Complete Summary

GUIDELINE TITLE

EFNS task force on management of amyotrophic lateral sclerosis: guidelines for diagnosing and clinical care of patients and relatives. An evidence-based review with good practice points.

BIBLIOGRAPHIC SOURCE(S)

Andersen PM, Borasio GD, Dengler R, Hardiman O, Kollewe K, Leigh PN, Pradat PF, Silani V, Tomik B, EFNS Task Force on Diagnosis and Management of Amyotrophic Lateral. EFNS task force on management of amyotrophic lateral sclerosis: guidelines for diagnosing and clinical care of patients and relatives. Eur J Neurol 2005 Dec;12(12):921-38. [122 references] PubMed

GUIDELINE STATUS

This is the current release of the guideline.

** REGULATORY ALERT **

FDA WARNING/REGULATORY ALERT

Note from the National Guideline Clearinghouse: This guideline references a drug(s) for which important revised regulatory and/or warning information has been released.

- December 12, 2007, Carbamazepine: The U.S. Food and Drug Administration (FDA) has provided recommendations for screening that should be performed on specific patient populations before starting treatment with carbamazepine.
- May 2, 2007, Antidepressant drugs: Update to the existing black box warning on the prescribing information on all antidepressant medications to include warnings about the increased risks of suicidal thinking and behavior in young adults ages 18 to 24 years old during the first one to two months of treatment.

COMPLETE SUMMARY CONTENT

SCOPE

DISEASE/CONDITION(S)

Amyotrophic lateral sclerosis (ALS)

GUIDELINE CATEGORY

Counseling
Diagnosis
Evaluation
Management
Treatment

CLINICAL SPECIALTY

Family Practice
Gastroenterology
Internal Medicine
Neurology
Nutrition
Physical Medicine and Rehabilitation
Pulmonary Medicine
Speech-Language Pathology

INTENDED USERS

Advanced Practice Nurses
Allied Health Personnel
Dietitians
Occupational Therapists
Physical Therapists
Physicians
Respiratory Care Practitioners
Social Workers
Speech-Language Pathologists

GUIDELINE OBJECTIVE(S)

- To establish evidence-based and patient and carer centered guidelines for the optimal clinical approach to amyotrophic lateral sclerosis (ALS)
- To identify areas where further research is needed

TARGET POPULATION

Patients suspected of or diagnosed with amyotrophic lateral sclerosis (ALS) and their families

INTERVENTIONS AND PRACTICES CONSIDERED

Diagnosis/Evaluation

1. Clinical examination and assessment of signs and symptoms
2. Laboratory studies (e.g., blood, cerebrospinal fluid [CSF], urine)
3. Neurophysiology (e.g., electromyography [EMG], nerve conduction studies, maximal expiratory pressure [MEP])
4. Radiology (e.g., chest x-ray, magnetic resonance imaging [MRI] computed axial tomography[CAT], mammography)
5. Biopsy (muscle, nerve, bone marrow, lymph node)

Management

1. Communicating the diagnosis and discussing the implications
2. Regular appointments and contact with multidisciplinary care
3. Neuroprotective treatment with riluzole
4. Symptomatic treatment
    - Sialorrhea: hyoscine, atropine drops, glycopyrrolate, or amitriptyline; portable mechanical home suction device; botulinum toxin; irradiation of the salivary glands
    - Bronchial secretions: portable home suction device and a room humidifier; a mucolytics; a nebulizer with saline and a beta-receptor antagonist, an anticholinergic bronchodilator, and/or furosemide in combination; mechanical insufflator-exsufflator; cricopharyngeal myotomy
    - Pseudobulbar emotional lability: antidepressants; a combination of dextrometorphan and quinidine
    - Cramps: physiotherapy; exercise; hydrotherapy; quinine sulfate
    - Spasticity: physical therapy; hydrotherapy; antispastic drugs
    - Depression, anxiety, and insomnia: appropriate antidepressants; Zolpidem; bupropion; benzodiazepines
    - Pain: paracetamol, opioids
    - Venous thrombosis: leg elevation, compression stockings
5. Genetic counseling and analysis
6. Monitoring of respiratory function and non-invasive and invasive ventilation and treatment of dyspnea
7. Assessment of nutritional status and providing nutritional support, including referral to a dietician and gastrostomy as indicated
8. Assessment of communication difficulties by a speech therapist
9. Palliative and end-of-life care

