Good Level B evidence shows that determining the presence of the following clinical features in early stages of disease should be considered to distinguish other parkinsonian syndromes from PD:

1. Falls at presentation and early in the disease course
2. Poor response to levodopa
3. Symmetry at onset
4. Rapid progression (to Hoehn and Yahr stage 3 in 3 years)

5. Lack of tremor
6. Dysautonomia (urinary urgency/incontinence and fecal incontinence, urinary retention requiring catheterization, persistent erectile failure or symptomatic orthostatic hypotension)

The following may not be useful in differentiating PD from other parkinsonian syndromes:
- Electroencephalography
- Growth Hormone (GH) stimulation with clonidine
- Single photon emission computed tomography (SPECT) scanning

There is insufficient evidence to recommend the following as a means of distinguishing PD from other parkinsonian syndromes:
- Urodynamics
- MRI
- Urethral or anal EMG
- Fluorodeoxyglucose (FDG) PET
- Autonomic testing
- Brain parenchyma sonography
- Olfaction testing§ to differentiate PD from progressive supranuclear palsy (PSP) and corticobasal degeneration (CBD), but not PD from multiple system atrophy (MSA)

There is insufficient evidence to determine whether levodopa and apomorphine challenge or olfaction testing have any advantage over the clinical diagnostic criteria of PD (Level U). Additionally, there is insufficient evidence to determine the optimal combination or sequence of these tests (Level U).

In patients with newly diagnosed PD, older age at onset and rigidity/hypokinesia as an initial symptom should be used to predict a more rapid rate of motor progression (Level B).

Older age at onset and initial hypokinesia/rigidity should be used to predict earlier development of cognitive decline and dementia (Level B).

The presence of associated comorbidities (stroke, auditory deficits, and visual impairments), postural instability/gait difficulty (PIGD), and male gender may be used to predict faster rate of motor progression (Level C).

Tremor as a presenting symptom may be used to predict a more benign course and longer therapeutic benefit to levodopa (Level C).

Older age of onset, dementia, and decreased dopamine responsiveness may be used to predict earlier nursing home placement as well as decreased survival (Level C).
**RECOMMENDATIONS FOR INITIATION OF TREATMENT FOR PARKINSON DISEASE (2002)**

<table>
<thead>
<tr>
<th>Selegiline</th>
<th>Levodopa or dopamine agonist</th>
</tr>
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<tbody>
<tr>
<td><strong>Class IV:</strong> Measurement.**</td>
<td><strong>Class IV:</strong> In patients with PD who require the initiation of dopaminergic treatment, either levodopa or a dopamine agonist may be used. The choice depends on the relative impact of improving motor disability (better with levodopa) compared to the lessening of motor complications (better with dopamine agonists) for each individual patient (Level A). For patients with PD in whom levodopa treatment is being instituted, either an immediate-release or sustained-release preparation may be considered (Level B).</td>
</tr>
</tbody>
</table>

**RECOMMENDATIONS FOR NEUROPROTECTIVE THERAPIES FOR PARKINSON DISEASE**

- **Neuroprotective**
  - Good Level B evidence
  - Levodopa may be considered for initial treatment of PD (9 months) as it does not accelerate disease progression and is safe. [There is no long-term evidence to recommend levodopa for neuroprotection. (Level U)]

- **Not neuroprotective**
  - Good Level B evidence
  - Treatment with 2000 units of vitamin E should not be considered for neuroprotection.

- **Unproven neuroprotection**
  - Insufficient Level U evidence
  - Long-term levodopa use • Riluzole • Pramipexole • Ropinirole • Rasagiline

- **Unproven benefit**
  - Insufficient Level U evidence
  - Coenzyme Q10

- **No improvement in motor function**
  - Good Level B evidence
  - Vitamin E

**RECOMMENDATIONS FOR ALTERNATIVE THERAPIES FOR PARKINSON DISEASE**

- **May improve motor function**
  - Weak Level C evidence
  - Exercise • Speech therapy (to improve speech volume)

- **Unproven benefit**
  - Insufficient Level U evidence
  - Acupuncture therapy • Biofeedback • M pruriens (Cowhage or velvet bean) • Fava beans • Alexander technique

- **No improvement in motor function**
  - Good Level B evidence
  - Vitamin E

Copies of this summary and additional companion tools are available at www.aan.com or through AAN Member Services at (800) 879-1960.

