How to examine a patient with parkinsonism – tips and tricks

Assoc. prof. Matej Škorvánek, MD, PhD

Dept. of Neurology and Center for Rare Movement Disorders

Safarik University and University Hospital Košice, Slovakia

AN

ESSAY

ON THE

SHAKING PALSY.

CHAPTER I.

DEFINITION—HISTORY—ILLUSTRATIVE CASES.

SHAKING PALSY. (*Paralysis Agitans.*)

Involuntary tremulous motion, with lessened muscular power, in parts not in action and even when supported; with a propensity to bend the trunk forwards, and to pass from a walking to a running pace: the senses and intellects being uninjured.

How to define a patient with Parkinson's disease?

- Patient 1
  - 65 years, mild tremor LUE, slightly changed walking with left leg, worsening of handwriting, feels more stiff and clumsy
- Patient 2
  - 54 years, several years of hyposmia, constipation, abnormal movements during sleep, hyperechogenic substantia nigra on USG, no parkinsonism
- Patient 3
  - 47 years, action dystonia left leg, no parkinsonism
  - Later abnormal DaT scan, development of PD

Erro, Ganos, Skorvanek 2014

What defines Parkinsons disease?

- Motor features?
- Other clinical symptoms?
- DaT scan?
- Genetics?
- Presence of pathological synuclein in body fluids / peripheral tissue biopsies?

REVIEW

CME

MDS Clinical Diagnostic Criteria for Parkinson's Disease

Ronald B. Postuma, MD, MSc,[1†*] Daniela Berg, MD,[2†*] Matthew Stern, MD,[3] Werner Poewe, MD,[4]
C. Warren Olanow, MD, FRCPC,[5] Wolfgang Oertel, MD,[6] José Obeso, MD, PhD,[7] Kenneth Marek, MD,[8] Irene Litvan, MD,[9]
Anthony E. Lang, OC, MD, FRCPC,[10] Glenda Halliday, PhD,[12] Christopher G. Goetz, MD,[13] Thomas Gasser, MD,[2]
Bruno Dubois, MD, PhD,[14] Piu Chan, MD, PhD,[15] Bastiaan R. Bloem, MD, PhD,[16] Charles H. Adler, MD, PhD,[17]
and Günther Deuschl, MD[18]

- The first essential criterion is parkinsonism, which is defined as bradykinesia, in combination with at least 1 of rest tremor or rigidity. Examination of all cardinal manifestations should be carried out as described in the MDS–Unified Parkinson Disease Rating Scale

- 11 studies with pathological confirmation of PD diagnosis
- Non-experts accuracy 73.8%
- Experts accuracy at first visit – 79.6%
- Experts accuracy at follow-up – 83.9%
- UKPDBB criteria accuracy – 82.7%
- Accuracy in community-based study with subsequent pathological confirmation as low as 61.5%
- Most common reasons for misdiagnosis Essential tremor (community studies) and atypical parkinsonism (MSA, PSP) (clinic-based studies)

Classification of parkinsonian syndromes

Idiopathic Parkinson's disease (~80%)

Symptomatic secondary parkinsonism (~10%)

- Drug-induced
- Toxic – M.Wilson, Mn, CO, MPTP
- Traumatic
- Vascular
- Normal pressure hydrocephalus

Other neurodegenerative parkinsonisms (~10%)

- Multiple system atrophy
- Progressive supranuclear palsy
- Corticobasal degeneration
- Lewy body dementia
- Huntington's disease, etc.

Pathological classification of synucleinopathies

Synucleinopathies	Tauopathies
• Parkinson's disease (+dementia) • Lewy body dementia • Multiple system atrophy	• Progressive supranuclear palsy • Corticobasal degeneration • Frontotemporal lobar degeneration

