Complete Summary

GUIDELINE TITLE

Practice parameter: diagnosis and prognosis of new onset Parkinson disease (an evidence-based review). Report of the Quality Standards Subcommittee of the American Academy of Neurology.

BIBLIOGRAPHIC SOURCE(S)

Suchowersky O, Reich S, Perlmutter J, Zesiewicz T, Gronseth G, Weiner WJ, Quality Standards Subcommittee of the American Academy of Neurology. Practice parameter: diagnosis and prognosis of new onset Parkinson disease (an evidence-based review): report of the Quality Standards Subcommittee of the American Academy of Neurology. Neurology 2006 Apr 11;66(7):968-75. [47 references] PubMed

GUIDELINE STATUS

This is the current release of the guideline.

COMPLETE SUMMARY CONTENT

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SCOPE

DISEASE/CONDITION(S)

Parkinson disease

GUIDELINE CATEGORY

Diagnosis

CLINICAL SPECIALTY

Emergency Medicine
Family Practice
Geriatrics
Internal Medicine
Neurology

INTENDED USERS

Physicians

GUIDELINE OBJECTIVE(S)

To define key issues in the diagnosis of Parkinson disease (PD), to define features influencing progression, and to make evidence-based recommendations

TARGET POPULATION

Patients with symptoms of parkinsonian syndromes

INTERVENTIONS AND PRACTICES CONSIDERED

Diagnosis/Prognosis

1. Clinical evaluation of symptoms
2. Testing including
    - Levodopa or apomorphine challenge
    - Olfaction testing
3. Screening for clinical features associated with disease progression

Interventions and practices considered but not recommended include growth hormone stimulation (GHS) with clonidine, electrooculography, single photon emission computed tomography (SPECT) scanning, urodynamics, autonomic testing, urethral or anal electromyography (EMG), magnetic resonance imaging (MRI), brain parenchyma sonography, and ^{18}F fluorodeoxyglucose positron emission tomography (FDG PET).

MAJOR OUTCOMES CONSIDERED

- Specificity and sensitivity of diagnostic tests
- Rate of disease progression
- Risk for nursing home placement
- Survival following diagnosis
- Incidence of Parkinson disease

METHODOLOGY

METHODS USED TO COLLECT/SELECT EVIDENCE

Hand-searches of Published Literature (Primary Sources)
Hand-searches of Published Literature (Secondary Sources)
Searches of Electronic Databases

DESCRIPTION OF METHODS USED TO COLLECT/SELECT THE EVIDENCE

For the literature review, the following databases were searched: MEDLINE, EMBASE, CINHAL, and Cochrane Database of Systematic Reviews for the years 1997 to 2002. Only articles written in English were included. A second MEDLINE search covered 1966 through August 2004, followed by another search using the bibliographies of retrieved articles and knowledge from the expert panel extending to January 2005.

Results, Key Words, and Inclusion/Exclusion Criteria

For question 1 (Which clinical features and diagnostic modalities distinguish Parkinson disease (PD) from other parkinsonian syndromes?): Search terms: Parkinson disease, neurologic examination, clinical characteristics, neuroimaging, radionuclide imaging, ultrasonography, differential diagnosis, autopsy, single photon emission computed tomography (SPECT), positron emission tomography (PET), (levodopa or dopamine or apomorphine) challenge, olfactory. Inclusion criteria: At least 10 subjects with PD and 10 in the comparison group. Categories found: clinical, acute challenge testing, radiologic evaluation, neurophysiologic testing, biochemical testing, cerebrospinal fluid (CSF) examination, olfactory testing. Data presented in sufficient detail to allow calculation of sensitivities and specificities.

For question 2 (Which clinical features predict rate of disease progression?): Search terms: Parkinson disease, disease progression, muscle rigidity, tremor, hypokinesia, equilibrium, posture, gait. Inclusion criteria: Longitudinal data to assess putative factors, with an outcome measure that included motor progression measured by a validated rating scale, motor fluctuations, dementia, quality of life, and death. Articles were excluded if published before 1990 because of changes in the case definition of PD.

NUMBER OF SOURCE DOCUMENTS

For question 1 (Which clinical features and diagnostic modalities distinguish Parkinson disease [PD] from other parkinsonian syndromes?): 31 articles satisfied inclusion criteria.

For question 2 (Which clinical features predict rate of disease progression?): 7 articles fulfilled inclusion criteria.

