



Complete Summary

GUIDELINE TITLE

EFNS guideline on the diagnosis and management of alcohol-related seizures:
Report of an EFNS task force.

BIBLIOGRAPHIC SOURCE(S)

Brathen G, Ben-Menachem E, Brodtkorb E, Galvin R, Garcia-Monco JC, Halasz P, Hillbom M, Leone MA, Young AB, EFNS Task Force on Diagnosis and Treatment of Alcohol-Related Seizures. EFNS guideline on the diagnosis and management of alcohol-related seizures: report of an EFNS task force. Vienna, Austria: European Federation of Neurological Societies (EFNS); 2005. 30 p. [73 references]

GUIDELINE STATUS

This is the current release of the guideline.

COMPLETE SUMMARY CONTENT

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SCOPE

DISEASE/CONDITION(S)

Alcohol-related seizures

GUIDELINE CATEGORY

Diagnosis
Evaluation
Management
Prevention
Treatment

CLINICAL SPECIALTY

Emergency Medicine
Family Practice
Internal Medicine
Neurology

INTENDED USERS

Emergency Medical Technicians/Paramedics
Physicians
Substance Use Disorders Treatment Providers

GUIDELINE OBJECTIVE(S)

To summarize the current evidence for the diagnosis and management of alcohol-related seizures

TARGET POPULATION

Individuals with alcohol-related seizures

INTERVENTIONS AND PRACTICES CONSIDERED

Diagnosis/Evaluation

1. Drinking history
2. Questionnaires (e.g., the Alcohol Use Disorders Identification Test [AUDIT], CAGE)
3. Biomarkers (carbohydrate-deficient transferrin [CDT], gammaglutamyl transferase [GGT])
4. Blood alcohol measurement
5. Patient examination and observation (Clinical Institute Withdrawal Assessment Scale [CIWA-Ar])
6. Neuroimaging (computed tomography [CT] or magnetic resonance imaging [MRI]) and re-imaging if necessary
7. Electroencephalogram (EEG)

Management/Treatment/Prevention

1. Prophylactic thiamine therapy
2. Hospitalization and observation for at least 24 hours
3. Supportive treatment (e.g., calm, reassuring atmosphere, dim light, coffee restriction, hydration)
4. Benzodiazepines (e.g., diazepam, lorazepam) for treatment and primary and secondary seizure prevention

MAJOR OUTCOMES CONSIDERED

- Accuracy, sensitivity, and specificity of diagnostic tests
- Complications of alcohol overuse

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

The task force systematically searched MEDLINE (1966 to August 2004) and EMBASE (1974 to May 2004) using the key words *alcohol* or *ethanol* or *substance withdrawal* and *seizures* or *convulsions* both directly and as part of a specific Medical Subject Heading (MESH) strategy. Separate MEDLINE and EMBASE searches for papers on biomarkers of alcohol abuse were performed using the search criteria (*Biomarkers* OR *gammaglutamyl transferase* OR *Carbohydrate-deficient transferrin*) AND (*seizures* OR *convulsions*). A third set of searches was done for questionnaires for detection of alcohol overuse and withdrawal, using the search string (*Questionnaire** OR *AUDIT* OR *MAST* OR *FAST* OR *MALT* OR *CAGE*) AND (*Seizures* OR *Convulsions*).

Searches for systematic reviews and trials were performed in the Cochrane review database and the Cochrane central register of controlled trials, The Scottish Intercollegiate Guidelines Network (SIGN), the Agence Nationale d'Accreditation et d'Evaluation en Santé, the National Institute on Alcohol Abuse and Alcoholism (NIAAA), and the US Governmental Agency for Healthcare Research and Quality; all by using the key words from the main search. All these searches were updated in September, 2004.

The Task Force searched for articles in English, Finnish, French, German, Italian, Spanish, and the Scandinavian languages. Reference lists of recent papers of high relevance were reviewed. Non-indexed material (e.g. national practice guidelines and national research institute or governmental publications) were collected, but not systematically searched for.

The present guidelines are based on data from randomised controlled trials (RCTs), where such information exists. For questions not sufficiently addressed by RCTs, other types of articles were reviewed.

