Complete Summary

GUIDELINE TITLE

Practice parameters for the use of autotitrating continuous positive airway pressure devices for titrating pressures and treating adult patients with obstructive sleep apnea syndrome: an update for 2007.

BIBLIOGRAPHIC SOURCE(S)

Morgenthaler TI, Aurora RN, Brown T, Zak R, Alessi C, Boehlecke B, Chesson AL Jr, Friedman L, Kapur V, Maganti R, Owens J, Pancer J, Swick TJ, Standards of Practice Committee of the AASM, American Academy of Sleep Medicine. Practice parameters for the use of autotitrating continuous positive airway pressure devices for titrating pressures and treating adult patients with obstructive sleep apnea syndrome: an update for 2007. An American Academy of Sleep Medicine report. Sleep 2008 Jan 1;31(1):141-7. [40 references] PubMed

GUIDELINE STATUS

This is the current release of the guideline.

This guideline updates a previous version: Standards of Practice Committee. Practice parameters for the use of auto-titrating continuous positive airway pressure devices for titrating pressures and treating adult patients with obstructive sleep apnea. Sleep 2002;25(2):143-7.

COMPLETE SUMMARY CONTENT

SCOPE

DISEASE/CONDITION(S)

Obstructive sleep apnea syndrome

GUIDELINE CATEGORY

Assessment of Therapeutic Effectiveness
Treatment

CLINICAL SPECIALTY

Dentistry
Internal Medicine
Neurology
Otolaryngology
Pulmonary Medicine
Sleep Medicine

INTENDED USERS

Advanced Practice Nurses
Allied Health Personnel
Dentists
Physician Assistants
Physicians
Respiratory Care Practitioners

GUIDELINE OBJECTIVE(S)

To present updated recommendations for using auto-titrating positive airway pressure (APAP) to determine the need for or to provide treatment for obstructive sleep apnea (OSA)

TARGET POPULATION

Adults with obstructive sleep apnea syndrome

INTERVENTIONS AND PRACTICES CONSIDERED

1. Use of standard (i.e., fixed) continuous positive airway pressure (CPAP) (titration and treatment)
2. Use of auto-titrating continuous positive airway pressure (APAP) titration and treatment
3. Follow-up of patients to determine effectiveness and safety of treatment

MAJOR OUTCOMES CONSIDERED

Clinical utility of autotitrating positive airway pressure (APAP) for diagnosing and treating obstructive sleep apnea syndrome

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 search for articles on treatment of obstructive sleep apnea with autotitrating continuous positive airway pressure (CPAP) (APAP) was conducted using EMBASE, Ovid MEDLINE(R), Ovid MEDLINE(R) In-Process & Other Non-Indexed Citations, and the Cochrane Clinical Trial Registry, first on August 25, 2006, and updated on November 7, 2006. Key words for searches included autoCPAP, automatic CPAP, autotitrating CPAP, autoset, auto PAP, and autoadjusting CPAP. Each search was run separately and findings were merged. When the search was limited to articles published in English and regarding humans, a total of 167 articles were identified. Abstracts from these articles were reviewed to determine if they met inclusion criteria. Articles were included for evaluation if they had more than 9 subjects and if they compared APAP use with standard PSG directed CPAP therapy, a standard alternate therapy (oral appliance, surgery), or another APAP device. The articles had to address at least one of eight "PICO" questions (acronym standing for Patient, Population or Problem, provided a specific Intervention or exposure, after which a defined Comparison is performed on specified Outcomes) that were decided upon ahead of the review process. While the PICO questions do not map one-to-one with the practice parameters, they were designed to generate information that would be useful in updating the existing practice parameters. Articles meeting these criteria in addition to those identified by pearling (i.e., checking the reference sections of search results for articles otherwise missed) provided 22 articles for review and grading (see accompanying evidence table in the original guideline document).

NUMBER OF SOURCE DOCUMENTS

This guideline is based on a review of 22 articles published in peer reviewed journals.