METHODS USED TO ASSESS THE QUALITY AND STRENGTH OF THE EVIDENCE

Weighting According to a Rating Scheme (Scheme Given)

RATING SCHEME FOR THE STRENGTH OF THE EVIDENCE

Classification of Evidence for Diagnostic Articles

Class I: Evidence provided by a prospective study in 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 II: Evidence provided by a prospective study of a narrow spectrum of persons with the suspected condition, or a well designed retrospective 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.

Class III: Evidence provided by a retrospective study where either persons with the established condition or controls are of a narrow spectrum, and where the reference standard, if not objective, is applied by someone other than the person that performed the test.

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).

Classification of Evidence for Prognostic Articles

Class I: Evidence provided by a prospective study of a broad spectrum of persons who may be at risk of developing the outcome (e.g. target disease, work status). The study measures the predictive ability using an 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 II: Evidence provided by a prospective study of a narrow spectrum of persons at risk for having the condition, or by a retrospective study of a broad spectrum of persons with the condition compared to a broad spectrum of controls. The study measures the prognostic 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: Evidence provided by a retrospective study where either the persons with the condition or the controls are of a narrow spectrum. The study measures the predictive ability using an acceptable independent gold standard for case definition. The outcome, if not objective, is determined by someone other than the person who measured the predictor.

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

METHODS USED TO ANALYZE THE EVIDENCE

Systematic Review with Evidence Tables

DESCRIPTION OF THE METHODS USED TO ANALYZE THE EVIDENCE

At least two panel members reviewed each article. If a panelist was an author of one of the articles, at least two other panelists reviewed that article. If a disagreement was identified, consensus was reached by discussion with the whole group. The risk of bias for each study was determined using the classification of evidence scheme.

METHODS USED TO FORMULATE THE RECOMMENDATIONS

Other

DESCRIPTION OF METHODS USED TO FORMULATE THE RECOMMENDATIONS

Not stated

RATING SCHEME FOR THE STRENGTH OF THE RECOMMENDATIONS

Classification of Recommendations

Level A = Established as effective, ineffective, or harmful for the given condition in the specified population. (Level A rating requires at least two consistent Class I studies.)

Level B = Probably effective, ineffective, or harmful for the given condition in the specified population. (Level B rating requires at least one Class I study or at least two consistent Class II studies.)

Level C = Possibly effective, ineffective, or harmful for the given condition in the specified population. (Level C rating requires at least one Class II study or two consistent Class III studies.)

Level U = Data inadequate or conflicting; given current knowledge, treatment is unproven.

COST ANALYSIS

A formal cost analysis was not performed and published cost analyses were not reviewed.

METHOD OF GUIDELINE VALIDATION

External Peer Review
Internal Peer Review

DESCRIPTION OF METHOD OF GUIDELINE VALIDATION

Draft guidelines were reviewed for accuracy, quality, and thoroughness by the American Academy of Neurology members, topic experts, and pertinent physician organizations.

Final guidelines were approved by the American Academy of Neurology Quality Standards Subcommittee on July 30, 2005, the American Academy of Neurology Practice Committee on December 15, 2005, the American Academy of Neurology Board of Directors on February 23, 2006. They were published in Neurology 2006;66:968-975.

RECOMMENDATIONS

MAJOR RECOMMENDATIONS

Definitions of the classification of diagnostic evidence (Class I–IV), classification of prognostic evidence (Class I–IV), and strength of recommendations (A, B, C, U) are provided at the end of the "Major Recommendations" field.

Which Clinical Features and Diagnostic Modalities Distinguish Parkinson Disease (PD) From Other Parkinsonian Syndromes?

Recommendations

Determining the presence of the following clinical features in early stages of disease should be considered to distinguish PD from other parkinsonian syndromes: 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, and 6) dysautonomia (urinary urgency/incontinence and fecal incontinence, urinary retention requiring catheterization, persistent erectile failure, or symptomatic orthostatic hypotension) (**Level B**).

Levodopa and apomorphine challenge should be considered for confirmation when the diagnosis of PD is in doubt (**Level B**).

Olfaction testing should be considered to differentiate PD from progressive supranuclear palsy (PSP) and corticobasal degeneration (CBD), but not PD from multiple system atrophy (MSA) (**Level B**).

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**).

The following may not be useful in differentiating PD from other parkinsonian syndromes: growth hormone (GH) stimulation with clonidine, electrooculography, and single photon emission computed tomography (SPECT) scanning (**Level C**).

There is insufficient evidence to support or refute the following as a means of distinguishing PD from other parkinsonian syndromes: urodynamics, autonomic testing, urethral or anal electromyography (EMG), magnetic resonance imaging

(MRI), brain parenchyma sonography, and ^{18}F fluorodeoxyglucose positron emission tomography (FDG PET) (**Level U**).

