Complete Summary

GUIDELINE TITLE

Practice parameter: evaluation of children and adolescents with recurrent headaches: report of the Quality Standards Subcommittee of the American Academy of Neurology and the Practice Committee of the Child Neurology Society.

BIBLIOGRAPHIC SOURCE(S)

Lewis DW, Ashwal S, Dahl G, Dorbad D, Hirtz D, Prensky A, Jarjour I. Practice parameter: evaluation of children and adolescents with recurrent headaches: report of the Quality Standards Subcommittee of the American Academy of Neurology and the Practice Committee of the Child Neurology Society. Neurology 2002 Aug 27;59(4):490-8. PubMed

GUIDELINE STATUS

This is the current release of the guideline.

According to the guideline developer, this guideline has been reviewed and is still considered to be current as of October 2005. This review involved new literature searches of electronic databases followed by expert committee review of new evidence that has emerged since the original publication date.

COMPLETE SUMMARY CONTENT

SCOPE
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SCOPE

DISEASE/CONDITION(S)

Recurrent headaches unassociated with trauma, fever, or other obvious provocative causes

GUIDELINE CATEGORY

Diagnosis
Evaluation

CLINICAL SPECIALTY

Family Practice
Neurology
Pediatrics

INTENDED USERS

Physicians

GUIDELINE OBJECTIVE(S)

To review available evidence concerning the value of diagnostic testing in children and adolescents who report recurrent headache and provide recommendations based upon this evidence

TARGET POPULATION

Children, 3 to 18 years old, who present for the evaluation of recurrent headache unassociated with trauma, fever, or other obvious provocative causes

INTERVENTIONS AND PRACTICES CONSIDERED

Evaluation/Diagnosis

1. Medical history
2. Physical examination with measurement of vital signs and complete neurologic examination
3. Diagnostic testing (routine laboratory testing, cerebrospinal fluid [CSF] examination, electroencephalogram [EEG], neuroimaging with computed tomography [CT], or magnetic resonance imaging [MRI])

Note: Guideline developers did not recommend *routine* diagnostic testing using any of the above listed diagnostic tests.

MAJOR OUTCOMES CONSIDERED

- Predictive value of diagnostic testing
- Percentage of patients who had or developed seizures in children with recurrent headaches

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

Computer-assisted literature searches were conducted with the assistance of the University of Minnesota Biomedical Information Services Research Librarian for relevant articles published from 1980 to 2000. Databases searched included MEDLINE and CURRENT CONTENTS using the following key words: headache, migraine, tension-type headache, electroencephalography, computed tomography, magnetic resonance imaging, blood chemical analysis, neurological examination, diagnostic errors. In addition, the database provided by CURRENT CONTENTS was searched for the most recent 6-month period. Five selected articles published before 1980 that were found in bibliographies of recent publications also were included, as they contained important epidemiologic data from large case series of children. The age qualifier of 3 to 18 years was selected, as this is the age group, based on previous literature, when most children are seen for pediatric or neurologic evaluation. Searches included titles from English and non-English language journals. Only those articles reporting studies with more than 25 patients were included. Articles consisting of single patient case reports or small samples of unusual pathologic findings, which would have biased the analysis, were excluded. Only studies that contained information about the patients´ neurologic examinations were included. Relevant position papers from professional organizations also were reviewed.

Individual committee members reviewed titles and abstracts for content and relevance. Those articles dealing with investigations of headache with reference to determining a possible etiology were selected for further detailed review. Bibliographies of the articles cited were checked for additional pertinent references.

NUMBER OF SOURCE DOCUMENTS

A bibliography of 398 articles were identified and reviewed for preparation of this parameter.

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

Level of Evidence

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 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.

Class II: Evidence provided by a prospective study of a narrow spectrum of persons who may be at risk for developing the outcome, or by a retrospective study of a broad spectrum of persons with the outcome compared to a broad spectrum of control subjects. The study measures the predictive ability 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 control subjects are of a narrow spectrum. The study measures the predictive ability using an acceptable independent gold standard for case definition. The risk factor is measured in an evaluation that is masked to the outcome.

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

METHODS USED TO ANALYZE THE EVIDENCE

Meta-Analysis of Randomized Controlled Trials
Systematic Review with Evidence Tables

DESCRIPTION OF THE METHODS USED TO ANALYZE THE EVIDENCE

Each of the selected articles was reviewed, abstracted, and classified by at least two committee members. Abstracted data included the number of patients, age, sex, nature of subject selection, case-finding methods (prospective, retrospective, or referral), inclusion and exclusion criteria, headache type and characteristics, neurologic examination, and the results of laboratory, electroencephalogram (EEG), or neuroimaging tests.