MAJOR OUTCOMES CONSIDERED

Effectiveness of treatment in prolonging survival, reducing hospital admissions and duration of hospital stay, and improving quality of life

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

Two investigators screened potentially relevant citations independently. The task force searched the Cochrane Central Register of Controlled Trials (CENTRAL) (The Cochrane Library to date); MEDLINE-OVID (January 1966 to date); MEDLINE-ProQuest; MEDLINE-EIFL; EMBASE-OVID (January 1990 to date); Science Citation Index (ISI); The National Research Register; Oxford Centre for Evidenced-based Medicine; American Speech Language Hearing Association (ASHA); the World Federation of Neurology ALS Page of reviews of published research; the Oxford Textbook of Palliative Medicine, and the UK Department of Health National Research Register (http://www.update-software.com/National/). The final literature search was performed in the spring of 2005. National neurological databases (e.g. http://www.alsa.org) and personal collections of references and reference lists of articles were also searched. There were no constraints based on language or publication status. Any differences at any stage of the review were resolved by discussion.

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

Systematic Review

DESCRIPTION OF THE METHODS USED TO ANALYZE THE EVIDENCE

Not stated

METHODS USED TO FORMULATE THE RECOMMENDATIONS

Expert Consensus

DESCRIPTION OF METHODS USED TO FORMULATE THE RECOMMENDATIONS

The guidelines were prepared following the European Federation of Neurological Societies (EFNS) criteria (see the "Rating Scheme for the Strength of the Evidence" and the "Rating Scheme for the Strength of the Recommendations" fields for the levels of evidence and grades of recommendation). Where there was lack of evidence but consensus was clear the opinion of the task force has been stated as good practice points.

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.

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.

Diagnosing Amyotrophic Lateral Sclerosis/Motor Neuron Disease

Good Practice Points

1. The diagnosis should be pursued as early as possible. Patients with whom amyotrophic lateral sclerosis (ALS) is suspected should be referred with high priority to an experienced neurologist.
2. All suspected new cases should undergo prompt detailed clinical and paraclinical examinations (see Table 1 in the original guideline document and the Table below).
3. In some cases, additional investigations may be needed (see Table below).
4. Repetition of the investigations may be needed if the initial series of tests do not result in a diagnosis.
5. Review of the diagnosis is advisable if there is no evidence of progression or if the patient develops atypical features (see Table 1 in the original guideline document).

Table. Diagnosing ALS/Motor Neuron Disease (MND): Recommended Investigations

Clinical Chemistry	Test	Evidence Class	Recommended Mandatory Tests	Recommended Additional Tests in Selected Cases
Blood	• Erythrocyte sedimentation rate	IV	X	
	• C-reactive protein (CRP)	IV	X	
	• Hematological screen	IV	X	
	• ASAT, ALAT, LDH	IV	X	
	• TSH, FT4, FT3 hormone assays	IV	X	
	• Vitamins B12 and	IV	X	

Clinical Chemistry	Test	Evidence Class	Recommended Mandatory Tests	Recommended Additional Tests in Selected Cases
	folate			
	• Serum protein electrophoresis	IV	X	
	• Serum immuno-electrophoresis	IV	X	
	• Creatine kinase (CK)	IV	X	
	• Creatinine	IV	X	
	• Electrolytes (Na^+, K^+, Cl^-,Ca^{2+}, PO_4^{3-})	IV	X	
	• Glucose	IV	X	
	• Angiotensin converting enzyme (ACE)	IV		X
	• Lactate	IV		X
	• Hexoaminidase A and B assay	IV		X
	• Ganglioside GM-1 antibodies	IV		X
	• Anti-Hu, anti-MAG	IV		X
	• RA, ANA, anti-DNA	IV		X
	• Anti-AChR, anti-MUSK antibodies	IV		X
	• Serology (Borrelia, virus including HIV)	IV		X

