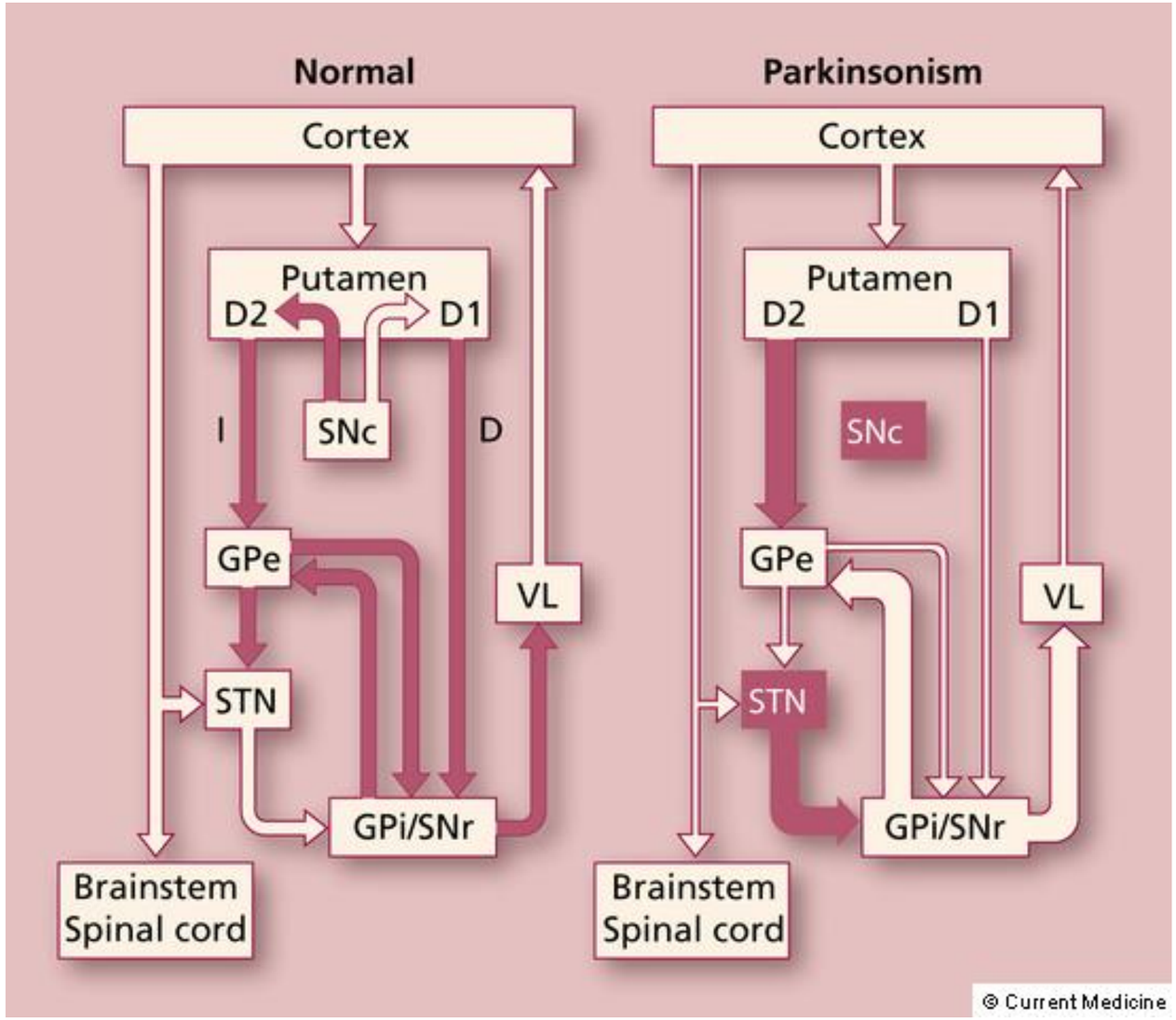
PARKINSON'S DISEASE

ODINACHI OGUH M.D.