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

Evidence Classification Scheme for a Diagnostic Measure

Class I: A prospective study in a broad spectrum of persons with the suspected condition, using a "gold standard" for case definition, where the test is applied in a blinded evaluation, and enabling the assessment of appropriate tests of diagnostic accuracy

Class II: 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 test is applied in a blinded evaluation

Class IV: Any design where test is not applied in blinded evaluation OR evidence provided by expert opinion alone or in descriptive case series (without controls)

Evidence Classification Scheme for a Therapeutic Intervention

Class I: An adequately powered prospective, randomized, controlled clinical trial with masked outcome assessment in a representative population or an adequately powered systematic review of prospective randomized controlled clinical trials with masked outcome assessment in representative populations. The following are required:

- a. Randomization concealment
- b. Primary outcome(s) is/are clearly defined
- c. Exclusion/inclusion criteria are clearly defined
- d. Adequate accounting for dropouts and crossovers with numbers sufficiently low to have minimal potential for bias
- e. Relevant baseline characteristics are presented and substantially equivalent among treatment groups or there is appropriate statistical adjustment for differences

Class II: Prospective matched-group cohort study in a representative population with masked outcome assessment that meets a–e above or a randomized, controlled trial in a representative population that lacks one criteria a–e

Class III: All other controlled trials (including well-defined natural history controls or patients serving as own controls) in a representative population, where outcome assessment is independent of patient treatment

Class IV: Evidence from uncontrolled studies, case series, case reports, or expert opinion

METHODS USED TO ANALYZE THE EVIDENCE

DESCRIPTION OF THE METHODS USED TO ANALYZE THE EVIDENCE

Papers on health care interventions and diagnostic tests were graded by quality and formed basis for grading of the recommendations (levels A to C) according to the strength of evidence for each recommendation.

METHODS USED TO FORMULATE THE RECOMMENDATIONS

Expert Consensus

DESCRIPTION OF METHODS USED TO FORMULATE THE RECOMMENDATIONS

Consensus was reached by discussions during meetings of the Task Force at European Federation of Neurological Societies (EFNS) congresses and at a separate workshop. The evidence and recommendation levels are graded according to the current guidance (see the "Rating Scheme for the Strength of the Evidence" and the "Rating Scheme for the Strength of the Recommendations" fields). Some important aspects of patient management that lack the evidence required for recommendations have been included; these are marked GPP, for "Good Practice Points".

Method for Reaching Consensus

Subsequent to the initial literature search, the Task Force arranged a workshop in March, 2003, in order to review the literature and obtain consensus on pre-defined, central clinical topics. Four members of the Task Force participated to the workshop, in which consensus was reached on basis of the strength of the available evidence. The results were then subject to e-mail discussions amongst all members. For several important topics, the Task Force did not find sufficient evidence and thus, no recommendation is given. Nevertheless, important topics that lack evidence are being discussed, and the text in these cases reflects the consensus of the Task Force members. No controversies remain in the final document.

RATING SCHEME FOR THE STRENGTH OF THE RECOMMENDATIONS

Rating of Recommendations for a Diagnostic Measure

Level A rating (established as useful/predictive or not useful/predictive) requires at least one convincing class I study or at least two consistent, convincing class II studies.

Level B rating (established as probably useful/predictive or not useful/predictive) requires at least one convincing class II study or overwhelming class III evidence.

Level C rating (established as possibly useful/predictive or not useful/predictive) requires at least two convincing class III studies.

Rating of Recommendations for a Therapeutic Intervention

Level A rating (established as effective, ineffective, or harmful) requires at least one convincing class I study or at least two consistent, convincing class II studies.

Level B rating (probably effective, ineffective, or harmful) requires at least one convincing class II study or overwhelming class III evidence.

Level C rating (possibly effective, ineffective, or harmful) requires at least two convincing class III studies.

Good Practice Points (GPPs) Where there was lack of evidence but consensus was clear the Task Force members have stated their opinion as good practice points

COST ANALYSIS

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

METHOD OF GUIDELINE VALIDATION

Peer Review

DESCRIPTION OF METHOD OF GUIDELINE VALIDATION

The guidelines were validated according to the European Federation of Neurological Societies (EFNS) criteria (Hughes RAC, Barnes MP, Baron J, Brainin M [2001]. Guidance for the preparation of neurological management guidelines by EFNS scientific task forces. *Eur J Neurol* 8:549-550).

RECOMMENDATIONS

MAJOR RECOMMENDATIONS

The levels of evidence (class I-IV) supporting the recommendations and ratings of recommendations (A-C, Good Practice Point [GPP]) are defined at the end of the "Major Recommendations" field.