Slowness of movements

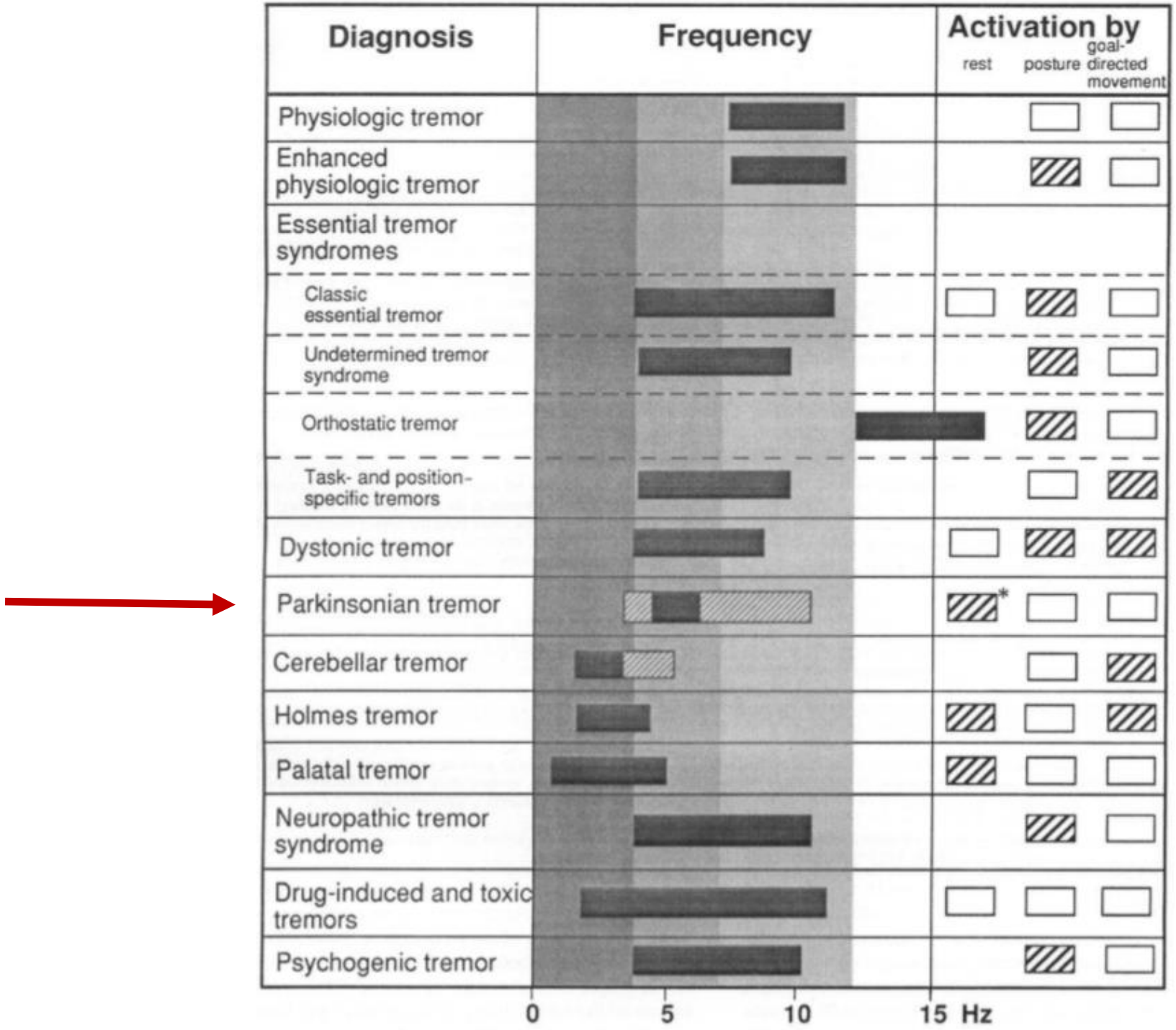
- Bradykinesia
- Paresis
- Dyssynergy related to cerebellar syndrome
- Apraxia/executive dysfunction
- „True bradykinesia“ vs. other cause of slowness

Increased muscle tone

- Rigidity
- Spasticity
- Interposition of tremor

Tremor

- Resting vs. action tremor
- Asymetrical vs. Symetrical
- Where?
  - Head – more likely ET or dystonic!
  - Chin, lips, tongue – PD more likely
- Postural vs. Reemergent -transient tremor supression
- Myoclonus (more likely multiple system atrophy, corticobasal degeneration)



Deuschl 1998

Motor features

Responsive

- Bradykinesia
- Rigidity
- Tremor
- Off freezing
- Off dystonia

Poorly responsive

- Postural instability
- Speech disorders
- Dysphagia
- On freezing
- On dystonia

TABLE 1. MDS Clinical Diagnostic Criteria for PD—Executive Summary/Completion Form

The first essential criterion is parkinsonism, which is defined as bradykinesia, in combination with at least 1 of rest tremor or rigidity. Examination of all cardinal manifestations should be carried out as described in the MDS–Unified Parkinson Disease Rating Scale.[30] Once parkinsonism has been diagnosed:

Diagnosis of **Clinically Established PD** requires:

1. Absence of absolute exclusion criteria
2. At least two supportive criteria, and
3. No red flags

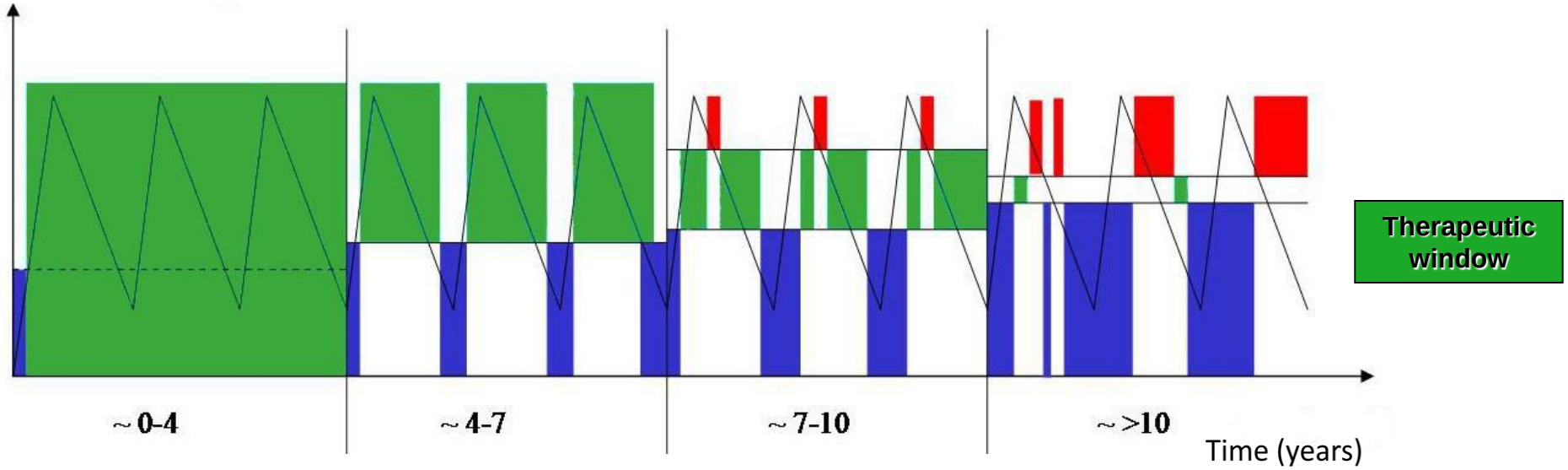
Diagnosis of **Clinically Probable PD** requires:

1. Absence of absolute exclusion criteria
2. Presence of red flags counterbalanced by supportive criteria
   If 1 red flag is present, there must also be at least 1 supportive criterion
   If 2 red flags, at least 2 supportive criteria are needed
   No more than 2 red flags are allowed for this category

Supportive criteria

- **Clear and dramatic beneficial response to dopaminergic therapyjednoznačné a dramatické zlepšenie po dopaminergnej liečbe**.
- Presence of L-dopa induced dyskinesia
- Rest tremor of a limb documented on clinical examination
- Presence of either olfactory loss or cardiac sympatethic denervation on MIBG SPECT

