Phenomenology of Movement Disorders

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Anatomical reasoning
Anatomical reasoning
Phenomenological reasoning

Abnormal movement

- Hypokineti
- Hyperkinetic
- Ataxia
But there is a tremor!

UK Parkinson’s Disease Society Brain Bank’s clinical criteria for the diagnosis of probable Parkinson disease

Step 1
1. Bradykinesia
2. At least one of the following criteria:
   A. Rigidity
   B. 4–6 Hz rest tremor
   C. Postural instability not caused by primary visual, vestibular, cerebellar, or proprioceptive dysfunction

Step 2: Exclude other causes of parkinsonism

Step 3: At least three of the following supportive (prospective) criteria:
1. Unilateral onset
2. Rest tremor present
3. Progressive disorder
4. Persistent asymmetry affecting side of onset most
5. Excellent response (70–100%) to levodopa
6. Severe levodopa-induced chorea (dyskinesia)
7. Levodopa response for 5 years or more
8. Clinical course of 10 years or more

Hughes et al., 1992; Hughes et al., 1992; Fahn et al., 2011.
Parkinsonism

- PD
- MSA
- PSP
- CBS
- DLB
- Vascular parkinsonism
- Drug induced
- With FTD or AD
Hyperkinetic movement disorders

- Tremor (non parkinsonian)
- Dystonia
- Chorea
- Myoclonus
- Tics
- RLS, PMLS, PLMT…
Questions to ask

• Immediate impressions
  – Rhythmic or arrhythmic?
  – Sustained or non-sustained?
  – Paroxysmal or continuous?

• More prolonged observations
  – At rest or with action?
  – Patterned or non patterned?

Fahn et al., 2011
<table>
<thead>
<tr>
<th>Rhythmic -regular</th>
<th>Rhymtic-Irrregular</th>
<th>Arrhythmic</th>
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</thead>
<tbody>
<tr>
<td>Tremor</td>
<td></td>
<td>Akathitic movements</td>
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<tr>
<td>resting</td>
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<td>Athetosis</td>
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<tr>
<td>postural</td>
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<td>Ballism</td>
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<tr>
<td>action</td>
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<td>Chorea</td>
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<tr>
<td>intention</td>
<td>Cortical myoclonus</td>
<td>Dystonia</td>
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<td></td>
<td>Minipolymyoclonus</td>
<td>Hemifacial spasm</td>
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<td></td>
<td>Dystonic tremor</td>
<td>Hyperekplexia</td>
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<tr>
<td>Segmental Myoclonus</td>
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<td>Myoclonus</td>
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<tr>
<td>Oscillatory Myoclonus</td>
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<td>Stereotypy</td>
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<td>Moving toes/fingers</td>
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<tr>
<td>Myorhythmia</td>
<td>Periodic movements in sleep</td>
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<td></td>
<td>Tardive stereotypy</td>
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<tr>
<td></td>
<td>(Dystonic tremor)</td>
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Fahn et al., 2011
Sustained contractions or postures

- Dystonia
  - Dystonic tics
  - Pseudodystonias
  - Oculogyric crisis
- Torticollis
- SPS
- Neuro-myotonia
- Orthopedic
- Congenital
Paroxysmal

- Tics
- Paroxysmal dyskinesia
- Episodic ataxias
- Hyper-eplexia
- Stereotypies
- Akathitic movements
<table>
<thead>
<tr>
<th>At rest only (disappears with action)</th>
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</thead>
<tbody>
<tr>
<td>1. Akathitic movements</td>
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<tr>
<td>2. Paradoxical dystonia</td>
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<tr>
<td>3. Resting tremor, but can reemerge with posture holding</td>
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<td>4. Restless legs</td>
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<td>5. Orthostatic tremor (only on standing)</td>
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<table>
<thead>
<tr>
<th>With action only</th>
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<tbody>
<tr>
<td>1. Ataxia</td>
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<tr>
<td>2. Action dystonia</td>
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<tr>
<td>3. Action myoclonus</td>
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<tr>
<td>4. Tremor: postural, action, intention</td>
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<td>5. Task-specific tremor</td>
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<tr>
<td>6. Task-specific dystonia</td>
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</tbody>
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Fahn et al., 2011
Patterned Dystonia
  - Stereotypies
    - Tardive stereotypy
  - Tremor
  - Moving toes
  - Segm myoclonus
    - Hemifacial spasm
  - Myorhythmia
  - Myokymia
Video 2
Tremor

- Alternating contraction of antagonist muscles
- Regular
- Sinusoidal/oscillatory
- Rest and/or action
Video 3
Twisting=Dystonia

- Co-contraction of antagonist muscles
- Abnormal posturing
- Can cause tremor
- Stereotyped and predictable
Video 4
Dancing = Chorea

- Irregular
- Unpredictable
- Seems to flow from one body part to another
- No volitional control
- Can try to mask it initially (parakinesias??)
Athetosis and ballismus

Chorea

Athetosis:
- Slow
- Writhing
- Continuous

Ballism:
- Very large amplitude
- Proximal limbs
Video 5
Jerking = Myoclonus

- Literally: “a quick movement of muscle.”
  - active muscle contractions = positive myoclonus
  - lapses of muscle contraction in active postural muscles = negative myoclonus or asterixis
- Irregular
Myoclonus

- Spontaneous
- Action
- Reflex

- Focal/segmental
- Axial
- Multifocal
- Generalized

- Repetitive
- Rhythmic or not
- Regular or not
Video 6
Tics

- Can be clonic, dystonic
- Stereotyped, but can change over years
- Key
  - Premonitory feeling
  - Voluntary control (with rebound)
  - Relief after completion
- Pitfalls:
  - Fluctuate
  - Can disappear completely when focused
References