A four-tiered classification scheme for diagnostic evidence recently approved by the Quality Standards Subcommittee was used as part of this assessment. Depending on the strength of this evidence, it was decided whether specific recommendations could be made and, if so, the strength of these recommendations. Evidence pertinent to each diagnostic test together with the committee's evidenced-based recommendations is presented.

Meta-Analysis

Data analysis was based on eight studies. In evaluating electroencephalogram (EEG) abnormalities, a migraine group was compared to an "all" headache group using a chi-square analysis (Pearson coefficient) with p significant at <0.05 [SPSS Statistics for Windows] (SPSS Inc., Release 6.0, Chicago, IL).

METHODS USED TO FORMULATE THE RECOMMENDATIONS

Not stated

RATING SCHEME FOR THE STRENGTH OF THE RECOMMENDATIONS

Translation of Evidence to Recommendations

Level A rating requires at least one convincing class I study or at least two consistent, convincing class II studies.

Level B rating requires at least one convincing class II study or overwhelming class III evidence.

Level C rating requires at least two convincing class III studies.

Rating of Recommendation

A = Established as useful/predictive or not useful/predictive for the given condition in the specified population.

B = Probably useful/predictive or not useful/predictive for the given condition in the specified population.

C = Possibly useful/predictive or not useful/predictive for the given condition in the specified population.

U = Data inadequate or conflicting. Given current knowledge, test, predictor is unproven.

COST ANALYSIS

Guideline developers reviewed one report that analyzed the cost-effectiveness of a diagnostic imaging strategy in children with headache who were suspected of having a brain tumor. Patients were stratified into low-, intermediate-, and high-risk groups based upon clinical predictors obtained from medical history and physical examinations. The probability of brain tumor in the three groups was calculated to be: 0.01% for low, 0.4% for intermediate, and 4% for high risk groups. The highest yield and most reasonable cost-effectiveness was found only in the high risk group, those children with headache for <6 months and at least one other predictor of a "surgical space-occupying lesion," including sleep-related headache, vomiting, confusion, absence of visual aura, absence of a family history of migraine, and abnormal neurologic examination.

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 (AAN) members, topic experts, and pertinent physician organizations.

Final guidelines were approved by the American Academy of Electrodiagnostic Medicine Board of Directors on January 30, 2002, the American Academy of Neurology (AAN) Quality Standards Subcommittee on December 8, 2001, and the American Academy of Neurology Board of Directors on February 23, 2002. These guidelines were endorsed by the American Academy of Physical Medicine and Rehabilitation (AAPM&R) Practice Guideline Committee on February 4, 2002, and the American Academy of Physical Medicine and Rehabilitation Board of Governors on February 20, 2002. They were published in *Neurology* 2002;59(4):490-8.

RECOMMENDATIONS

MAJOR RECOMMENDATIONS

Definitions of the levels of evidence (Class I-IV), translation of evidence to recommendations (levels A-C), and rating of strength of recommendation (A, B, C, U) are provided at the end of the Major Recommendations field.

Laboratory Studies and Lumber Puncture

Should laboratory studies, including lumbar puncture, be performed in children with recurrent headache?

Recommendations: There is inadequate documentation in the literature to support any recommendation as to the value of routine laboratory studies or performance of routine lumbar puncture in the evaluation of recurrent headache in children (***Level U recommendation; Class IV evidence***).

Should an electroencephalogram (EEG) be performed in children with recurrent headaches?

Recommendations:

1. EEG is not recommended in the routine evaluation of a child with recurrent headaches, as it is unlikely to provide an etiology, improve diagnostic yield, or distinguish migraine from other types of headaches (***Level C recommendation; Class II and Class III evidence***).
2. Although the risk of future seizures is negligible in children with recurrent headache and paroxysmal EEG, future investigations for epilepsy should be determined by clinical follow up (***Level C recommendation; Class II and Class III evidence***).

Neuroimaging

Should computed tomography (CT) or magnetic resonance imaging (MRI) be performed in children with recurrent headaches?

Recommendations:

1. Obtaining a neuroimaging study on a routine basis is not indicated in children with recurrent headaches and a normal neurologic examination (***Level B recommendation; Class II and Class III evidence***).
2. Neuroimaging should be considered in children with an abnormal neurologic examination (e.g., focal findings, signs of increased intracranial pressure, significant alteration of consciousness), the co-existence of seizures, or both. (***Level B recommendation; Class II and Class III evidence***).
3. Neuroimaging should be considered in children in whom there are historical features to suggest the recent onset of severe headache, change in the type of headache or if there are associated features that suggest neurologic dysfunction (***Level B recommendation; Class II and Class III evidence***).