Typical course of PD



Early stage

Good response to dopaminergic

Wearing-off

short off periods

Wearing –off with dyskinesias

Predictable peak-of-dose dyskinesias

On-off fluctuations

Unpredictable fluctuations

Very narrow therapeutic window

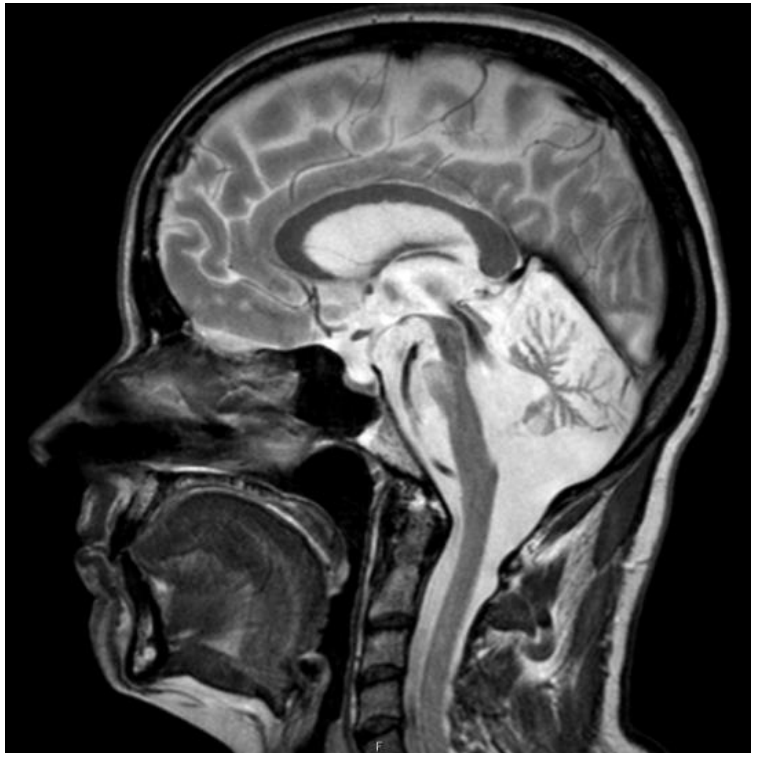
Normal mobility

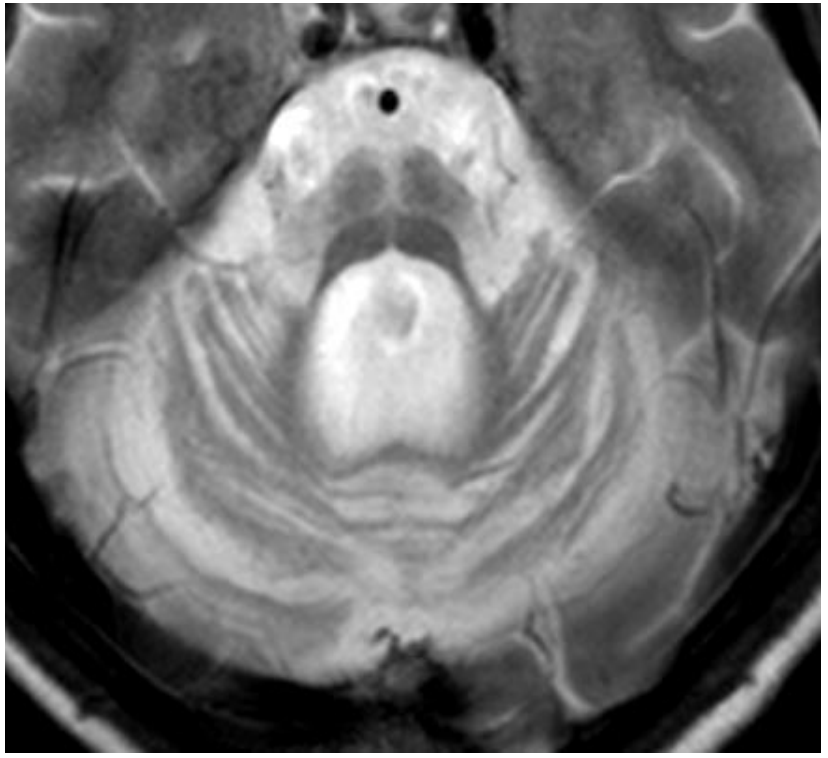
Parkinsonism

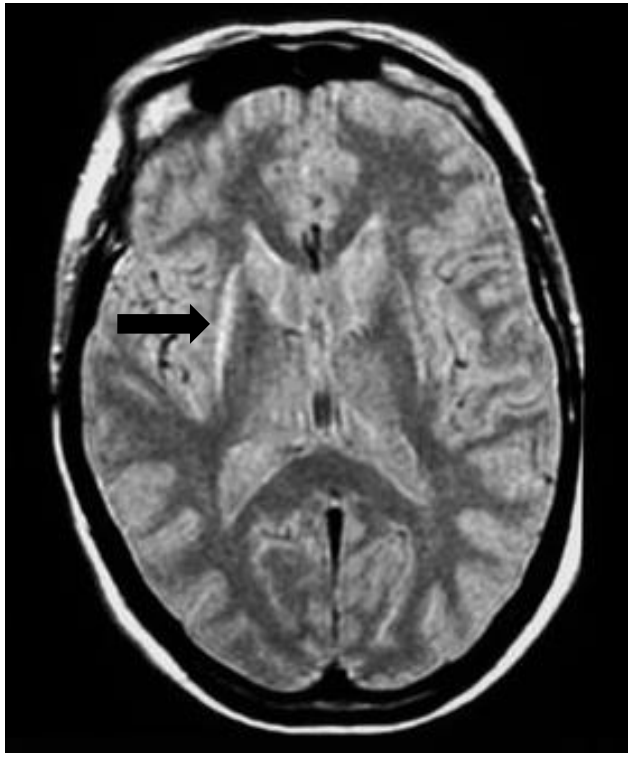
Dyskinesias

Imaging - MRI

- Standard MRI finding in PD normal “age-related”
- Done to exclude other disorders

