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| Title | Auto-titrating Nasal Continuous Positive Airway Pressure Systems in the Management of Obstructive Sleep Apnea |
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Aim

To review the evidence for the efficacy, effectiveness, and costs of auto-titrating nasal continuous positive airway pressure (APAP) devices in their use for:

- Diagnosis of obstructive sleep apnea (OSA)
- Titration to determine pressure values for treatment with continuous positive airway pressure (CPAP)
- Treatment of OSA using variable-pressure mode.

Conclusions and results

On the basis of the available literature, APAP shows promise, but should be used with caution until further studies establish its effectiveness and cost-effectiveness. Observational studies show a potential use for APAP in diagnosing OSA, although its efficacy in auto-titration (unattended adjustment of pressure) has not been established. Further validation is needed from studies with stronger methodology.

For the treatment of OSA, studies show that APAP uses a lower treatment pressure than CPAP. However, clinical outcomes with APAP are no better than those with CPAP, and it is uncertain whether there is better compliance with APAP. Potential safety issues for patients suffering from cardiac, pulmonary, and other medical conditions arise if APAP is used in settings without prompt access to technical support.

Methods

Two reviewers independently extracted data from 39 relevant studies obtained through a comprehensive search of literature from 1994 and onward. Inclusion criteria specified comparative studies with APAP for persons diagnosed with severe OSA who may require treatment using CPAP. Outcomes for the diagnosis of OSA and for titration using APAP to determine final pressure settings for CPAP included accuracy of diagnosis, costs, and identification of adverse conditions – all in comparison with sleep lab studies using polysomnography. For the therapeutic use of APAP in variable-pressure

mode, the outcomes considered included compliance with treatment, effects on sleep patterns, other relevant physiological measures, quality of life, and costs – all in comparison with treatment using conventional fixed CPAP.

Further research/reviews required

Preliminary estimates show that APAP may provide cost savings over CPAP under certain conditions, but further cost studies are required.