PARKINSON'S DISEASE

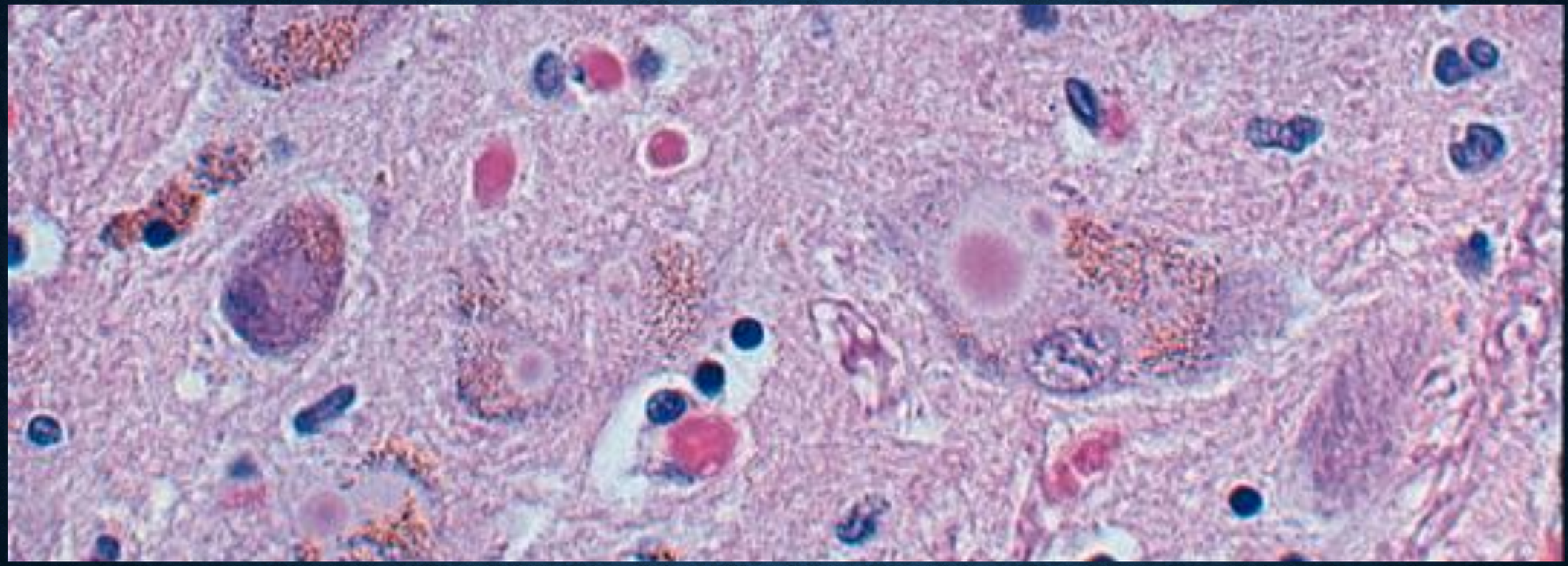
- Pathophysiology/Pathology
- Clinical manifestations/Diagnosis
- Medical and Surgical treatment.