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 Levels

I. Randomized well-designed trials with low-alpha and low-beta error*
II. Randomized trials with high alpha and beta error*
III. Nonrandomized concurrently controlled studies
IV. Nonrandomized historically controlled studies
V. Case series

* Alpha (type I error) refers to the probability that the null hypothesis is rejected when in fact it is true (generally acceptable at 5% or less, or P <0.05). Beta (type

II error) refers to the probability that the null hypothesis is mistakenly accepted when in fact it is false (generally trials accept a beta error of 0.20). The estimation of type II error is generally the result of a power analysis. The power analysis takes into account the variability and the effect size to determine if sample size is adequate to find a difference in means when it is present (power generally acceptable at 80% to 90%).

METHODS USED TO ANALYZE THE EVIDENCE

Systematic Review with Evidence Tables

DESCRIPTION OF THE METHODS USED TO ANALYZE THE EVIDENCE

All evidence grading was performed by independent review of the article by two members of the task force. Areas of disagreement were addressed by the task force until resolved.

METHODS USED TO FORMULATE THE RECOMMENDATIONS

Expert Consensus

DESCRIPTION OF METHODS USED TO FORMULATE THE RECOMMENDATIONS

The Standards of Practice Committee (SPC) of the American Academy of Sleep Medicine (AASM) commissioned among its members four individuals with expertise in the use of autotitrating positive airway pressure (APAP) to conduce this review. These content experts were appointed in June, 2006 to review and grade evidence in the peer-reviewed scientific literature regarding the use of APAP.

RATING SCHEME FOR THE STRENGTH OF THE RECOMMENDATIONS

Levels of Recommendation

Standard: This is a generally accepted patient-care strategy which reflects a high degree of clinical certainty. The term *standard* generally implies the use of Level I evidence, which directly addresses the clinical issue, or overwhelming Level II evidence.

Guideline: This is a patient-care strategy which reflects a moderate degree of clinical certainty. The term *guideline* implies the use of Level II evidence or a consensus of Level III evidence.

Option: This is a patient-care strategy which reflects uncertain clinical use. The term *option* implies either inconclusive or conflicting evidence or conflicting expert opinion.

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

The recommendations were reviewed and approved by the Board of Directors of the American Academy of Sleep Medicine.

RECOMMENDATIONS

MAJOR RECOMMENDATIONS

The evidence levels (I-IV) and the levels of recommendations (standard, guideline, option) are defined at the end of the "Major Recommendations" field.

Auto-titrating continuous positive airway pressure (APAP) is not recommended to diagnosis obstructive sleep apnea (OSA). (**Standard**)

Patients with congestive heart failure, significant lung disease such as chronic obstructive pulmonary disease, patients expected to have nocturnal arterial oxyhemoglobin desaturation due to conditions other than OSA (e.g., obesity hypoventilation syndrome), patients who do not snore (either naturally or as a result of palate surgery), and patients who have central sleep apnea syndromes are not currently candidates for APAP titration or treatment. (**Standard**)

APAP devices are not currently recommended for split-night titration. (**Standard**)

Certain APAP devices may be used during attended titration with polysomnography to identify a single pressure for use with standard continuous positive airway pressure (CPAP) for treatment of moderate to severe OSA (**Guideline**)

Certain APAP devices may be initiated and used in the self-adjusting mode for unattended treatment of patients with moderate to severe OSA without significant comorbidities (congestive heart failure [CHF], chronic obstructive pulmonary disease [COPD], central sleep apnea syndromes, or hypoventilation syndromes). (**Option**)

Certain APAP devices may be used in an unattended way to determine a fixed CPAP treatment pressure for patients with moderate to severe OSA without significant comorbidities (CHF, COPD, central sleep apnea syndromes, or hypoventilation syndromes). (**Option**)

Patients being treated with fixed CPAP on the basis of APAP titration or being treated with APAP must have close clinical follow-up to determine treatment

effectiveness and safety. This is especially important during the first few weeks of positive airway pressure (PAP) use. (**Standard**)

A reevaluation and, if necessary, a standard attended CPAP titration should be performed if symptoms do not resolve or if the APAP treatment otherwise appears to lack efficacy. (**Standard**)

Definitions:

Evidence Levels

I. Randomized, well-designed trials with low alpha and beta error
II. Randomized trials with high alpha and beta error
III. Nonrandomized concurrently controlled studies
IV. Nonrandomized historically controlled studies
V. Case series

Levels of Recommendations

Standard - This is a generally accepted patient-care strategy, which reflects a high degree of clinical certainty. The term *standard* generally implies the use of Level I Evidence, which directly addresses the clinical issue, or overwhelming Level II Evidence.

