Parkinson’s disease: (differential) diagnosis

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My fascination

The patient as the teacher

Snijders et al., Neurologist 2012;18:404-405
And now look at this!

Parkinson's disease cannot be managed by neurologists alone

Take home message
What beast are we fighting?

It seemed clear initially
A recognizable (motor) syndrome

But what about this?

Cerebral MRI
“Parkinson” is not a disease, it is a syndrome.

Complex manifestations

- Motor symptoms & signs
- Non-motor manifestations

The explanation

Braak et al., Neurobiol Aging 2003;24:197-211
Even in early disease stages

The spectrum of nonmotor symptoms in early Parkinson disease

- 159 newly diagnosed Parkinson patients
- Median disease duration 4.4 months
- 12% still untreated

Even in early disease stages

Take home message

Parkinson syndrome includes both motor and non-motor manifestations
At the other end of the spectrum

Weerkamp et al., JAGS 2012;60:2277-2281
Weerkamp et al., JAGS (2013) in press

Example of wonderful results

Ohe zon goed, schijn

Other concurrent diseases

Parkinson disease and comorbid cerebrovascular disease

REVIEW
Importance of compensation

Compensation

Primary disease process
Compensatory strategies

Medical management
Allied health care
Take home message

Medical management and allied health interventions are complementary approaches.

How do I recognize Parkinson SYNDROME?

ESSENTIAL: bradykinesia

STN stimulators ON

STN stimulators OFF
ESSENTIAL: bradykinesia

Symptoms ≠ participation

Take home message

Diagnosing Parkinson syndrome is a multidisciplinary enterprise!
Look Alikes

TRAP #1: is this bradykinesia?

TRAP #2: behind the mask ...

Courtesy of Niall Quinn

Courtesy of Louise van der Valk (Papaver)
TRAP #3: thumb extension tremor

TRAP #4: reduced arm swing

What do you see here?
How can I suspect it might be Parkinson DISEASE?

What is this?
But what about this?

Or this?

This is how it works

Parkinson “disease”

Symptoms that SHOULD be present

Symptoms that should NOT be present
An important difference

Parkinson’s disease

Atypical parkinsonism

Atypical parkinsonism is not a diagnosis

Table 1: Clinical features of other causes of parkinsonism

<table>
<thead>
<tr>
<th>Clinical Feature</th>
<th>Parkinson’s Disease</th>
<th>Atypical Parkinsonism</th>
</tr>
</thead>
<tbody>
<tr>
<td>Early mobility</td>
<td>Slower, less fluid</td>
<td>Slower, less fluid</td>
</tr>
<tr>
<td>Dyskinesia</td>
<td>Spastic, exaggerated</td>
<td>Spastic, exaggerated</td>
</tr>
<tr>
<td>Axonal loss</td>
<td>Moderate</td>
<td>Moderate</td>
</tr>
<tr>
<td>Synaptic losses</td>
<td>Mild</td>
<td>Mild</td>
</tr>
</tbody>
</table>

Marked overlap (particularly in early stages)
Marked overlap (particularly in early stages)

With disease progression

Marked overlap (particularly in early stages)

Post-mortem examination

Why the difference is so important

Progression

Complications

Effects of medication

Inclusion in trials
So when is it TRULY Parkinson DISEASE?

This is definitive Parkinson’s disease

The only exception during life
What goes wrong in the brain?

Where in the brain?

Dopaminergic system

Frontal lobe

Striatum

Substantia nigra

Ventral tegmental area

Where in the brain?
Much like a garden hose

The problem in atypical parkinsonism ...

BUT: Parkinson’s also causes diffuse lesions!

Braak et al., Neurobiol Aging 2003;24:197-211
A brain on fire …

Beating a dead horse
Depression, and Parkinson's disease.

When can I expect it to be Parkinson DISEASE?
A common, well-known disease

Robin Williams

Robin Williams Was Battling Parkinson’s Disease, Wife Says

Says “soberly was intact” when he died

The wife of Robin Williams revealed Thursday that at the time of his death, the late comedian was not only battling depression and anxiety but the early stages of Parkinson’s Disease.

“Robin’s sobriety was intact and he was brave as he struggled with his own battles of depression, anxiety as well as early stages of Parkinson.”

Influence of age

- Parkinson
- Parkinsonism
Influence of gender

A progressive disease

**Highly variable rates of progression**

Severity of symptoms over time for patients A, B, and C.

- **Patient A**: High severity, slow progression.
- **Patient B**: Moderate severity, moderate progression.
- **Patient C**: Low severity, highly variable progression.

**Important**: Patients tend to follow their own course.

**Supportive features**

- **Asymmetry**: Good response to levodopa.
- **Slow progression**: Slowly progressive.

**Take home message**

Bloem’s “quick and dirty” diagnosis:

Parkinson’s disease is:

1. Asymmetrical
2. Slowly progressive
3. Responds well to medication
Could this be Parkinson's disease?

What do you see here?
Red flags

Abnormal posture

Recent summary

Postural deformities in Parkinson's disease

These deformities include scoliosis, kyphosis, lordosis, and kyphoscoliosis. Postural deformities are often present in early Parkinson's disease and may improve with antiparkinsonian therapy. Surveillance in long-term Parkinson's disease is recommended for early detection of postural deformities and structural changes to the spine. The relative contribution of these different factors varies between patients and needs to be considered in the evaluation of postural deformities in Parkinson's disease.
Pisa syndrome

What do you see here?

Red flags, part 2

Gait and balance disability
Gait & balance disorders – please see my other lecture

Red flags, part 3

Autonomic dysfunction

The “cold hands” sign
Extra diagnostic weapons

The weapon MEDICATION

Medication in atypical parkinsonism

- Severity of symptoms
- Spontaneous course Parkinson
- Treatment effect
- Time
Medication in atypical parkinsonism

Severity of symptoms

- Spontaneous course parkinsonism
- Spontaneous course Parkinson
- Treatment effect
- Cease treatment

Time

Thank you!