Clinical Chemistry	Test	Evidence Class	Recommended Mandatory Tests	Recommended Additional Tests in Selected Cases
	• DNA analysis (for details see Fig. 1 in the original guideline document)	IV		X
CSF	• Cell count	IV		X
	• Cytology	IV		X
	• Total protein concentration	IV		X
	• Glucose, lactate	IV		X
	• Protein electrophoresis including IgG index	IV		X
	• Serology (Borrelia, virus)	IV		X
	• Ganglioside antibodies	IV		X
Urine	• Cadmium	IV		X
	• Lead (24 h secretion)	IV		X
	• Mercury	IV		X
	• Manganese	IV		X
	• Urine immuno-electrophoresis	IV		X
Neurophysiology	• EMG	III	X	
	• Nerve conduction velocity	III	X	

Clinical Chemistry	Test	Evidence Class	Recommended Mandatory Tests	Recommended Additional Tests in Selected Cases
	• MEP	IV		X
Radiology	• MRI/CAT (head/cervical, thoracic, lumbar)	IV	X	
	• Chest x-ray	IV	X	
	• Mammography	IV		X
Biopsy	• Muscle	III		X
	• Nerve	IV		X
	• Bone marrow	IV		X
	• Lymph node	IV		X

Abbreviations: AChR, acetylcholine receptor; ALAT, alanine transaminase; ANA, antinuclear antibody; ASAT, aspartate transaminase; Ca^{2+}, calcium; CAT, computed axial tomography; Cl^{-}, chloride; DNA, deoxyribonucleic acid; EMG, electromyography; FT3, free triiodothyronine; FT4, free thyroxine; HIV, human immunodeficiency virus; IgG, immunoglobulin G; K^{+}, potassium; LDH, lactic dehydrogenase; MAG, myelin-associated glycoprotein; MEP, maximal expiratory pressure; MRI, magnetic resonance imaging; MUSK, Muscle specific tyrosine kinase; Na^{+}, sodium; PO_4^{3-}, phosphate; TSH, thyroid-stimulating hormone; RA, rheumatoid arthritis

Breaking the News: Communicating the Diagnosis

Good Practice Points

1. The diagnosis should be communicated by a consultant with a good knowledge of the patient.
2. The physician should start the consultation by asking what the patient already knows or suspects.
3. Respect the cultural and social background of the patient by asking whether the patient wishes to receive information or prefers that the information be communicated to a family member.
4. The physician should give the diagnosis to the patient and discuss its implications in a stepwise fashion, checking repeatedly if the patient understands what is said, and reacting appropriately to the verbal and non-verbal cues of the patient.

5. The diagnosis should always be given in person and never by mail or telephone, with enough time available (at least 45 to 60 minutes) on the part of the physician.
6. Provide printed materials about the disease, about support and advocacy organizations, and about informative websites on the internet. Optionally, a letter or audiotape summarizing what the physician has discussed can be very helpful for the patients and family.
7. Assure the patient that he or her and their family will not be on their own ("abandoned") but will be supported by a professional ALS-care team (where available) and with regular follow-up visits to a neurologist. Make arrangements for a close follow-up visit before the end of the consultation, ideally within 2 to 4 weeks (or sooner if appropriate).
8. Avoid the following: withholding the diagnosis, providing insufficient information, delivering information callously, or taking away or not providing hope. Remember to switch off mobile phones and pagers, and put up "Do not disturb" signs.

(See Table 4 in the original guideline document for more details on how to communicate the diagnosis to the patient.)

Multidisciplinary Care in Management of ALS

Good Practice Points

1. Multidisciplinary (MD) care should be available for people affected by ALS as attendance at a MD clinic improves care, and may extend survival.
2. The following specialists should be part of or be readily available to the MD team: a consultant in neurology, pulmonologist, gastroenterologist, rehabilitation medicine physician, social counselor, occupational therapist, speech therapist, specialized nurse, physical therapist, dietitian, psychologist, dentist.
3. Schedule clinical visits every 2 to 3 months and more frequently if needed. This is particularly often the case in the first half year following diagnosis, and in late stages of the disease. Patients with very slowly progressing disease can be seen once or twice a year.
4. It is important that between visits the patient support team maintain regular contact with the patient and relatives (e.g. by phone, letter or email).
5. Ideally, from the outset the patient should be followed by a single named neurologist working in close liaison with the patient's primary care physician (family general practitioner).
6. Effective channels of communication and co-ordination are essential between the hospital based MD-team, the primary care team, the palliative care team, and community services.

Neuroprotective Treatment

Good Practice Points

1. ALS patients should be offered treatment with riluzole 50 mg twice daily (**class IA**).
2. Patients treated with riluzole should be monitored regularly for safety (**class IA**).