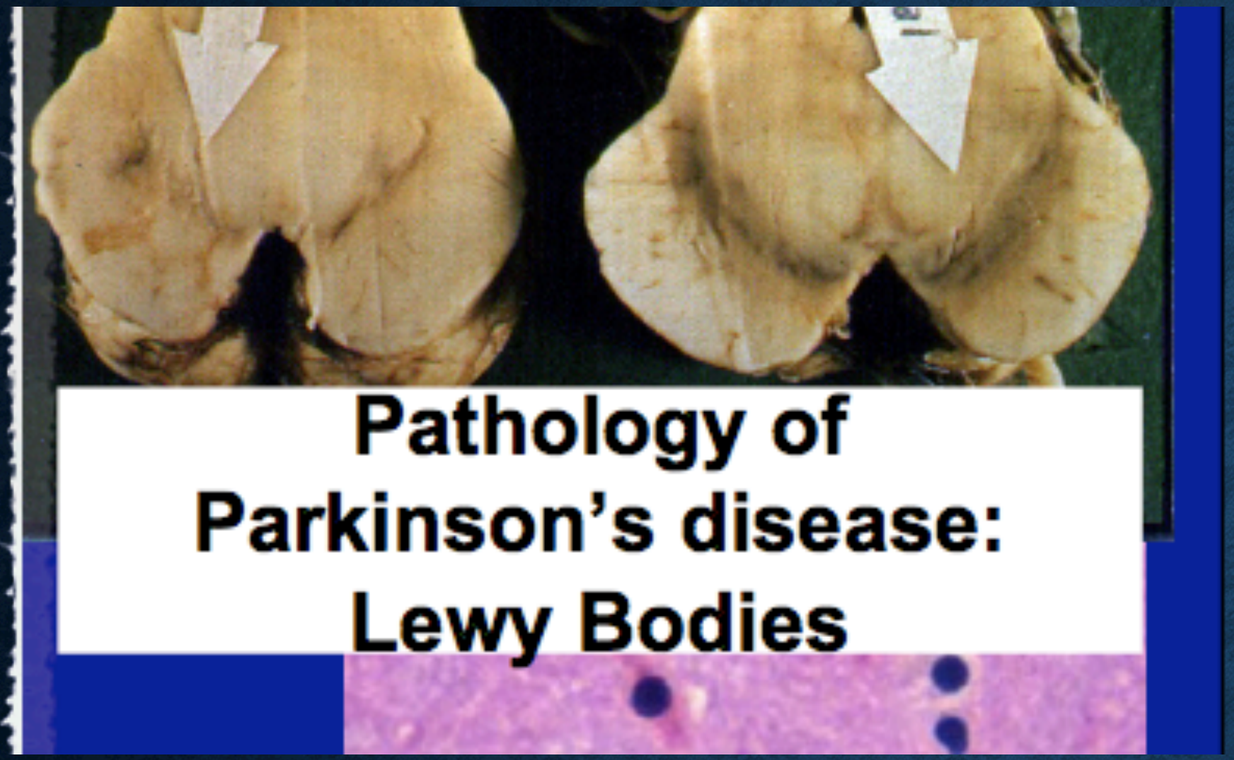
PATHOPHYSIOLOGY

DOPAMINE RECEPTORS

- D1 and D2 receptors ; G protein
- D1,D2 : caudate ,putamen, N.accumbens, olfactory tubercle.(typical neuroleptics).
- D3 : straitum, limbic areas. (atypical neuroleptics)
- D4 :frontal cortex, midbrain, amgydala, medulla, Basal ganglia. (atypical neuroleptics)
- D5 : hippocampus and hypothalamus.



PATHOLOGY



PATHOLOGY

CLINICAL MANIFESTATIONS

Bradykinesia

Rigidity

Resting tremor

Postural instability.

DIAGNOSING PARKINSON'S DISEASE
UNITED KINGDOM PD SOCIETY BRAIN BANK CRITERIA

- Step 1
  - Bradykinesia
  - At least 1…
    - Rigidity
    - 4-6 Hz rest tremor
    - Postural instability
      - Not visual
      - Not vestibular
      - Not cerebellar
      - Not sensory

DIAGNOSING PARKINSON'S DISEASE
UNITED KINGDOM PD SOCIETY BRAIN BANK CRITERIA

- Step 2—exclusions
  - Stepwise progression
  - Head injuries
  - Encephalitis
  - Oculogyric crises
  - Neuroleptics
  - Familial
  - Remission
  - Strictly unilateral
  - Supranuclear gaze palsy
  - Cerebellar signs
  - Early, severe ANS
  - Early, severe dementia
  - Babinski sign
  - Tumor/hydrocephalus
  - Dopa unresponsive
  - MPTP

Hughes et al. JNNP;55:181-184

DIAGNOSIS

UK Brain Bank Diagnostic criteria (Hughes 1992)