Which Clinical Features Predict Rate of Disease Progression?

Recommendations

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

The presence of associated comorbidities (stroke, auditory deficits, and visual impairments), postural instability/gait difficulty (PIGD), and male sex 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 at onset and initial hypokinesia/rigidity should be used to predict earlier development of cognitive decline and dementia (**Level B**).

Older age at onset, dementia, and decreased dopamine responsiveness may be used to predict earlier nursing home placement as well as decreased survival (**Level C**).

Definitions:

Classification of Evidence for Diagnostic Articles

Class I: Evidence provided by a prospective study in 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 II: Evidence provided by a prospective study of a narrow spectrum of persons with the suspected condition, or a well designed retrospective 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.

Class III: Evidence provided by a retrospective study where either persons with the established condition or controls are of a narrow spectrum, and where the reference standard, if not objective, is applied by someone other than the person that performed the test.

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).

Classification of Evidence for Prognostic Articles

Class I: Evidence provided by a prospective study of a broad spectrum of persons who may be at risk of developing the outcome (e.g. target disease, work status). The study measures the predictive ability using an 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 II: Evidence provided by a prospective study of a narrow spectrum of persons at risk for having the condition, or by a retrospective study of a broad spectrum of persons with the condition compared to a broad spectrum of controls. The study measures the prognostic 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: Evidence provided by a retrospective study where either the persons with the condition or the controls are of a narrow spectrum. The study measures the predictive ability using an acceptable independent gold standard for case definition. The outcome, if not objective, is determined by someone other than the person who measured the predictor.

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

Classification of Recommendations:

Level A = Established as effective, ineffective, or harmful for the given condition in the specified population. (Level A rating requires at least two consistent Class I studies.)

Level B = Probably effective, ineffective, or harmful for the given condition in the specified population. (Level B rating requires at least one Class I study or at least two consistent Class II studies.)

Level C = Possibly effective, ineffective, or harmful for the given condition in the specified population. (Level C rating requires at least one Class II study or two consistent Class III studies.)

Level U = Data inadequate or conflicting; given current knowledge, treatment is unproven.

CLINICAL ALGORITHM(S)

None provided

EVIDENCE SUPPORTING THE RECOMMENDATIONS

TYPE OF EVIDENCE SUPPORTING THE RECOMMENDATIONS

The type of supporting evidence is identified and graded for each recommendation (see "Major Recommendations").

BENEFITS/HARMS OF IMPLEMENTING THE GUIDELINE RECOMMENDATIONS

POTENTIAL BENEFITS

- These guidelines may assist physicians in distinguishing between Parkinson disease and other parkinsonian syndromes.
- These guidelines may assist physicians in predicting the rate of disease progression, which can benefit planning for long-term patient care as well as permit the development of neuroprotective strategies.

POTENTIAL HARMS

False positive and false negative diagnostic test results

QUALIFYING STATEMENTS

QUALIFYING STATEMENTS

This statement is provided as an educational service of the American Academy of Neurology (AAN). It is based on an assessment of current scientific and clinical information. It is not intended to include all possible proper methods of care for a particular neurologic problem or all legitimate criteria for choosing to use a specific procedure. Neither is it 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 all of the circumstances involved.

IMPLEMENTATION OF THE GUIDELINE

DESCRIPTION OF IMPLEMENTATION STRATEGY

An implementation strategy was not provided.

IMPLEMENTATION TOOLS

Patient Resources
Personal Digital Assistant (PDA) Downloads
Quick Reference Guides/Physician Guides

For information about availability, see the "Availability of Companion Documents" and "Patient Resources" fields below.

INSTITUTE OF MEDICINE (IOM) NATIONAL HEALTHCARE QUALITY REPORT CATEGORIES

IOM CARE NEED

Living with Illness

IOM DOMAIN

Effectiveness
Patient-centeredness

IDENTIFYING INFORMATION AND AVAILABILITY

BIBLIOGRAPHIC SOURCE(S)

Suchowersky O, Reich S, Perlmutter J, Zesiewicz T, Gronseth G, Weiner WJ, Quality Standards Subcommittee of the American Academy of Neurology. Practice parameter: diagnosis and prognosis of new onset Parkinson disease (an evidence-based review): report of the Quality Standards Subcommittee of the American Academy of Neurology. Neurology 2006 Apr 11;66(7):968-75. [47 references] PubMed

ADAPTATION

Not applicable: The guideline was not adapted from another source.