3. Treatment should be initiated as early as possible after the patient has been informed of the diagnosis taking into account expected therapeutic benefits and potential safety issues (**Class IA**). Realistic expectations for treatment effects and potential side effects should be discussed with the patient and caregivers.
4. Treatment with riluzole should be considered in progressive spinal muscular atrophy (PMA) and primary lateral sclerosis (PLS) patients who have a first degree relative with ALS.
5. Patients with sporadic PMA, sporadic PLS or hereditary spastic paraplegias (HSP) should as a rule not be treated with riluzole.
6. Irrespectively of familial disposition, all patients with a symptomatic motor neuron disease and carrying a *SOD1* gene mutation should be offered treatment with riluzole.
7. Currently, there is insufficient evidence to recommend treatment with vitamins, testosterone, anti-oxidants like co-enzyme Q-10 and gingko biloba, intravenous immunoglobuline therapy, cyclosporin, interferones, copaxone, ceftriaxone, minocycline, Vascular Endothelial Growth Factor A (VEGF), stem cells.

Symptomatic Treatment

Sialorrhea

Good Practice Points

1. Treat sialorrhea in ALS with oral or transdermal hyoscine, atropine drops, glycopyrrolate, or amitriptyline.
2. Provide a portable mechanical home suction device.
3. Botulinum toxin injections into the parotid glands can be tried but insufficient data are available yet to appraise safety and long-term efficacy, and this intervention is judged as still experimental.
4. Irradiation of the salivary glands may be tried when pharmacological treatment fails.
5. Surgical interventions are not recommended.

Bronchial Secretions

Good Practice Points

1. Teach the patient and carers the technique of assisting expiratory movements using a manual assisted cough (can also be performed by a physical therapist).
2. Provide a portable home suction device and a room humidifier.
3. Consider using a mucolytic like N-acetylcysteine, 200 mg to 400 mg three times daily.
4. If these measures are insufficient, try a nebulizer with saline and a beta-receptor antagonist and/or an anticholinergic bronchodilator and/or a mucolytic and/or furosemide in combination.
5. The use of a mechanical insufflator-exsufflator may be helpful, particularly in the setting of an acute respiratory infection.
6. Cricopharyngeal myotomy may be helpful in the rare cases with frequent episodes with cricopharyngeal spasm and severe bronchial secretions.

Pseudobulbar Emotional Lability

Good Practice Points

1. Inform the patient and relatives that the emotional lability is not a sign of a mood disorder but is due to an organic lesion in the brain (Poeck, 1969).
2. Only troublesome emotional lability should be treated. If treatment is deemed necessary, an antidepressant such as amitriptyline, fluvoxamine, citalopram is usually sufficient.
3. A combination of dextrometorphan and quinidine has been shown to be effective in a class IA study but further experience on the long-term side-effects and tolerability are needed.

Cramps

Good Practice Points

1. Treat cramps in ALS with physiotherapy, physical exercise and/or hydrotherapy.
2. If necessary, treat cramps in ALS with quinine sulfate.
3. Magnesium (Mg^{2+}), carbamazepine, phenytoin, verapamil, gabapentin are alternatives.

Spasticity

Good Practice Points

1. Physical therapy should be available regularly when there is significant spasticity.
2. Hydrotherapy with exercises in heated pools with 32 to 34 degrees Celsius warm water, and cryotherapy should be considered.
3. Antispastic drugs such as baclofen and tizanidine may be tried.

Depression, Anxiety, and Insomnia

Good Practice Points

1. Treat depression in ALS with an appropriate antidepressant, e.g., amitriptyline or a selective serotonin reuptake inhibitor (SSRI).
2. Treat insomnia with amitriptyline or appropriate hypnotics (e.g., zolpidem, diphenhydramine).
3. Treat anxiety with bupropion or benzodiazepines such as diazepam tablets or suppositories, temesta tablets 0.5 mg two to three times daily, or lorazepam sublingually.

Pain

Good Practice Points

Treat pain in ALS following accepted guidelines.

Venous Thrombosis

Good Practice Points

Physiotherapy, limb elevation, compression stockings can be used. Prophylactic treatment with anti-coagulants is not recommended.