Step I-Diagnosis of parkinsonian syndrome

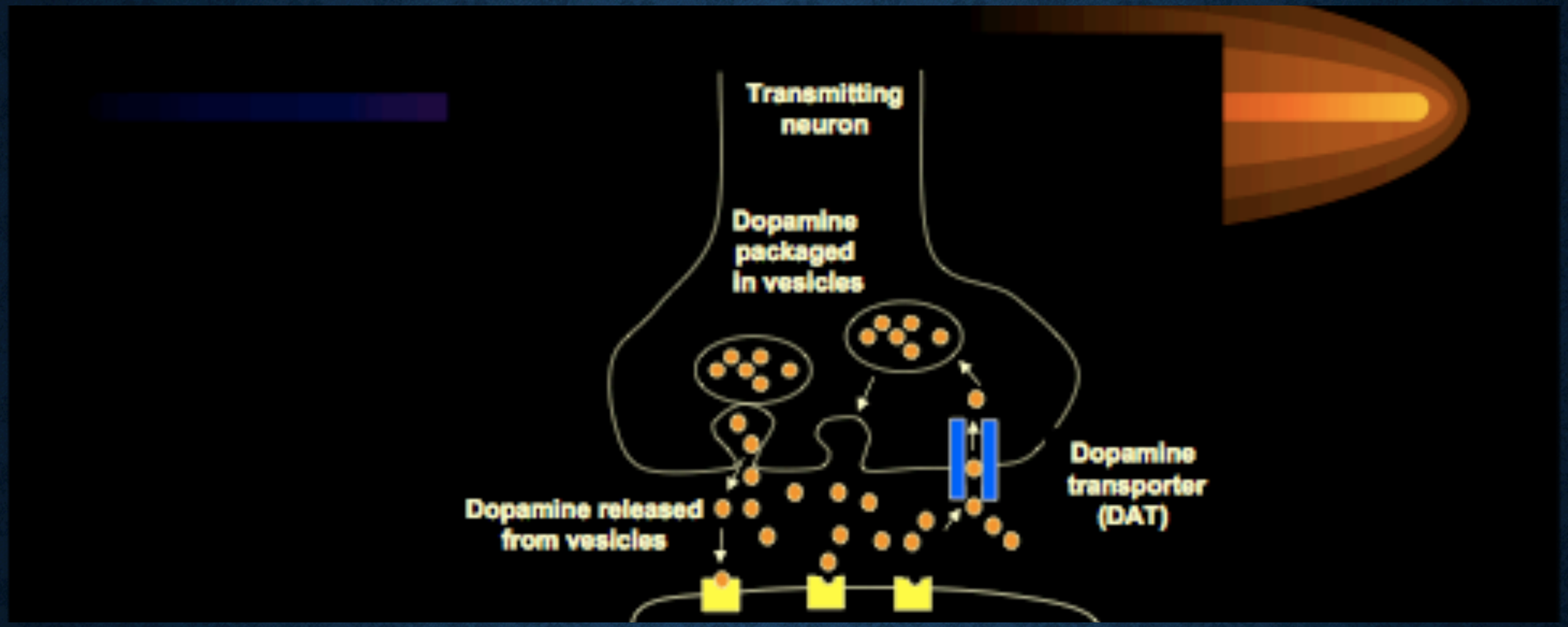
Step II-Exclusion criteria for PD

- Symptomatic parkinsonism
- Oculogyric crises, Sustained remission
- Supranuclear gaze palsy, Early severe autonomic dysfunction, Cerebellar signs, Early severe dementia
- Poor response to large doses of levodopa– Clinical course >10 years