Diagnosis of Alcohol-Related Seizures

History Taking

A good drinking history includes both the quantity and frequency of alcohol intake and changes in drinking pattern, at least during the previous five days, as well as the time of the last alcohol intake (**GPP**).

Questionnaires

Questionnaires offer high diagnostic accuracy for alcohol overuse (**level A recommendation**). To identify patients with alcohol-related seizures and binge drinking, brief versions of the Alcohol Use Disorders Identification Test (AUDIT) are recommended as they are accurate and easy to use in busy clinical settings (**level A recommendation**).

Biomarkers

Carbohydrate-deficient transferrin (CDT) and gammaglutamyl transferase (GGT) have a potential to support a clinical suspicion of alcohol overuse when the drinking history is inconclusive (**level A recommendation**). Due to poor accuracy in unselected populations, biomarkers should not be applied as general screening instruments (**level C recommendation**).

As the current intoxication level is important information with potential treatment consequences blood alcohol should be measured in patients with suspected alcohol-related seizures (**GPP**).

Patient Examination and Observation

More than 90% of alcohol withdrawal seizures occur within 48 hours of cessation of a prolonged drinking bout. Patients should be observed in hospital for at least 24 hours, after which a clinical risk assessment should be made with respect to development of symptoms of alcohol withdrawal (**GPP**).

The Clinical Institute Withdrawal Assessment (CIWA) questionnaire can be applied to grade the severity of withdrawal symptoms and give support to the decision on whether to keep or discharge the patient (**level A recommendation**).

Neuroimaging

Although it may seem obvious that a given seizure is alcohol-related, if it is a first known seizure, the patient should have brain imaging (computed tomography [CT] or magnetic resonance imaging [MRI]) without and with contrast (**level C recommendation**).

When patients present repeatedly with clinically typical alcohol-related seizures, re-imaging is not necessary, but changes in seizure type and frequency, seizure occurrence more than 48 hours after cessation of drinking, or other unusual features should prompt repeat neuroimaging (**GPP**).

Electroencephalography (EEG)

EEG should be recorded after a first seizure. Subsequent to repeated alcohol withdrawal seizures (AWS), EEG is considered necessary only if an alternative aetiology is suspected (**level C recommendation**).

Patient Management

Thiamine Therapy

Before starting any carbohydrate containing fluids or food, patients presenting with known or suspected alcohol overuse should be given prophylactic thiamine in the emergency room (**level B recommendation**).

For the treatment of imminent or manifest Wernicke's encephalopathy, uncontrolled trials and empirical clinical practice suggest a daily dose of at least 200 mg thiamine parenterally for minimum 3 to 5 days. In the guideline developers' experience, patients with Wernicke's encephalopathy may benefit from continued treatment for more than two weeks (**GPP**).

Should All Patients with Symptoms of Alcohol Withdrawal Be Offered Seizure Prophylactic Treatment?

For patients with no history of withdrawal seizures and mild to moderate withdrawal symptoms, routine seizure preventive treatment is not recommended (**level B recommendation**). Patients with severe alcohol withdrawal symptoms, regardless of seizure occurrence, should be treated pharmacologically (**level C recommendation**).

Drug Options for Primary Prevention of Alcohol Withdrawal Seizures

When pharmacological treatment is necessary, benzodiazepines should be chosen for the primary prevention of seizures in a person with alcohol withdrawal, as well as for treatment of the alcohol withdrawal syndrome. The drugs of choice are lorazepam and diazepam. Although lorazepam has some pharmacological advantages to diazepam, the differences are minor and, as intravenous (i.v.) lorazepam is largely unavailable in Europe, diazepam is recommended. Other drugs for detoxification should only be considered as add-ons (**level A recommendation**).

Secondary Prevention of Withdrawal Seizures

Benzodiazepines should be used for the secondary prevention of AWS (**level A recommendation**). Phenytoin is not recommended for prevention of AWS recurrence (**level A recommendation**). The efficacy of other antiepileptics for secondary prevention of AWS is undocumented.

Alcohol-Related Status Epilepticus

For the initial treatment of alcohol-related status epilepticus, i.v. lorazepam is safe and efficacious. When unavailable, i.v. diazepam is a good alternative (**level A recommendation**).

How Much Alcohol Can a Patient with Epilepsy Safely Consume?

For the majority of patients with partial epilepsy and controlled seizures, and in the absence of any history of alcohol overuse, an intake of 1 to 3 standard alcohol units, 1 to 3 times a week, is safe (**level B recommendation**).

