

Chapter 2

Parkinson’s Disease: Hoehn and Yahr Scale

This chapter contains a video segment which can be found at the URL: <http://www.springerimages.com/Tarsy>

Background

The Hoehn and Yahr scale (HY) is a widely used clinical rating scale, which defines broad categories of motor function in Parkinson’s disease (PD). Among its advantages are that it is simple and easily applied. It captures typical patterns of progressive motor impairment which can be applied whether or not patients are receiving dopaminergic therapy. Progression in HY stages has been found to correlate with motor decline, deterioration in quality of life, and neuroimaging studies of dopaminergic loss. However, because of its simplicity and lack of detail, the scale is not comprehensive. It is also limited by its focus on issues of unilateral versus bilateral disease and the presence or absence of postural reflex impairment, thereby leaving other specific aspects of motor deficit unassessed. Also it does not provide any information concerning nonmotor aspects of PD. A modified version of HY is sometimes used.

Hoehn and Yahr Scale	Modified Hoehn and Yahr Scale
1: Only unilateral involvement, usually with minimal or no functional disability	1.0: Unilateral involvement only
2: Bilateral or midline involvement without impairment of balance	1.5: Unilateral and axial involvement
3: Bilateral disease: mild to moderate disability with impaired postural reflexes; physically independent	2.0: Bilateral involvement without impairment of balance
4: Severely disabling disease; still able to walk or stand unassisted	2.5: Mild bilateral disease with recovery on pull test
5: Confinement to bed or wheelchair unless aided	3.0: Mild to moderate bilateral disease; some postural instability; physically independent
	4.0: Severe disability; still able to walk or stand unassisted
	5.0: Wheelchair bound or bedridden unless aided

References

1. Hoehn MM, Yahr MD. Parkinsonism: onset, progression, and mortality. *Neurology*. 1967; 17:427–42.
2. Goetz CG, Poewe W, Rascol O, et al. Movement disorder society task force report on the Hoehn and Yahr staging scale: status and recommendations. *Mov Disord*. 2004;19:1020–8.



Video

There are five video clips which illustrate patients at HY stages 1–5.

Clip 1: HY1. The patient exhibits resting tremor in right hand and impaired rapid wrist rotations in right wrist. Facial expression appears normal. Gait is brisk and right arm swing is reduced in amplitude but present bilaterally. Clip 2: HY2. The patient exhibits continuous large amplitude resting tremor in both upper extremities, which persists as an action tremor during finger-nose-finger testing. There is prominent facial masking. Gait and turns are normal but with reduced arm swing bilaterally. Hand tremor activates while walking. Rapid alternating movements are slow in both upper extremities. Pull testing (not shown) is normal. Clip 3: HY3. Tremor is absent and facial expression is mildly reduced. Rapid open-close hand movements and wrist rotations are normal but rapid finger tapping is slow in right hand. There appears to be rigidity to passive manipulation in both upper extremities. The patient arises easily without use of hands. Gait is brisk with good arm swing, but while turning the patient displays freezing of gait and gait ignition failure. Pull testing is repeatedly positive. Clip 4: HY4. Facial masking is prominent. There is bilateral resting and postural tremor in upper extremities. The patient requires assistance to stand. The patient is able to walk independently with flexed posture, absent arm swing, shortened stride length, and activated hand tremor. Clip 5: HY5. The patient is wheelchair bound and flexed at waist. There is global akinesia with very slow and poorly maintained rapid alternating hand movements. The patient requires assistance to stand and must be led in order to walk with persistent flexed posture and shortened stride length.

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