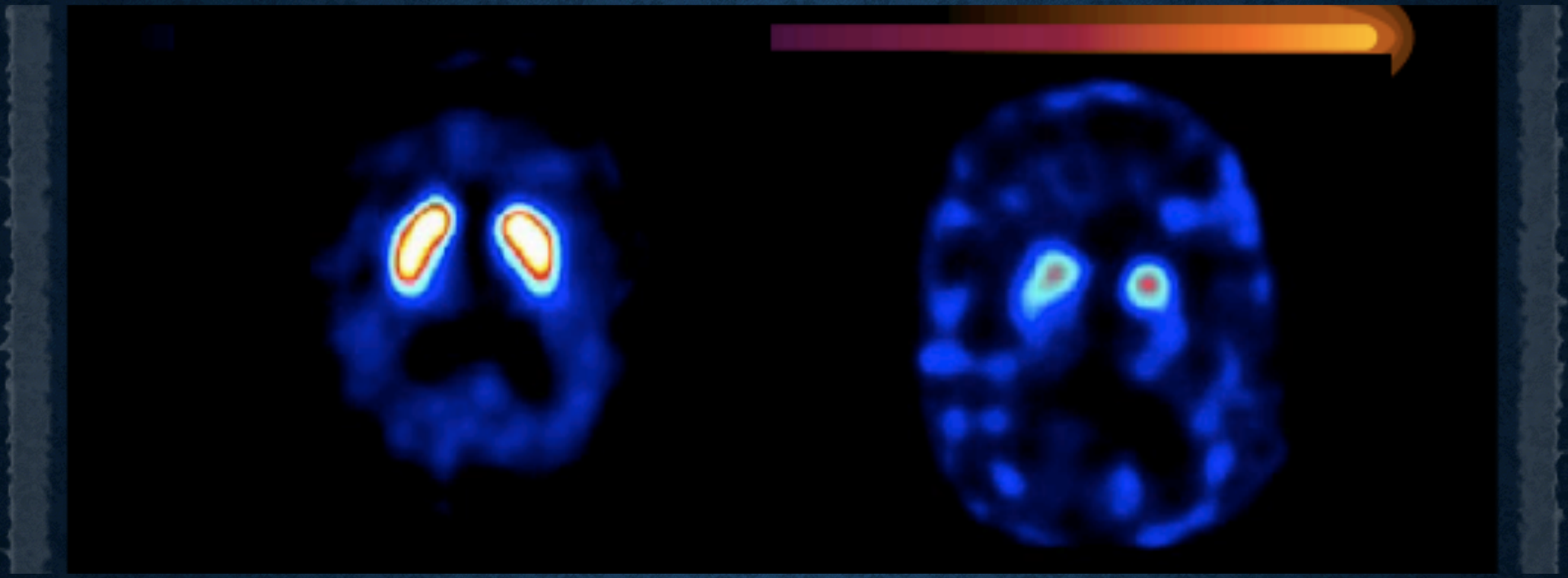
Step III Supportive features
DATSCAN ,Levodopa responsiveness

ATYPICAL PARKINSONISM

- Progressive Supranuclear Palsy
- Multiple System Atrophy
- Cortical-Basal Syndrome
- Diffuse Lewy body Disease
- ALS-Parkinsonism-Dementia / of Guam
- Alzheimer's with extrapyramidal signs
- Rigid variant of Huntington's Disease
- NBIA (former Hallevorden-Spatz Disease)