Definitions:

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Rating of Recommendations for a Therapeutic Intervention

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Good Practice Points (GPPs) Important aspects of patient management lacking the evidence required for making a recommendation were marked good practice points.

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 selected recommendations (see "Major Recommendations").

BENEFITS/HARMS OF IMPLEMENTING THE GUIDELINE RECOMMENDATIONS

POTENTIAL BENEFITS

Appropriate diagnosis and management of alcohol-related seizures

POTENTIAL HARMS

Adverse Effects of Medications

Benzodiazepines with rapid onset of action (e.g., lorazepam, diazepam) seem to have higher overuse potential than those with slower onset of action.

QUALIFYING STATEMENTS

QUALIFYING STATEMENTS

- This guideline provides the view of an expert task force appointed by the Scientific Committee of the European Federation of Neurological Societies (EFNS). It represents a peer-reviewed statement of minimum desirable standards for the guidance of practice based on the best available evidence. It is not intended to have legally binding implications in individual cases.
- Despite being a considerable problem in neurological practice and responsible for one third of seizure-related admissions, there is little consensus as to the optimal investigation and management of alcohol related seizures. Furthermore, different treatment traditions and policies exist, and vary from country to country.

IMPLEMENTATION OF THE GUIDELINE

DESCRIPTION OF IMPLEMENTATION STRATEGY

The European Federation of Neurological Societies has a mailing list and all guideline papers go to national societies, national ministries of health, World Health Organisation, European Union, and a number of other destinations. Corporate support is recruited to buy large numbers of reprints of the guideline papers and permission is given to sponsoring companies to distribute the guideline papers from their commercial channels, provided there is no advertising attached.

IMPLEMENTATION TOOLS

Resources
Staff Training/Competency Material

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

Getting Better

IOM DOMAIN

Effectiveness
Timeliness

IDENTIFYING INFORMATION AND AVAILABILITY

BIBLIOGRAPHIC SOURCE(S)

Brathen G, Ben-Menachem E, Brodtkorb E, Galvin R, Garcia-Monco JC, Halasz P, Hillbom M, Leone MA, Young AB, EFNS Task Force on Diagnosis and Treatment of Alcohol-Related Seizures. EFNS guideline on the diagnosis and management of alcohol-related seizures: report of an EFNS task force. Vienna, Austria: European Federation of Neurological Societies (EFNS); 2005. 30 p. [73 references]

ADAPTATION

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

DATE RELEASED

2005

GUIDELINE DEVELOPER(S)

European Federation of Neurological Societies - Medical Specialty Society

SOURCE(S) OF FUNDING

European Federation of Neurological Societies

GUIDELINE COMMITTEE

European Federation of Neurological Societies Task Force on Diagnosis and Treatment of Alcohol-Related Seizures

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FINANCIAL DISCLOSURES/CONFLICTS OF INTEREST

None of the authors report conflicting interests.

GUIDELINE STATUS

This is the current release of the guideline.

GUIDELINE AVAILABILITY

Electronic copies: Available to registered users from the [European Federation of Neurological Societies Web site](#).

Print copies: Available from Dr Geir Bråthen, Department of Neurology and Clinical Neurophysiology, Trondheim University Hospital, N-7006 Trondheim, Norway; Phone: +47 72576006; Fax: +47 7257773; E-mail: geir.brathen@ntnu.no

AVAILABILITY OF COMPANION DOCUMENTS

The following are available:

- Brainin M, Barnes M, Baron JC, Gilhus NE, Hughes R, Selmaj K, Waldemar G; Guideline Standards Subcommittee of the EFNS Scientific Committee. Guidance for the preparation of neurological management guidelines by EFNS scientific task forces – revised recommendations 2004. Eur J Neurol. 2004 Sep;11(9):577-81. Electronic copies: Available in Portable Document Format (PDF) from the [European Federation of Neurological Societies Web site](#).
- Guideline papers. European Federation of Neurological Societies. Electronic copies: Available from the [European Federation of Neurological Societies Web site](#).
- Continuing Medical Education questions available from the [European Journal of Neurology Web site](#).
- Questionnaires for detection of alcohol overuse and the Addiction Research Foundation Clinical Institute Withdrawal Assessment for Alcohol (CIWA-Ar) are available from the [European Federation of Neurological Societies Web site](#).

PATIENT RESOURCES

None available

NGC STATUS

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