Complete Summary

GUIDELINE TITLE

Clinical policy: critical issues in the evaluation and management of patients presenting to the emergency department with acute headache.

BIBLIOGRAPHIC SOURCE(S)

American College of Emergency Physicians (ACEP). Clinical policy: critical issues in the evaluation and management of patients presenting to the emergency department with acute headache. Ann Emerg Med 2002 Jan;39(1):108-22. [49 references] PubMed

GUIDELINE STATUS

This is the current release of the guideline.

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SCOPE

DISEASE/CONDITION(S)

Acute headache

GUIDELINE CATEGORY

Diagnosis
Evaluation
Management

CLINICAL SPECIALTY

Emergency Medicine
Family Practice
Internal Medicine
Neurology
Radiology

INTENDED USERS

Physicians

GUIDELINE OBJECTIVE(S)

To present recommendations (clinical policy) on the evaluation and management of patients presenting to the emergency department with acute headache, including:

- Response to headache therapy as an indicator of underlying pathology
- Clinical findings predictive of increased intracranial pressure
- Indications for emergent neuroimaging in patients with a complaint of headache
- Indications to pursue emergent diagnostic studies in patients with thunderclap headache but with normal findings on a head computed tomography (CT) scan and negative findings on a lumbar puncture

TARGET POPULATION

Patients presenting to the emergency department (ED) with acute headache

INTERVENTIONS AND PRACTICES CONSIDERED

1. History and physical examination, including neurologic examination
2. Assessment of pain response to therapy as a diagnostic indicator of the underlying etiology of an acute headache
3. Lumbar puncture with cerebrospinal fluid (CSF) analysis (with and without a neuroimaging study)
4. Neuroimaging: head computed tomography (CT) scan

Note: The guideline developers considered, but did not recommend emergent angiography in the patient with a "thunderclap headache" who has negative findings in a head computed tomography scan, normal opening pressure, and negative findings in CSF analysis.

MAJOR OUTCOMES CONSIDERED

- Value of pain response to therapy as a diagnostic indicator of underlying etiology of an acute headache
- Risk of herniation in lumbar punctures performed without a neuroimaging study in adult patients with a complaint of headache
- Positive predictive value of history and physical findings for positive neuroimaging results in patients with a headache who present in the emergency department (ED)

- Positive predictive value of angiography for aneurysmal disease in the patient with a "thunderclap headache" who has negative findings in both computed tomography (CT) and lumbar puncture (LP)

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

A MEDLINE search for articles published between January 1966 and December 1999 was performed using combinations of the following key words: headache and pathophysiology, or mechanisms: lumbar puncture or spinal tap, or dural puncture and herniation, or complications, or headache, or subarachnoid hemorrhage: headache and computed tomography, magnetic resonance imaging, or diagnostic testing: thunderclap headache and diagnostic testing or subarachnoid hemorrhage. Searches were limited to English-language sources. Additional papers were reviewed from the bibliography of articles cited. Recent journals and standard texts were also examined for additional sources.

NUMBER OF SOURCE DOCUMENTS

Not stated

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

Strength of Evidence

Class I: Interventional studies including clinical trials, observational studies including prospective cohort studies, aggregate studies including meta-analyses of randomized clinical trials only.

Class II: Observational studies including retrospective cohort studies, case-controlled studies, aggregate studies including other meta-analyses.

Class III: Descriptive cross-sectional studies, observational reports including case series, case reports; consensual studies including published panel consensus by acknowledged groups of experts.

Strength of evidence Class I and II articles were rated on elements the committee believed were most important in creating a quality work. Class I and II articles

with significant flaws or design bias were downgraded from 1 to 3 levels based on a set formula. Strength of evidence Class III articles were downgraded 1 level if they demonstrated significant flaws or bias. Articles down-graded below a Class III strength of evidence were given an "X" rating and were not used in formulating this policy.

METHODS USED TO ANALYZE THE EVIDENCE

Systematic Review with Evidence Tables

DESCRIPTION OF THE METHODS USED TO ANALYZE THE EVIDENCE

Articles were assembled into evidentiary tables that were used to answer questions posed in this clinical policy.

METHODS USED TO FORMULATE THE RECOMMENDATIONS

Expert Consensus

DESCRIPTION OF METHODS USED TO FORMULATE THE RECOMMENDATIONS

Recommendations regarding patient management were made according to the "strength of recommendation" criteria (see "Rating Scheme for the Strength of Recommendations.")