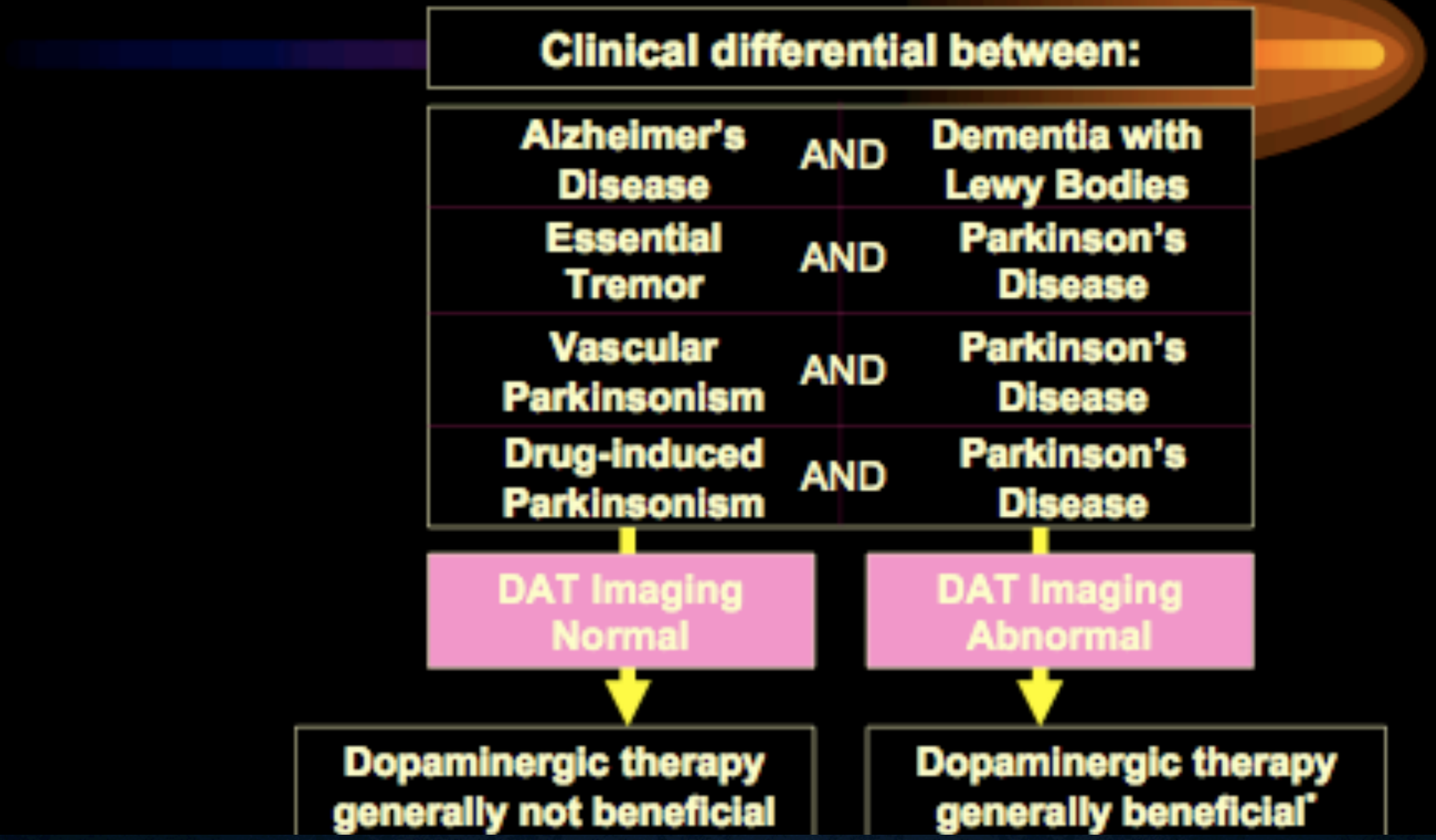

Transmitting neuron
Dopamine packaged in vesicles
Dopamine transporter (DAT)
Dopamine released from vesicles