DATE RELEASED

2006 Apr 11

GUIDELINE DEVELOPER(S)

American Academy of Neurology - Medical Specialty Society

SOURCE(S) OF FUNDING

American Academy of Neurology (AAN)
Michael J. Fox Foundation

GUIDELINE COMMITTEE

Quality Standards Subcommittee

COMPOSITION OF GROUP THAT AUTHORED THE GUIDELINE

Primary Authors: O. Suchowersky, MD; S. Reich, MD; J. Perlmutter, MD; T. Zesiewicz, MD; G. Gronseth, MD; W.J. Weiner, MD

Quality Standards Subcommittee Members: Gary Gronseth, MD (*Co-Chair*); Jacqueline French, MD (*Co-Chair*); Charles E. Argoff, MD; Stephen Ashwal, MD (ex-officio); Christopher Bever, Jr., MD; John D. England, MD; Gary Franklin, MD, MPH (ex-officio); Gary H. Friday, MD; Larry B. Goldstein, MD; Deborah Hirtz, MD (ex-officio); Robert G. Holloway, MD, MPH; Donald J. Iverson, MD; Leslie

Morrison, MD; Clifford J. Schostal, MD; David J. Thurman, MD; Samuel Wiebe, MD; William J. Weiner, MD (facilitator)

FINANCIAL DISCLOSURES/CONFLICTS OF INTEREST

Dr. Suchowersky has received consulting fees from Teva, speaker fees from GlaxoSmith-Kline, and research funds from Boehringer Ingelheim, Kyowa, Merck, Amarin, Cephalon, Swartz-Pharma, and Solstice Neuroscience. Dr. Reich has received research funds from Guilford Pharmaceuticals and Cephalon. Dr. Perlmutter has received unrestricted educational funds from Medtronic. Dr. Zesiewicz has received consulting fees from UCB Pharma and Schwartz Pharma, speaker fees from Boehringer Ingelheim, GlaxoSmithKline, Novartis and Medtronic, and research funds from Boehringer Ingelheim, GlaxoSmithKline, Novartis and Merck. Dr. Weiner is a consultant for Teva, a speaker for Boehringer Ingelheim, and has received research funds from Boehringer Ingelheim and Teva. Dr. Gronseth has nothing to disclose.

ENDORSER(S)

National Parkinson Foundation - Disease Specific Society
Parkinson's Disease Foundation - Disease Specific Society

GUIDELINE STATUS

This is the current release of the guideline.

GUIDELINE AVAILABILITY

Electronic copies: A list of American Academy of Neurology (AAN) guidelines, along with a link to a Portable Document Format (PDF) file for this guideline, is available at the AAN Web site.

Print copies: Available from the AAN Member Services Center, (800) 879-1960, or from AAN, 1080 Montreal Avenue, St. Paul, MN 55116.

AVAILABILITY OF COMPANION DOCUMENTS

The following are available:

- AAN guideline development process [online]. St. Paul (MN): American Academy of Neurology. Electronic copies: Available from the American Academy of Neurology Web site.
- Practice parameter: diagnosis and prognosis for new onset Parkinson disease. AAN summary of evidence-based guidelines for clinicians. St. Paul (MN): American Academy of Neurology. 2006. 2 p. Available in Portable Document Format (PDF) from the AAN Web site.
- Practice parameter: diagnosis and prognosis for new onset Parkinson disease. St. Paul (MN): American Academy of Neurology. 2006. 12 p. Available for personal digital assistant (PDA) download from the AAN Web site.

PATIENT RESOURCES

The following is available:

- Diagnosis, prognosis, and treatments for newly diagnosed Parkinson disease. AAN guideline summary for patients and their families. St. Paul (MN): American Academy of Neurology (AAN). 2 p.

Electronic copies: Available in Portable Document Format (PDF) from the AAN Web site.

Please note: This patient information is intended to provide health professionals with information to share with their patients to help them better understand their health and their diagnosed disorders. By providing access to this patient information, it is not the intention of NGC to provide specific medical advice for particular patients. Rather we urge patients and their representatives to review this material and then to consult with a licensed health professional for evaluation of treatment options suitable for them as well as for diagnosis and answers to their personal medical questions. This patient information has been derived and prepared from a guideline for health care professionals included on NGC by the authors or publishers of that original guideline. The patient information is not reviewed by NGC to establish whether or not it accurately reflects the original guideline's content.

NGC STATUS

This NGC summary was completed by ECRI on June 5, 2006. The information was verified by the guideline developer on September 26, 2006.

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Date Modified: 11/3/2008