

FPIN's Clinical Inquiries

Positional Therapies for Obstructive Sleep Apnea

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Clinical Question

Are positional therapies an effective method of treating obstructive sleep apnea (OSA)?

Evidence-Based Answer

Positional therapies for OSA produce moderate improvements (16% to 40%) in clinical apnea measures compared with no treatment. (Strength of Recommendation [SOR]: B, based on a meta-analysis of small randomized controlled trials [RCTs].) Positional therapies are not as effective as continuous positive airway pressure (CPAP). (SOR: B, based on a meta-analysis of small crossover trials.)

Evidence Summary

POSITIONAL THERAPY COMPARED WITH NO TREATMENT

A systematic review and meta-analysis of adults with OSA that compared the effectiveness of positional and CPAP therapies with each other or no treatment found that positional therapy was moderately effective.¹ Positional therapies included vibration alarms, specialty pillows, and semi-rigid backpacks. Outcomes were the objective apnea-hypopnea index (which counts the

number of apneic and hypopneic episodes per hour) and the subjective Epworth Sleepiness Scale (a self-reported questionnaire with scores ranging from 0 to 18, with higher scores representing more sleepiness) measured over six months.

Two parallel-group RCTs (n = 187) compared positional therapy and inactive control for two months in adults with OSA. They found that positional therapy improved the apnea-hypopnea index by about 40% (mean = 16.8 to 19.9 events per hour with inactive control vs. 7.4 fewer events per hour with positional therapy; 95% CI, 4.7 to 10.1). Results on the Epworth Sleepiness Scale improved by about 16% (mean = 9.4 to 10.9 points with inactive control vs. 1.6 points lower with positional therapy; 95% CI, 0.3 to 2.9). No changes were noted in quality-of-life scores or quality of sleep (i.e., percentage of rapid eye movement or slow, deep sleep). The authors rated the quality of the studies as low to moderate. At two months, patients were equally likely to continue positional therapy and the inactive control therapy (about 75% adherence in four RCTs; n = 277), although 10% of patients reported adverse effects (e.g., back/chest pain, daytime sleepiness). Participants were not clearly identified by the severity of their OSA, but, for comparison, CPAP in patients with moderate to severe OSA typically improves the Epworth Sleepiness Scale by 60% vs. inactive treatment.²

A systematic review with two additional crossover RCTs (n = 75) evaluating sleep position trainers for adult patients with OSA found that they improved the apnea-hypopnea index (12 fewer events per hour; 95% CI, 6 to 18) vs. no treatment (six fewer events per hour; 95% CI, 2 to 9).³ Both trials had a high risk of bias.

POSITIONAL THERAPY COMPARED WITH CPAP

The first review above included three crossover trials comparing positional therapies and CPAP in adults with OSA.¹ In one trial (n = 20) of positional therapy vs. CPAP, both produced equal

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improvement in Epworth Sleepiness Scale values at one month. In two other trials ($n = 72$), positional therapy produced smaller reductions on the apnea-hypopnea index than did CPAP (mean = 3.4 to 4.9 fewer events per hour with positional therapy vs. 9.8 to 11.3 fewer events per hour with CPAP; 95% CI, 3.0 to 9.8). One trial ($n = 20$) reported greater adherence with positional therapy (mean = 4.9 hours per night vs. 2.5 hours per night with CPAP; 95% CI, 1.4 to 3.6).

A high-quality crossover RCT ($n = 40$) comparing a positional therapy (using a vibratory positional device) vs. CPAP for patients with moderate to severe OSA found that CPAP improved scores on the Epworth Sleepiness Scale and apnea-hypopnea index compared with positional therapy.⁴ Researchers recruited patients (mean age = 44 years; 73% male; mean body mass index = 26 kg per m^2) with a mean baseline apnea-hypopnea index of 23 events per hour and an Epworth Sleepiness Scale score of 12. They randomized patients to each treatment group for eight weeks, with a one-week washout period before crossover. CPAP produced lower scores on the Epworth Sleepiness Scale (8.9 points with CPAP vs. 10.9 points with positional therapy; mean difference = 2; 95% CI, 0.7 to 3.3) and apnea-hypopnea index (four events per hour with CPAP vs. 13 events per hour with positional therapy; mean difference = 8.8 events per hour; 95% CI, 4.1 to 13.7). CPAP also improved energy/fatigue scores on a standardized questionnaire by 12% (95% CI, 1.2% to 23%; $P = .03$) but with reduced adherence to therapy (2.2 vs. 3.1 hours per night; statistics not provided).

Recommendations from Others

In 2013, the American College of Physicians strongly recommended CPAP as initial therapy for adults with OSA (based on moderate-quality evidence) and encouraged weight loss for patients who were overweight or obese and diagnosed with OSA (based on low-quality evidence). They listed positional therapy as an alternative therapeutic strategy.⁵

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