View the following AAN movement disorder guidelines at www.aan.com.

**DATE** | **TITLE**
--- | ---
Jan 2002 | Initiation of Treatment for Parkinson Disease (UPDATED)
April 2006 | Diagnosis and Prognosis for New Onset Parkinson Disease
April 2006 | Neuroprotective Strategies and Alternative Therapies for New Onset Parkinson Disease
April 2006 | Evaluation and Treatment of Depression, Psychosis and Dementia in Parkinson Disease
April 2006 | Medical and Surgical Treatment of Parkinson Disease with Motor Fluctuations and Dyskinesia

This is an educational service of the American Academy of Neurology. It is designed to provide members with evidence-based guideline recommendations to assist with decision-making in patient care. It is based on an assessment of current scientific and clinical information, and is not intended to exclude any reasonable alternative methodologies. The AAN recognizes that specific patient care decisions are the prerogative of the patient and the physician caring for the patient, based on the circumstances involved. Physicians are encouraged to carefully review the full AAN guidelines so they understand all recommendations associated with care of these patients.

<table>
<thead>
<tr>
<th>Rating of Therapeutic Article</th>
<th>Rating of Diagnostic Article</th>
<th>Rating of Prognostic Article</th>
</tr>
</thead>
</table>
| Class I: Prospective, randomized, controlled clinical trial with masked outcome assessment, in a representative population. The following are required: a. primary outcome is clearly defined b. exclusion criteria clearly defined c. adequate accounting for drop-outs and cross-overs with numbers sufficiently low to have minimal potential for bias d. relevant baseline characteristics are presented and substantially equivalent among treatment groups, or there is appropriate statistical adjustment for differences. | Class II: Evidence provided by a retrospective study of a broad spectrum of persons with the suspected condition, using a reference (gold) standard for case definition, where test is applied in a blinded evaluation, and enabling the assessment of appropriate tests of diagnostic accuracy. All patients undergoing the diagnostic test have the presence or absence of the disease determined. | Class I: Evidence provided by a prospective study of a broad spectrum of persons who may be at risk for developing the outcome (e.g., target disease, work status). The study measures the predictive ability using an acceptable independent gold standard for case definition. The predictor is measured in an evaluation that is masked to clinical presentation and, the outcome is measured in an evaluation that is masked to the presence of the predictor. All patients have the predictor and outcome variables measured.

Class III: Prospective matched group cohort study in a representative population with masked outcome assessment that meets ad above OR A CT in a representative population that lacks one criteria a-d. | Class III: Evidence provided by a retrospective study of a broad spectrum of persons with the suspected condition, where test is applied in a blinded evaluation, and enabling the assessment of appropriate tests of diagnostic accuracy. | Class II: Evidence provided by a prospective study of a narrow spectrum of persons with the condition compared to a broad spectrum of controls. The study measures the present accuracy of the risk factor using an acceptable independent gold standard for case definition. The risk factor is measured in an evaluation that is masked to the outcome.

**Class III:** All other controlled trials (including well-designed natural history controls or patients serving as own controls) in a representative population, where outcome is independently assessed, or independently derived by objective outcome measurement.**

**Class II:** Evidence provided by a prospective study of a broad spectrum of persons with an established condition (by “gold standard”) compared to a broad spectrum of controls, where test is applied in a blinded evaluation, and enabling the assessment of appropriate tests of diagnostic accuracy. All patients have the predictor and outcome variables measured.

**Class I:** Evidence provided by a prospective study of a broad spectrum of persons who may be at risk for developing the outcome (e.g., target disease, work status). The study measures the predictive ability using an acceptable independent gold standard for case definition. The predictor is measured in an evaluation that is masked to clinical presentation and, the outcome is measured in an evaluation that is masked to the presence of the predictor. All patients have the predictor and outcome variables measured.

**Class IV:** Any design where test is not applied in an independent evaluation OR evidence provided by expert opinion alone or in descriptive case series without controls.

*Level of Evidence: Level A = Established as effective, ineffective, or harmful for the given condition in the specified population. Level B rating requires at least one Class I study or two consistent Class II studies. Level C = Possibly effective, ineffective, or harmful for the given condition in the specified population. Level D = Data inadequate or conflicting; given current knowledge, treatment is unknown.

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