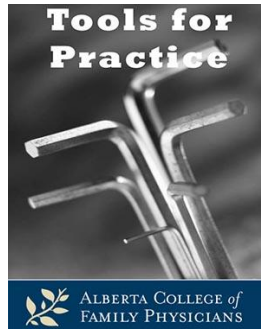


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CPAP—Breath of life, or just hot air?

Clinical question: Does continuous positive airway pressure (CPAP) reduce cardiovascular disease (CVD) or mortality in patients with obstructive sleep apnea?

Bottom line: There is a lack of convincing evidence that CPAP reduces CVD or mortality in patients with moderate-to-severe obstructive sleep apnea. Adherence to CPAP treatment in most clinical trials is low (1.4-5.8 hours/night at one year). Modest clinically important improvements in daytime sleepiness have been demonstrated. Quality of life scales have also demonstrated improvement, although clinical significance is unclear.

Evidence:

- Three meta-analyses of randomized controlled trials (RCTs).^{1,2,3} Patients were predominantly male, mean age >60 years, with moderate-to-severe obstructive sleep apnea.
 - No statistical difference in CPAP versus standard care or sham:
 - CVD:¹⁻³ 7% CPAP versus 8% control (seven trials, 4,562 patients).¹
 - Cardiovascular death:^{1,2} 9% CPAP versus 8% control (seven trials, 5,476 patients).¹
 - Acute coronary syndrome:^{1,2} 3% CPAP versus 3% control (seven trials, 4,562 patients).¹
 - Stroke:¹⁻³ 4% CPAP versus 4% control (six trials, 4,171 patients).¹
 - Post-hoc analysis did not identify any significant relationship between CPAP and CVD regardless of apnea severity, length of follow-up, or adherence.¹
 - Limitations: Included studies somewhat heterogeneous with inclusion of central apnea patients in some outcomes, differences in length of follow-up (2-68 months), and adherence to CPAP (1.4-5.8 hours/night at one year).

Context:

- Obstructive sleep apnea is associated with increased risk of CVD and mortality.^{4,5}
- CPAP modestly improves daytime sleepiness by 1.6-3.8 on a 24-point scale, which is likely clinically detectable.⁶⁻¹⁰

- CPAP is associated with modest improvements in quality of life measures (example ~3.3-9.7 improvement on a 100-point scale)¹¹ with uncertain clinical relevance.
- CPAP significantly decreases blood pressure (mean reduction 2.5 mmHg systolic and 2 mmHg diastolic).¹²
- Observational data suggests that CPAP use significantly reduces motor vehicle accidents.¹³ A large RCT (2,717 patients) reports a non-statistically significant trend towards injury reduction (7.4% versus 8.8%, $p = 0.06$).¹⁴

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Disclosures:

Authors do not have any conflicts of interest to declare.

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