Genetic Testing and Counseling

Good Practice Points

1. Clinical DNA analysis for *SOD1* gene mutation should only be performed in cases with a known familial history of ALS or in sporadic ALS (SALS) cases with the characteristic phenotype of the *D90A* mutation.
2. Clinical DNA analysis for *SOD1* gene mutations should not be performed in cases with SALS with a typical classical ALS-phenotype.
3. Before blood is drawn for DNA analysis, the patient should receive genetic counseling. Give the patient time for consideration. DNA analysis should not be performed without the patients consent.
4. Pre-symptomatic genetic testing should only be performed in first degree adult blood-relatives of patients with a known *SOD1* gene mutation. Testing should only be performed on a strictly volunteer basis as outlined.
5. Results of DNA analysis performed on patients and their relatives as part of a research project should not be used in clinical practice or disclosed to the unaffected relative. Also, the results should be kept in a separate file, not in the patient's medical chart.

Non-Invasive and Invasive Ventilation in ALS Patients

Good Practice Points

1. Symptoms or signs of respiratory insufficiency (including symptoms of nocturnal hypoventilation) should be checked at each visit.
2. Vital capacity (VC) is the most available and practical test for the monitoring of respiratory function on a regular basis. If possible, VC should be measured both standing/sitting and lying.
3. Sniff nasal pressure (SNP) may be used for monitoring of inspiratory muscle strength, particularly in some bulbar patients who cannot perform VC accurately.
4. Nocturnal oximetry, available at home, is recommended in patients with symptoms of nocturnal hypoventilation.
5. Symptoms or signs of respiratory insufficiency should initiate discussions with the patient and the caregivers about all treatment options such as non-invasive positive-pressure ventilation (NIV), invasive mechanical ventilation via tracheostomy (TV), and the terminal phase. Early discussions are needed to allow advance planning and directives. The patient should be informed about the temporary nature of NIV (which is primarily directed towards improving quality of life rather than prolonging it [as opposed to TV]). Care should adapt to the changing needs of patients and carers over the course of the disease.
6. NIV should be considered before TV in patients with symptoms of respiratory insufficiency.

7. TV can prolong survival for many months and can improve patient's quality of life, but it has major impact upon carers, and can be undertaken only after full discussion of the pros and cons with the patient and carers.
8. Unplanned (emergency) TV should be avoided at all costs through early discussion of end of life issues, palliative care, and advance directives.
9. Oxygen therapy alone should be avoided as it may exacerbate CO_2 retention and mouth dryness.
10. Medical treatment of intermittent dyspnea:
    - Short dyspneic bouts: relieve anxiety and give lorazepam 0.5 to 2.5 mg sublingually
    - Longer phases of dyspnea (>30 min): give morphine.
11. Medical treatment of chronic dyspnea: start with morphine 2.5 mg orally four to six times daily. For severe dyspnea give morphine by subcutaneous (sc) or intravenous (iv) infusion. Start with 0.5 mg/h and titrate.

Enteral Nutrition in ALS Patients

Good Practice Points

1. Bulbar dysfunction and nutritional status, including at least weight, should be checked at each visit.
2. The patient and spouse should be referred to a dietician as soon as dysphagia appears. A speech and language therapist (SLT) can give valuable advice on swallowing techniques.
3. The timing of percutaneous endoscopic gastrostomy (PEG)/percutaneous radiologic gastrostomy (PRG) is based on an individual approach taking into account bulbar symptoms, malnutrition (weight loss >10%), respiratory function and the patient's general condition. Thus, early operation is highly recommended.
4. When PEG is indicated, patient and carers should be informed: (i) of the benefits and risks of the procedure; (ii) that it is possible to continue to take food orally as long as it is possible; (iii) that deferring PEG to a late disease stage may increase the risk of the procedure.
5. Percutaneous radiologic gastrostomy (PRG; RIG) is a suitable alternative to PEG. This procedure can be used as the procedure of choice or when PEG is deemed hazardous.
6. Tubes with relatively large diameter (e.g., 18 to 22 Charriere) are recommended for both PEG and PRG in order to prevent tube obstruction.
7. Prophylactic medication with antibiotics on the day of the operation may reduce the risk of infections.
8. Nasogastric tube (NGT) may be used for short-term feeding and when PEG or PRG is not suitable.

Communication in ALS Patients

Good Practice Points

1. Regular assessment (i.e., every 3 to 6 months) of communication by a trained speech therapist is recommended.
2. The use of appropriate communication support systems (ranging from pointing boards with figures or words, to computerized speech synthesizers) should be provided as required.