Guideline - This is a patient-care strategy, which reflects a moderate degree of clinical certainty. The term *guideline* implies the use of Level II Evidence or a consensus of Level III Evidence.

Option - This is a patient-care strategy, which reflects uncertain clinical use. The term *option* implies either inconclusive or conflicting evidence or conflicting expert opinion.

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 the "Major Recommendations" field).

BENEFITS/HARMS OF IMPLEMENTING THE GUIDELINE RECOMMENDATIONS

POTENTIAL BENEFITS

Appropriate use of autotitrating continuous positive airway pressure devices for titrating pressures and treating adult patients with obstructive sleep apnea syndrome

POTENTIAL HARMS

Not stated

QUALIFYING STATEMENTS

QUALIFYING STATEMENTS

- These practice parameters define principles of practice that should meet the needs of most patients in most situations. These guidelines should not, however, be considered inclusive of all proper methods of care or exclusive of other methods of care reasonably directed to obtaining the same results. The ultimate judgment regarding propriety of any specific care must be made by the physician in light of the individual circumstances presented by the patient, available diagnostic tools, accessible treatment options, and resources.
- The American Academy of Sleep Medicine (AASM) expects these guidelines to have an impact on professional behavior, patient outcomes, and, possibly, health care costs. These practice parameters reflect the state of knowledge at the time of publication and will be reviewed, updated, and revised as new information becomes available.

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

BIBLIOGRAPHIC SOURCE(S)

Morgenthaler TI, Aurora RN, Brown T, Zak R, Alessi C, Boehlecke B, Chesson AL Jr, Friedman L, Kapur V, Maganti R, Owens J, Pancer J, Swick TJ, Standards of Practice Committee of the AASM, American Academy of Sleep Medicine. Practice parameters for the use of autotitrating continuous positive airway pressure devices for titrating pressures and treating adult patients with obstructive sleep apnea syndrome: an update for 2007. An American Academy of Sleep Medicine report. Sleep 2008 Jan 1;31(1):141-7. [40 references] PubMed

ADAPTATION

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

DATE RELEASED

2002 March 15 (revised 2008 Jan)

GUIDELINE DEVELOPER(S)

American Academy of Sleep Medicine - Professional Association

SOURCE(S) OF FUNDING

American Academy of Sleep Medicine

GUIDELINE COMMITTEE

Standards of Practice Committee

COMPOSITION OF GROUP THAT AUTHORED THE GUIDELINE

Standards of Practice Committee: Timothy I. Morgenthaler, MD; R. Nisha Aurora, MD; Terry Brown, DO; Rochelle Zak, MD; Cathy Alessi, MD; Brian Boehlecke, MD; Andrew L. Chesson Jr, MD; Leah Friedman, MA, PhD; Vishesh Kapur, MD, MPH; Rama Maganti, MD; Judith Owens, MD; Jeffrey Pancer, DDS; Todd J. Swick, MD

FINANCIAL DISCLOSURES/CONFLICTS OF INTEREST

All members of the American Academy of Sleep Medicine´s Standards of Practice Committee and Board of Directors completed detailed conflict-of-interest statements and were found to have no conflicts of interest with regard to this subject.

GUIDELINE STATUS

This is the current release of the guideline.

This guideline updates a previous version: Standards of Practice Committee. Practice parameters for the use of auto-titrating continuous positive airway pressure devices for titrating pressures and treating adult patients with obstructive sleep apnea. Sleep 2002;25(2):143-7.

GUIDELINE AVAILABILITY

Electronic copies: Available in Portable Document Format (PDF) from the American Academy of Sleep Medicine Web site.

Print copies: Available from the Standards of Practice Committee, American Academy of Sleep Medicine, One Westbrook Corporate Center, Suite 920, Westchester, IL 60154. Web site: http://www.aasmnet.org.

AVAILABILITY OF COMPANION DOCUMENTS

None available

PATIENT RESOURCES

None available

NGC STATUS

This summary was completed by ECRI on July 19, 2002. The information was verified by the guideline developer on September 13, 2002. This NGC summary was updated by ECRI Institute on May 13, 2008.

COPYRIGHT STATEMENT

DISCLAIMER

NGC DISCLAIMER

Readers with questions regarding guideline content are directed to contact the guideline developer.

Date Modified: 9/22/2008