There are certain circumstances in which the recommendations stemming from the body of evidence should not be rated as highly as the individual studies on which they are based. Factors such as heterogeneity of results, uncertainty about effect magnitude and consequences, strength of prior beliefs, and publication bias, among others, might lead to such a downgrading of recommendations.

RATING SCHEME FOR THE STRENGTH OF THE RECOMMENDATIONS

Strength of Recommendations

Level A recommendations. Generally accepted principles for patient management that reflect a high degree of clinical certainty (i.e., based on "strength of evidence Class I" or overwhelming evidence from "strength of evidence Class II" studies that directly address all the issues).

Level B recommendations. Recommendations for patient management that may identify a particular strategy or range of management strategies that reflect moderate clinical certainty (i.e., based on "strength of evidence Class II" studies that directly address the issue, decision analysis that directly addresses the issue, or strong consensus of "strength of evidence Class III" studies).

Level C recommendations. Other strategies for patient management based on preliminary, inconclusive, or conflicting evidence, or, in the absence of any published literature, based on panel consensus.

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

Expert review comments were received from emergency physicians; physicians from other specialties, such as neurologists; and specialty societies, including members of the American Academy of Family Physicians, American Academy of Neurology (AAN), American Headache Society, American Society of Neuroimaging, and the National Headache Foundation. Their responses were used to further refine and enhance this policy.

The American College of Emergency Physicians (ACEP) Board of Directors approved the guideline recommendations on September 11, 2001.

RECOMMENDATIONS

MAJOR RECOMMENDATIONS

Definitions for the strength of evidence (Class I-III) and strength of recommendations (Level A-C) are repeated at the end of the Major Recommendations.

I. Does a Response to Therapy Predict the Etiology of an Acute Headache?

   Patient Management Recommendations.

   Level A recommendations. None specified.

   Level B recommendations. None specified.

   Level C recommendations. Pain response to therapy should not be used as the sole diagnostic indicator of the underlying etiology of an acute headache.

II. In Which Adult Patients with a Complaint of Headache Can a Lumbar Puncture (LP) be Safely Performed without a Neuroimaging Study?

   Patient Management Recommendations.

   Level A recommendations. None specified.

   Level B recommendations. None specified.

Level C recommendations. Adult patients with headache exhibiting signs of increased intracranial pressure including papilledema, absent venous pulsations on funduscopic examination, altered mental status, or focal neurologic deficits should undergo a neuroimaging study before having an LP.

In the absence of findings suggestive of increased intracranial pressure, an LP can be performed without obtaining a neuroimaging study. (Note: An LP does not assess for all causes of a sudden severe headache.)

III. Which Patients with Headache Require Neuroimaging in the Emergency Department (ED)?

Patient Management Recommendations.

Level A recommendations. None specified.

Level B recommendations. Patients presenting to the emergency department with headache and abnormal findings in a neurologic examination (i.e., focal deficit, altered mental status, altered cognitive function) should undergo emergent* noncontrast head computed tomography (CT) scan.

Patients presenting with acute sudden-onset headache should be considered for an emergent* head computed tomography scan.

Human immunodeficiency virus (HIV)-positive patients with a new type of headache should be considered for an urgent* neuroimaging study.

*Emergent studies are those essential for a timely decision regarding potentially life-threatening or severely disabling entities. Urgent studies are those that are arranged prior to discharge from the emergency department (scan appointment is included in the disposition) or performed prior to disposition when follow-up cannot be assured.

Level C recommendations. Patients who are older than 50 years presenting with new type of headache without abnormal findings in a neurologic examination should be considered for an urgent neuroimaging study.

IV. Is There a Need for Emergent Angiography in the Patient with a "Thunderclap Headache" who has Negative Findings in Both Computed Tomography (CT) and LP?

Patient Management Recommendations.

Level A recommendations. None specified.

Level B recommendations. None specified.

Level C recommendations. Patients with a thunderclap headache who have negative findings in a head computed tomography scan, normal opening pressure, and negative findings in cerebrospinal fluid (CSF) analysis do not need emergent angiography and can be discharged from the emergency

department with follow-up arranged with their primary care provider or neurologist.

Definitions:

Strength of Evidence

Class I: Interventional studies including clinical trials, observational studies including prospective cohort studies, aggregate studies including meta-analyses of randomized clinical trials only.

Class II: Observational studies including retrospective cohort studies, case-controlled studies, aggregate studies including other meta-analyses.

