Complete Summary

GUIDELINE TITLE

Report of an EFNS task force on management of sleep disorders in neurologic disease (degenerative neurologic disorders and stroke).

BIBLIOGRAPHIC SOURCE(S)

Jennum P, Santamaria J, Members of the Task Force. Report of an EFNS task force on management of sleep disorders in neurologic disease (degenerative neurologic disorders and stroke). Eur J Neurol 2007 Nov;14(11):1189-200. [9 references] PubMed

GUIDELINE STATUS

This is the current release of the guideline.

COMPLETE SUMMARY CONTENT

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SCOPE

DISEASE/CONDITION(S)

Sleep disorders associated with degenerative neurologic disorders and stroke, including:

- Insomnias
- Sleep disorder breathing disorders
- Hypersomnias not due to a sleep-related breathing disorder
- Circadian rhythm sleep disorders
- Parasomnia
- Sleep-related movement disorders
- Isolated symptoms
- Other sleep disorders

Note: Sleep disorders associated with other areas (e.g., epilepsy, neuro-oncology, peripheral neuropathies, etc.) are not covered in this guideline.

GUIDELINE CATEGORY

Diagnosis
Evaluation
Management
Treatment

CLINICAL SPECIALTY

Cardiology
Family Practice
Internal Medicine
Neurology
Psychology
Pulmonary Medicine
Sleep Medicine

INTENDED USERS

Physicians
Psychologists/Non-physician Behavioral Health Clinicians
Respiratory Care Practitioners

GUIDELINE OBJECTIVE(S)

- To provide evidence- based recommendations in the management of sleep disorders associated with degenerative neurologic disorders and stroke
- To review the different sleep disorders occurring in degenerative neurologic diseases and stroke.
- To review the different methods of sleep evaluation available in these patients
- To report the evidence supporting that the evaluation and treatment of sleep disorders in patients with degenerative neurologic disorders and stroke improves the management of these diseases

TARGET POPULATION

Patients with sleep disorders associated with degenerative neurologic disorders and stroke

INTERVENTIONS AND PRACTICES CONSIDERED

Evaluation/Diagnosis

1. Polysomnography (PSG) (routine, extended, or video)
2. Full electroencephalography-PSG
3. Respiratory polygraphy
4. Limited-channel polygraphy: oximetry

Management/Treatment

1. Fixed-pressure continuous positive airway pressure (CPAP)/auto-adjusted CPAP
2. Bi-level PAP/variable PAP
3. Noninvasive positive pressure ventilation

MAJOR OUTCOMES CONSIDERED

- Prevalence sleep disorders
- Sensitivity and specificity of diagnostic tests
- Effectiveness of treatments: improvement in nocturnal respiratory abnormalities, daytime symptoms and function, and cognitive problems
- Quality of life
- Morbidity
- Mortality

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 reviewed the pertinent literature covering three main areas:

1. Tauopathies (Alzheimer's disease [AD], progressive supranuclear palsy [PSP] and corticobasal degeneration [CBD]).
2. Synucleinopathies (Parkinson's disease [PD], multiple system atrophy [MSA] and dementia with Lewy bodies [DLB]).
3. Stroke, amyotrophic lateral sclerosis (ALS), myotonic dystrophy, myasthenia gravis, and spinocerebellar ataxias.

Search Strategy

Several electronic databases were searched including MEDLINE, PubMed, EMBASE, WEB OF SCIENCE, Cochrane, Clinical Trials, National Library of Medicine, and National Guideline Clearinghouse. These were searched until October 2004 or as much of this range as possible looking for the different sleep disorders and symptoms in each of the most frequent or relevant degenerative neurologic disorders and stroke. Additional articles were sought by handsearching reference lists in standard textbooks and reviews in the field and by contacting academic centers in palliative care and pharmaceutical companies. Language is restricted to European languages.

Selection Criteria

Studies considered for inclusion were, when possible, randomized controlled trials of adult patients in any setting, suffering a neurodegenerative disorder (motor neuron disease, Parkinson's disease, multiple system atrophy, corticobasal degeneration, Alzheimer's disease/dementia), myotonic dystrophy, myasthenia gravis or stroke. There had to be an explicit complaint of insomnia, parasomnia or hypersomnia in study participants. Observational studies were also included. Sleep disorders have been described in several neurodegenerative diseases, but the Task Force have decided not to include them in this review because most are small case series and some lack polysomnography (PSG) recordings. An additional literature search was performed in August 2007, but no significant changes in the literature were identified, which substantially changed the conclusion in the report.

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

Review of Published Meta-Analyses
Systematic Review

DESCRIPTION OF THE METHODS USED TO ANALYZE THE EVIDENCE

Data Collection and Analysis

Abstracts were selected by the chairmen and independently inspected by individual members of the Task Force; full papers were obtained where necessary. A classification of the different studies according to evidence levels for therapeutic interventions and diagnostic measures were done in accordance with the European Federation of Neurological Societies (EFNS) guidance (see the "Rating Scheme for the Strength of the Evidence" and "Rating Scheme for the Strength of the Recommendations" fields) The panel discussed what possible diagnostic tests and healthcare interventions could be recommended in each particular disease.

Method for Reaching Consensus

Where there was uncertainty further discussion was sought by the panel. Data extraction and quality assessments were undertaken independently by the panel reviewers.

METHODS USED TO FORMULATE THE RECOMMENDATIONS

Expert Consensus

DESCRIPTION OF METHODS USED TO FORMULATE THE RECOMMENDATIONS

Not stated

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 Where there was a lack of evidence but consensus was clear, the Task Force has 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 (see the "Availability of Companion Documents" field in this summary).