DATSCAN



DATSCAN

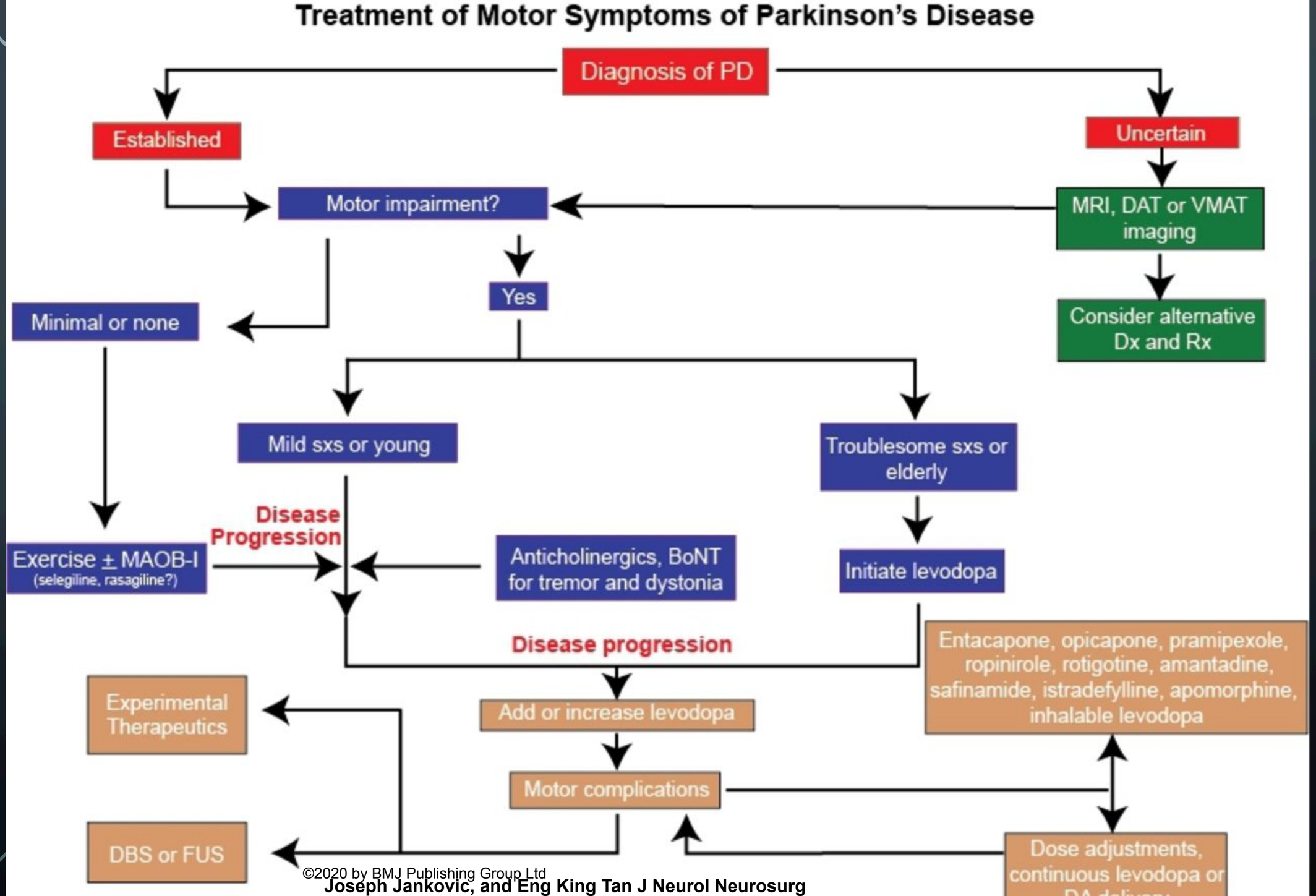
Role of DATSCAN in diagnosis of parkinsonism