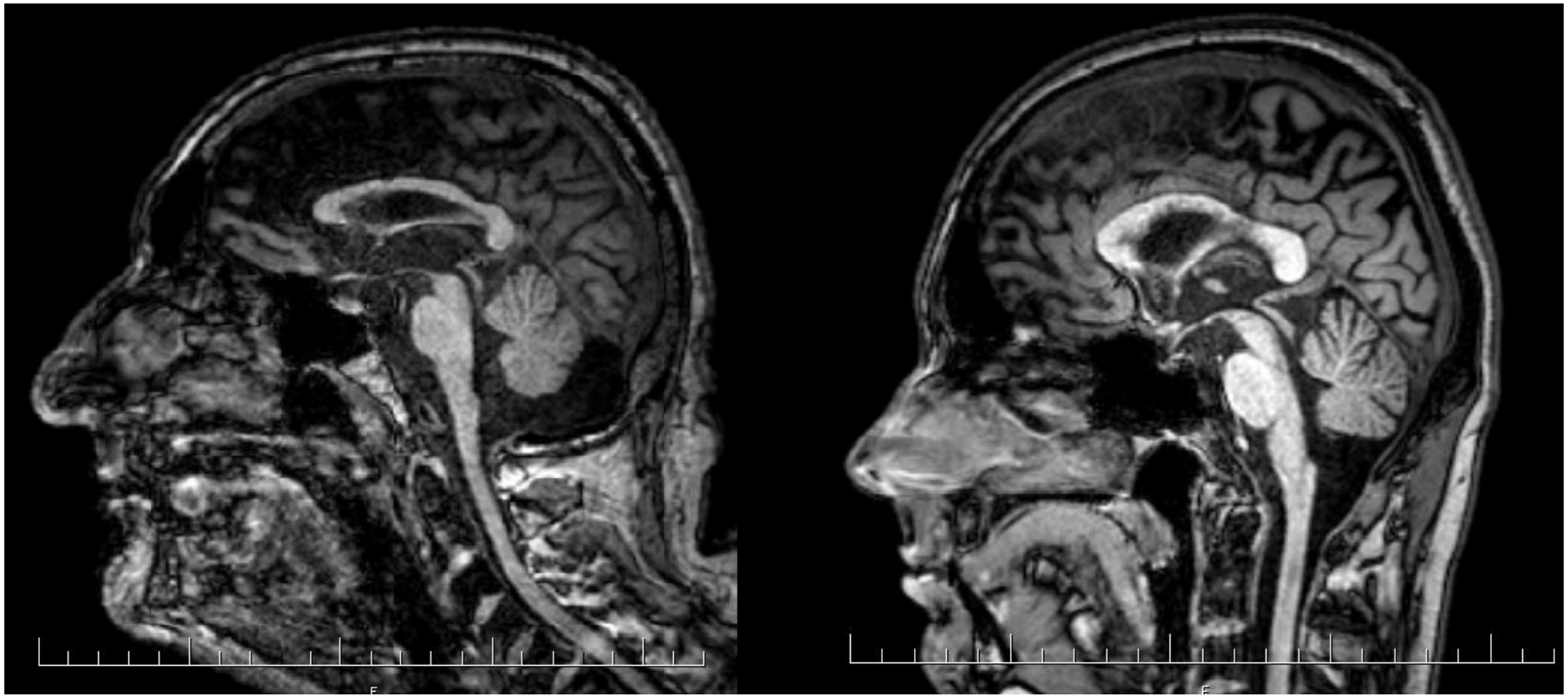






Imaging - MRI

- Standard MRI finding in PD normal “age-related”
- Done rather to exclude other disorders



Imaging – DaT scan

- Does not differentiate PD from other forms of neurodegenerative parkinsonism!
- Differentiates
  - Drug-induced parkinsonism
  - Essential tremor
  - Dystonic tremor
  - Functional parkinsonism
  - Lewy body dementia vs. Alzheimer's disease
- SWEDD – scans without evidence of dopaminergic deficit