RECOMMENDATIONS

MAJOR RECOMMENDATIONS

1. Patients with neurologic diseases often have significant sleep disorders which may affect both nocturnal sleep and daytime function with increased morbidity and even mortality. Many of these disorders are potentially treatable. Therefore, increased awareness should be directed toward sleep disorders in patient with neurodegenerative, cerebrovascular and neuromuscular diseases. Despite that, there are practically no grade A or B studies in this area.
2. A polysomnography (PSG) is usually a diagnostic minimum for the diagnoses of the most commonly reported sleep disorders in patients with neurologic diseases.
3. In patients with nocturnal motor and/behavior manifestations, a full video-PSG/video-electroencephalography (EEG)-PSG should be considered.
4. Respiratory polygraphy has a moderate sensitivity and specificity in the diagnosis of obstructive sleep apnea syndrome (OSAS) without neurologic diseases, but its value for diagnosis of other sleep-related breathing disorder (SBD) or in patients with OSAS with neurologic diseases has not been evaluated compared to gold standard PSG.
5. Limited channel polygraphy oximetry has a poor to moderate sensitivity-specificity for the identification of OSAS in patients without neurologic diseases. Oximetry cannot differentiate between obstructive and central sleep apnea or is insufficient to identify stridor. It is possible that oximetry has a role for the screening of hypoventilation in patients with neuromuscular weakness. Furthermore, oximetry may be useful for the control of continuous positive airway pressure (CPAP) treatment.
6. Patients with sleep-disordered breathing and muscle weakness and/or cardiac or pulmonary co-morbidity may present a sleep hypoventilation syndrome (SHVS), which manifests early as increased CO_2, hence $PaCO_2$ should be considered and controlled in such cases during sleep recordings.
7. Fixed pressure CPAP/auto-adjusted CPAP is the most effective treatment of OSAS. This probably also includes patients with OSAS and neurologic diseases. However, there is a need for further evaluation of the effect of CPAP in patients with OSAS and neurologic diseases.
8. Bi-level PAP/variable PAP, noninvasive positive pressure ventilation (NIPPV) and volumetric ventilation is useful for SBD-like central apneas, Cheyne-Stokes breathing, and alveolar hypoventilation.
9. There is a clear need for further studies focusing on the diagnostic procedures and treatment modalities in patients with sleep disorders and neurologic diseases.

CLINICAL ALGORITHM(S)

None provided

EVIDENCE SUPPORTING THE RECOMMENDATIONS

TYPE OF EVIDENCE SUPPORTING THE RECOMMENDATIONS

The type of supporting evidence is not specifically stated for each recommendation.

BENEFITS/HARMS OF IMPLEMENTING THE GUIDELINE RECOMMENDATIONS

POTENTIAL BENEFITS

Appropriate diagnosis and management of sleep disorders in patients with degenerative neurologic disorders and stroke

POTENTIAL HARMS

Not stated

QUALIFYING STATEMENTS

QUALIFYING STATEMENTS

- Diagnostic procedures and treatment of sleep disorders have developed considerably in recent years. Although these developments are important and emphasize that sleep alterations have an important role in many neurologic diseases, there is no systematic review of the existing evidence as to how far diagnostic and treatment interventions are beneficial for the management of those neurologic disorders.
- As "Management of sleep disorders in neurologic disease" would cover a too widespread an area and, in addition, would overlap with the work of other Task Forces already in progress (restless leg syndrome [RLS], narcolepsy, epilepsy, etc.), the current Guideline will focus on the prevalence, diagnostic procedures, indications and technique for the evaluation and treatment of sleep disorders in only two main areas in which important progress has been achieved in the last few years: neurodegenerative disorders and stroke with an emphasis on sleep breathing disorders in neurologic disease. Therefore, the guideline will not cover other important areas (sleep and epilepsy, neuro-oncology, peripheral neuropathies, prionopathies, headache, etc.). In addition, the special problems regarding sleep medicine in children will not be included.

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

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
Living with Illness

IOM DOMAIN

Effectiveness

IDENTIFYING INFORMATION AND AVAILABILITY

BIBLIOGRAPHIC SOURCE(S)

Jennum P, Santamaria J, Members of the Task Force. Report of an EFNS task force on management of sleep disorders in neurologic disease (degenerative neurologic disorders and stroke). Eur J Neurol 2007 Nov;14(11):1189-200. [9 references] PubMed

ADAPTATION

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

DATE RELEASED

2007 Nov

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 Management of Sleep Disorders in Neurologic Disease

COMPOSITION OF GROUP THAT AUTHORED THE GUIDELINE

Task Force Members: Poul Jennum, Denmark (*Chairman*); Joan Santamaria, Spain (*Chairman*); Claudio Bassetti, Switzerland; Peter Clarenbach, Germany; Birgit

Högl, Austria; Isabelle Arnulf, France; Robert Poirrier, Belgium; Karel Sonka, Czech Republic; Eva Svanborg, Sweden; Leja Dolenc-Groselj, Slovenia; Derya Kaynack, Turkey; Michel Kruger, Luxembourg; Antigone Papavasiliou, Greece; Paul Reading, UK; Zahary Zahariev; Bulgaria

FINANCIAL DISCLOSURES/CONFLICTS OF INTEREST

None reported

GUIDELINE STATUS

This is the current release of the guideline.

GUIDELINE AVAILABILITY

Electronic copies: Available to registered users of the European Federation of Neurological Societies Web site.

Print copies: Available from Dr Poul Jennum, Danish Centre of Sleep Medicine, Department of Clinical Neurophysiology, Glostrup University Hospital, DK 2600 Glostrup, Denmark (Phone: +45 43232505; E-mail: poje@glo.regionh.dk).

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.

PATIENT RESOURCES

None available

NGC STATUS

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