Definitions:

Level of Evidence

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 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.

Class II: Evidence provided by a prospective study of a narrow spectrum of persons who may be at risk for developing the outcome, or by a retrospective study of a broad spectrum of persons with the outcome compared to a broad spectrum of control subjects. The study measures the predictive ability 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 control subjects are of a narrow spectrum. The study measures the predictive ability using an acceptable independent gold standard for case definition. The risk factor is measured in an evaluation that is masked to the outcome.

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

Translation of Evidence to Recommendations

Level A rating requires at least one convincing class I study or at least two consistent, convincing class II studies.

Level B rating requires at least one convincing class II study or overwhelming class III evidence.

Level C rating requires at least two convincing class III studies.

Rating of Recommendation

A = Established as useful/predictive or not useful/predictive for the given condition in the specified population.

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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 clinical decision making regarding the appropriate evaluation of children and adolescents with recurrent headaches.

POTENTIAL HARMS

Not stated

QUALIFYING STATEMENTS

QUALIFYING STATEMENTS

- This statement is provided as an educational service of the American Academy of Neurology (ANA) and the Child Neurology Society (CNS). 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 American Academy of Neurology and the Child Neurology Society recognize 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.

- There is a lack of consensus concerning the role of diagnostic testing including routine laboratory testing, cerebrospinal fluid (CSF) examination, electroencephalography (EEG), and neuroimaging with computed tomography (CT) or magnetic resonance imaging (MRI). This is due in large part to the lack of well-designed prospective studies involving sufficient numbers of patients with specifically defined types of headaches that could address these issues. Such information would be extremely valuable for patients, their families, and their physicians in developing effective evaluation strategies.

IMPLEMENTATION OF THE GUIDELINE

DESCRIPTION OF IMPLEMENTATION STRATEGY

An implementation strategy was not provided.

INSTITUTE OF MEDICINE (IOM) NATIONAL HEALTHCARE QUALITY REPORT CATEGORIES

IOM CARE NEED

Living with Illness

IOM DOMAIN

Effectiveness

IDENTIFYING INFORMATION AND AVAILABILITY

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ADAPTATION

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

DATE RELEASED

2002 Aug 27 (reviewed 2005 Oct)

GUIDELINE DEVELOPER(S)

American Academy of Neurology - Medical Specialty Society
Child Neurology Society - Medical Specialty Society

SOURCE(S) OF FUNDING

American Academy of Neurology (AAN)

GUIDELINE COMMITTEE

Quality Standards Subcommittee of the American Academy of Neurology Practice Committee of the Child Neurology Society

COMPOSITION OF GROUP THAT AUTHORED THE GUIDELINE

American Academy of Neurology (AAN) Quality Standards Subcommittee Members: Gary Franklin, MD, MPH (Co-Chair); Catherine Zahn, MD (Co-Chair); Milton Alter, MD, PhD; Stephen Ashwal, MD (facilitator); Richard M. Dubinsky, MD; Jacqueline French, MD; Gary Friday, MD; Michael Glantz, MD; Gary Gronseth, MD; Deborah Hirtz, MD; Robert G. Miller, MD; David J. Thurman, MD; and William Weiner, MD

Child Neurology Society Practice Committee Members: Carmela Tardo, MD (Chair); Bruce Cohen, MD (Vice-Chair); Elias Chalhub, MD; Roy Elterman, MD; Murray Engel, MD; Bhuwan P. Garg, MD; Brian Grabert, MD; Annette Grefe, MD; Michael Goldstein, MD; David Griesemer, MD; Betty Koo, MD; Edward Kovnar, MD; Leslie Anne Morrison, MD; Colette Parker, MD; Ben Renfroe, MD; Anthony Riela, MD; Michael Shevell, MD; Shlomo Shinnar, MD; Gerald Silverboard, MD; Russell Snyder, MD; Dean Timmns, MD; Greg Yim, MD; Mary Anne Whelan, MD

FINANCIAL DISCLOSURES/CONFLICTS OF INTEREST

Not stated

ENDORSER(S)

American Academy of Physical Medicine and Rehabilitation - Medical Specialty Society

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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 is available:

- AAN guideline development process [online]. St. Paul (MN): American Academy of Neurology.

Electronic copies: Available from the American Academy of Neurology Web site.

PATIENT RESOURCES

None available

NGC STATUS

This summary was completed by ECRI on February 6, 2004.

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