TREATMENT

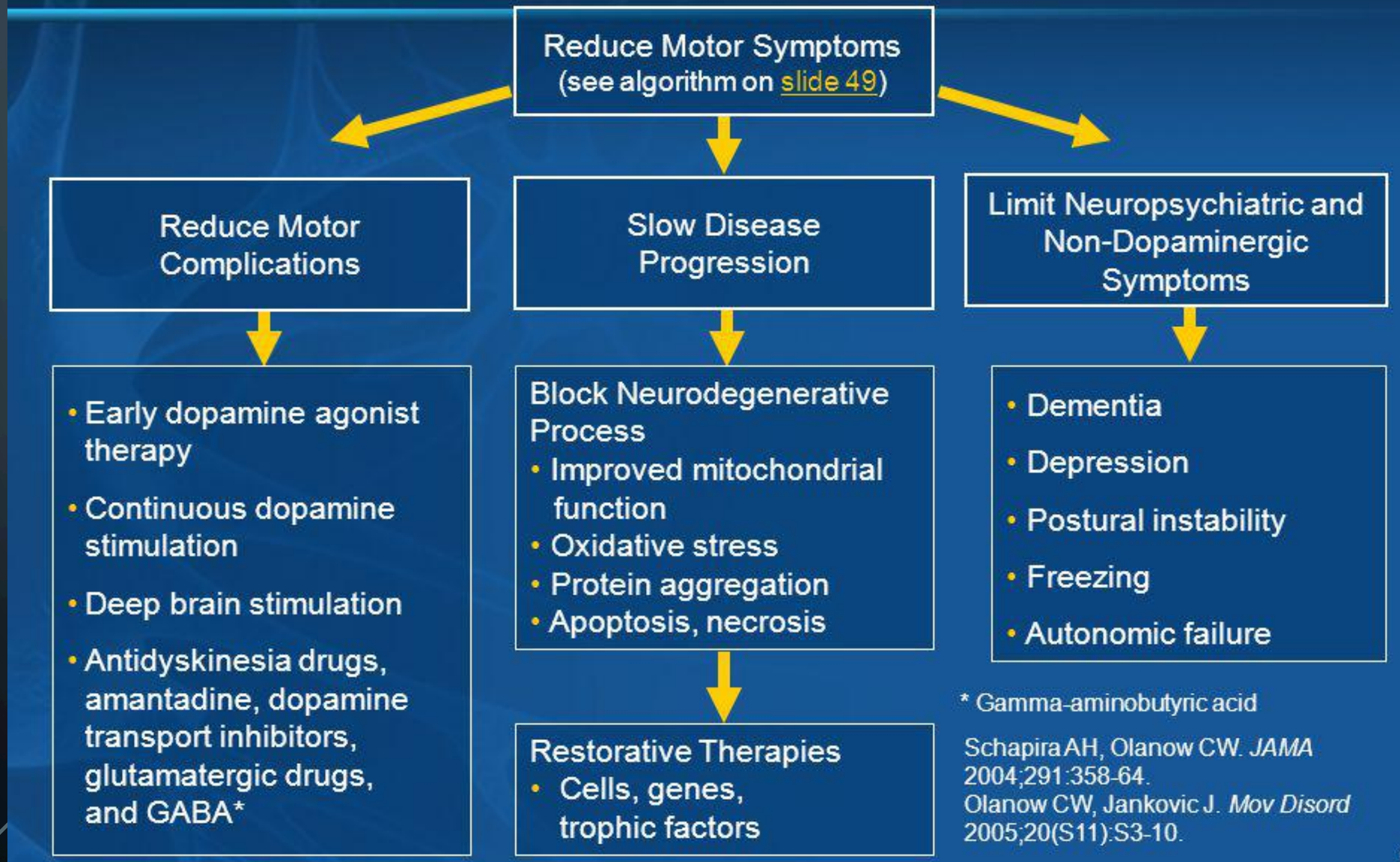
- Functional Disability
- Complications of long term therapy
  - Less ON time –“wearing off”
  - Unpredictable motor fluctuations
- Levodopa induced dyskinesias
  - Off dystonia
  - Peak dose dyskinesias
  - Diphasic dyskinesias
- Drug induced hallucinations

Levodopa	Dopamine agonist	MAO-B inhibitors	Anticholinergics	COMT inhibitors	Amantadine	A2A
Sinemet IR (levodopa/ carbidopa)	Pramipexole (Mirapex®)	Rasagiline (Azilect®)	Trihexyphenidyl (Artane®)	Stalevo (carbidopa-levodopa and entacopone	(Symmetrel®, generics	Istradefyline - Nourianz
Sinemet CR	Ropinirole (Requip®)	Selegiline (Eldepryl® Zelapar®)	Benztropine (Cogentin®)	Entacopone	Gocovri	
Rytary (IR/CR)	Rotigotine (Neupro® patch)	Safinamide Xadago		opipacone	Osmolex	
Parcopa orally disintegrating tablet)	Apomorphine (Apokyn®)					
DUOPA						



Joseph Jankovic, and Eng King Tan J Neurol Neurosurg

Treatment of Parkinson's Disease



* Gamma-aminobutyric acid

Schapira AH, Olanow CW. *JAMA* 2004;291:358-64.
Olanow CW, Jankovic J. *Mov Disord* 2005;20(S11):S3-10.