Palliative and End-of-Life Care

Good Practice Points

1. Whenever possible, offer input from a palliative care team early in the course of the disease.
2. Initiate discussions on end-of-life decisions whenever the patient asks—or "opens the door"—for end-of-life information and/or interventions.
3. Discuss the options for respiratory support and end-of-life issues if the patient has dyspnea, other symptoms of hypoventilation (see Table 8 in the original guideline document), or a forced VC <50%.
4. Inform the patient of the legal situation regarding advance directives and naming of a health care proxy. Offer assistance in formulating an advance directive.
5. Re-discuss the patient's preferences for life-sustaining treatments every 6 months.
6. Initiate early referral to hospice or home care teams well in advance of the terminal phase of ALS to facilitate the work of the hospice team.
7. Be aware of the importance of spiritual issues for the quality of life and treatment choices. Establish a liaison with local pastoral care workers in order to be able to address the needs of the patient and relatives.
8. For symptomatic treatment of dyspnea and/or pain of intractable cause use opioids alone or in combination with benzodiazepines if anxiety is present. Titrating the dosages against the clinical symptoms will almost never result in a life-threatening respiratory depression (Sykes and Thorns, 2003, **class IA recommendation**).
9. For treating terminal restlessness and confusion because of hypercapnia neuroleptics may be used, (e.g., chlorpromazine 12.5 mg every 4 to 12 hours orally [po], intravenously, or rectally [pr]).
10. Use oxygen only if symptomatic hypoxia is present.

Definitions:

Evidence Classification Scheme for a Diagnostic Measure

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

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Rating of Recommendations for a Therapeutic Intervention

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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 opinion of the task force has been stated as good practice points.

CLINICAL ALGORITHM(S)

An algorithm is provided in the original guideline document for the management of respiratory dysfunction in amyotrophic lateral sclerosis (ALS).

EVIDENCE SUPPORTING THE RECOMMENDATIONS

REFERENCES SUPPORTING THE RECOMMENDATIONS

References open in a new window

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 clinical care of patients with amyotrophic lateral sclerosis (ALS)

POTENTIAL HARMS

- Adverse effects of medications
- Invasive mechanical ventilation via tracheostomy (TV) is costly and has a significant emotional and social impact on patients and caregivers (see Table 10 in the original guideline document for more details).
- Percutaneous endoscopic gastrostomy (PEG) requires mild sedation and is more hazardous in patients with respiratory impairment and/or at an advanced stage of the disease. To minimize risks, evidence suggests that PEG should be performed before vital capacity falls below 50% of predicted.
- Nasogastric tube (NGT) feeding increases oropharyngeal secretions and is associated with nasopharyngeal discomfort, pain, or even ulceration.

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 one of the most devastating diseases known, there is little evidence for diagnosing and managing patients with amyotrophic lateral sclerosis (ALS).

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

End of Life Care
Living with Illness

IOM DOMAIN

Effectiveness
Patient-centeredness

IDENTIFYING INFORMATION AND AVAILABILITY

BIBLIOGRAPHIC SOURCE(S)

Andersen PM, Borasio GD, Dengler R, Hardiman O, Kollewe K, Leigh PN, Pradat PF, Silani V, Tomik B, EFNS Task Force on Diagnosis and Management of Amyotrophic Lateral. EFNS task force on management of amyotrophic lateral sclerosis: guidelines for diagnosing and clinical care of patients and relatives. Eur J Neurol 2005 Dec;12(12):921-38. [122 references] PubMed

ADAPTATION

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

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GUIDELINE COMMITTEE

European Federation of Neurological Societies Task Force on Diagnosis and Management of Amyotrophic Lateral Sclerosis

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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 Peter M. Andersen, MD DMSc, Associate professor of Neurology, Department of Neurology, Umeå University hospital, SE-901 85 Umeå

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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

This NGC summary was completed by ECRI on December 7, 2006. The information was verified by the guideline developer on May 3, 2007. This summary was updated by ECRI Institute on November 9, 2007, following the U.S. Food and Drug Administration advisory on Antidepressant drugs. This summary was updated by ECRI Institute on January 10, 2008, following the U.S. Food and Drug Administration advisory on Carbamazepine.

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