Class III: Descriptive cross-sectional studies, observational reports including case series, case reports; consensual studies including published panel consensus by acknowledged groups of experts.

Strength of Recommendations

Level A recommendations. Generally accepted principles for patient management that reflect a high degree of clinical certainty (i.e., based on "strength of evidence Class I" or overwhelming evidence from "strength of evidence Class II" studies that directly address all the issues).

Level B recommendations. Recommendations for patient management that may identify a particular strategy or range of management strategies that reflect moderate clinical certainty (i.e., based on "strength of evidence Class II" studies that directly address the issue, decision analysis that directly addresses the issue, or strong consensus of "strength of evidence Class III" studies).

Level C recommendations. Other strategies for patient management based on preliminary, inconclusive, or conflicting evidence, or, in the absence of any published literature, based on panel consensus.

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

Guideline recommendations can assist clinicians with appropriate and safe evaluation and management of patients presenting to the emergency department (ED) with acute headache.

POTENTIAL HARMS

Diagnostic procedures can result in adverse effects. For example, lumbar puncture can result in herniation (in patients with increased intracranial pressure) and a post-dural puncture headache.

QUALIFYING STATEMENTS

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This policy is not intended to be a complete manual on the initial evaluation and management of patients with headache. Specifically, some areas of interest to the practicing emergency physician were not addressed because committee members believed either that there was not enough evidence to pursue an analysis of the topic or that the topic had been extensively discussed in recent literature and did not warrant additional discussion at this time. An example of this is the sensitivity of computed tomography (CT) in diagnosing subarachnoid hemorrhage (SAH).

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

Getting Better

IOM DOMAIN

Effectiveness
Timeliness

IDENTIFYING INFORMATION AND AVAILABILITY

BIBLIOGRAPHIC SOURCE(S)

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ADAPTATION

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

DATE RELEASED

2002

GUIDELINE DEVELOPER(S)

American College of Emergency Physicians - Medical Specialty Society

SOURCE(S) OF FUNDING

American College of Emergency Physicians

GUIDELINE COMMITTEE

American College of Emergency Physicians (ACEP) Clinical Policies Subcommittee on Acute Headache

ACEP Clinical Policies Committee

COMPOSITION OF GROUP THAT AUTHORED THE GUIDELINE

Members of the Clinical Policies Subcommittee on Acute Headache: Andy S. Jagoda, MD (Chair); William C. Dalsey, MD; Phillip G. Fairweather, MD; Steven A. Godwin, MD; Devorah Nazarian, MD

Members of the Clinical Policies Committee: Stephen V. Cantrill, MD (Chair 1996-2000); William C. Dalsey, MD (Chair 2000-2001); Stephen A. Colucciello, MD; Wyatt W. Decker, MD; Francis M. Fesmire, MD; Steven A. Godwin, MD; John M. Howell, MD; Alan H. Itzkowitz, MD (EMRA Representative 2000-2001); Andy S. Jagoda, MD; Stephen Karas, Jr., MD; Edwin K. Kuffner, MD; Thomas W. Lukens, MD, PhD; Thomas P. Martin, MD; Jessie Moore, RN, MSN, CEN (ENA Representative 2000-2001); David L. Morgan, MD; Barbara A. Murphy, MD; Scott M. Silvers, MD (EMRA Representative 1999-2000, Member 2000-2001); Bonnie Simmons, DO; Suzanne Wall, RNC, MS, CEN (ENA Representative 1999-2000); Robert L. Wears, MD, MS; George W. Molzen, MD (Board Liaison 1997-2000); Robert E. Suter, DO, MHA (Board Liaison 2000-2001); Rhonda Whitson, RHIA, Staff Liaison, Clinical Policies Committee and Subcommittees

FINANCIAL DISCLOSURES/CONFLICTS OF INTEREST

Not stated

GUIDELINE STATUS

This is the current release of the guideline.

GUIDELINE AVAILABILITY

Electronic copies: Available in Portable Document Format (PDF) from the American College of Emergency Physicians Web site.

Print copies: Available from the American College of Emergency Physicians, ACEP Customer Service Department, P.O. Box 619911, Dallas, TX 75261-9911, or call toll free (800) 798-1822, touch 6.

AVAILABILITY OF COMPANION DOCUMENTS

None available

PATIENT RESOURCES

None available

NGC STATUS

This NGC summary was completed by ECRI on January 29, 2003. The information was verified by the guideline developer on March 13, 2003.

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