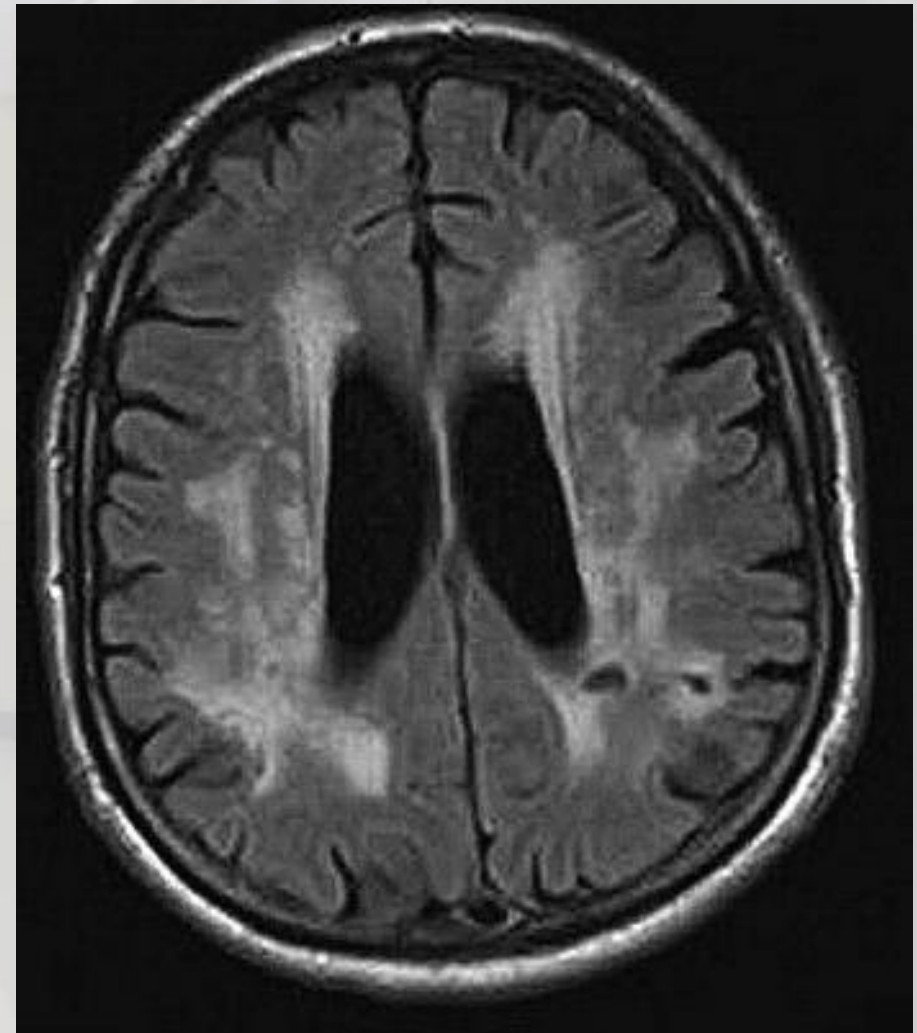
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## Drug-Induced parkinsonism

- Can be neuroleptics or other related agents.
- Often med already stopped by the time of visit.
- Can take 6m-1y to improve and might get worse.

## Vascular parkinsonism

- Difficult to distinguish.
  - ▶ Less tremor.
  - ▶ CST signs
- Many do respond to dopaminergic agents.
- Need to address the vascular changes.








# Overview of Management.

- Disease reversal and prevention.
- Therapy & Activity.
- When to treat medically?
- Specific symptoms
  - ▶ Tremor.
  - ▶ Rigidity.
  - ▶ dyskinesias.
  - ▶ Cognition.



## Tremor.

- Trihexyphenidyl — Artane.
- Dopaminergic meds.

## Rigidity.

- amantadine.
- Levodopa/Carbidopa — Sinemet.
- MAO-B inhibitors — selegiline, rasagiline, safinamide.



Later stage — Motor fluctuations, Dyskinesias

- **Clinical picture.**
  - ▶ Motor fluctuations.
  - ▶ Freezing.
  - ▶ Wearing off,
  - ▶ Dyskinesias.
- **Medication strategies.**
  - ▶ Medication strategies.
  - ▶ Procedures.



# Later stage — Motor fluctuations, Dyskinesias

- **Wearing off**

- ▶ Higher doses.
- ▶ More-frequent use of lower doses.
- ▶ Sustained release formulations.

- **Off period medication strategies.**

- ▶ Dopamine agonists
- ▶ COMT inhibitor.
- ▶ MAOB inhibitor

- **Off period rescue.**

- ▶ SubQ Apomorphine (Apokyn).
- ▶ Inhaled levodopa powder (Inbrija).

- **Peek-dose Dyskinesias:**

- ▶ Reduce dopaminergic meds.
- ▶ Sustained-action meds
- ▶ Fractionate dosing.
- ▶ Amantadine .
- ▶ Clozapine.

- **Procedures if med changes ineffective.**

- ▶ DBS
- ▶ continuous levodopa pump



# Cognition.

- **Dementia.**

- ▶ Rivastigmine.
- ▶ Donepezil
- ▶ Memantine?

- **Neuropsychiatric symptoms.**

- ▶ Non-medical
- ▶ Cognitive agents.
- ▶ Quetiapine.
- ▶ Clozapine.
- ▶ Antidepressants?

- **Keep in mind ...**

- ▶ Check for other causes of cognitive or behavioral problems.
- ▶ Not all symptoms need a med.



## Management of Parkinsonism — Scenarios.

- **Early symptoms without functional loss** — exercise.
- **Symptoms with functional impairment**
  - ▶ **Tremor** — Anticholinergic.
  - ▶ **Rigidity, bradykinesia**
    - Young — Dopamine agonist
    - Older/more severe — Levodopa.
- **More severe disease**
  - ▶ Increased dopaminergic meds.
  - ▶ Rescue meds.
  - ▶ Consider DBS or continuous levodopa administration
- **Motor fluctuations and dyskinesias** — fractionate, lower dose, agonists, MAOB, COMT.



## Questions.

- Any harm in delay of diagnosis?
- Any harm with delay in treatment?
- What do I say if I see suspected Parkinsonism in someone?
- What would be a good core toolkit for Parkinsonism?
- When should a patient go to a movement disorder specialist?

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