Imaging – MIBG + IBZM SPECT

- To differentiate PD vs. atypical parkinsonism

- MIBG SPECT – cardial sympatethic denervation in PD, not in MSA
  - PD – pathological (usually dramatic) reduction of radiotracer uptake
  - MSA, PSP normal radiotracer uptake

- IBZM SPECT – examination of postsynaptic D2 receptors
  - Normal uptake in PD (only presynaptic deficits)
  - Reduced uptake in atypical parkinsonism

Therapeutic test

- L-dopa challenge (single dose administration) – not reliable
  - Positive might support PD
  - Negative (single dose administration) doesn't mean anything

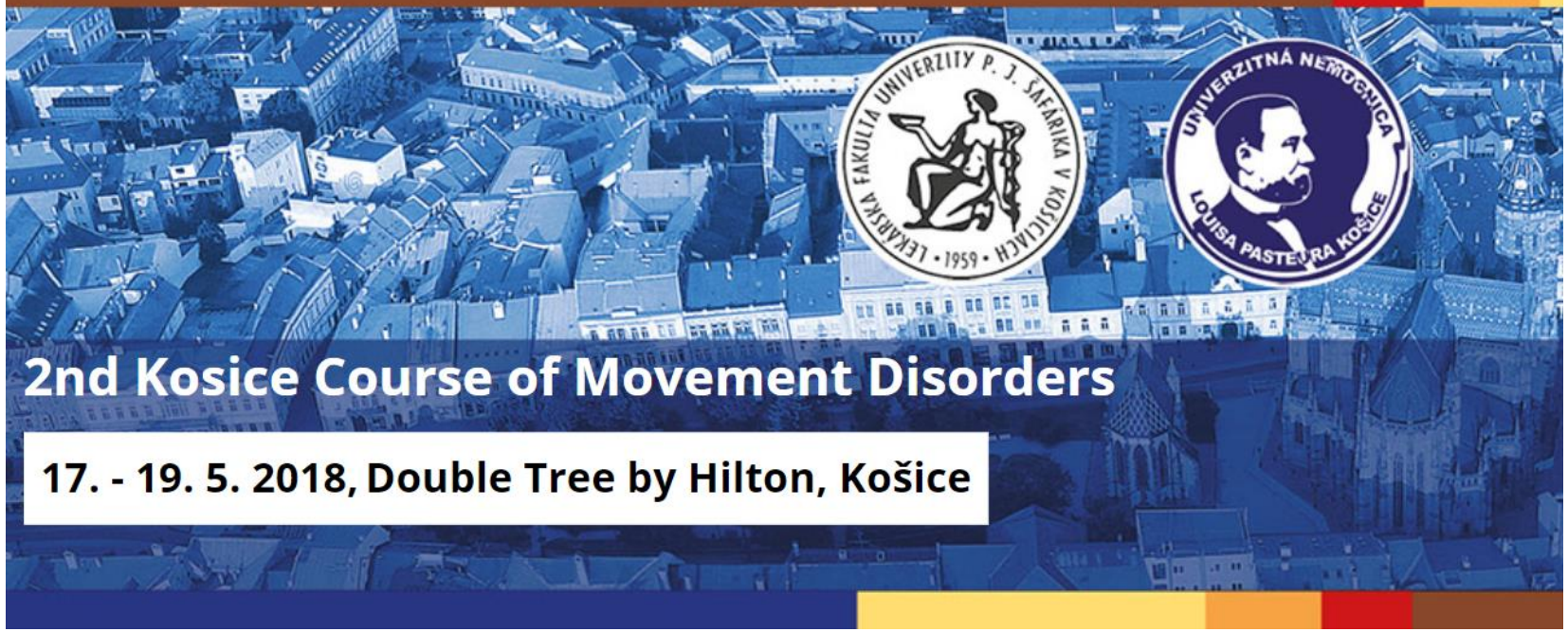
- Apomorphine – unreliable similar to L-dopa challenge

- Necessary to administrate high doses for longer time (~1000mg for at least 1 month, if therapeutic benefit not observed on lower doses)

- Usually no/minimal response to chronic L-dopa administration in atypical parkinsonism (MSA may be an exception in first few years)

Conclusions

- Parkinson’s disease has many faces
- However, some faces are very atypical and these need to be distinguished...



www.expy-ke.sk

www.movementdisorders.org