

Which is the Greater Sin? Continuing to Smoke or Non-compliance with CPAP Therapy?

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LETTER TO THE EDITOR

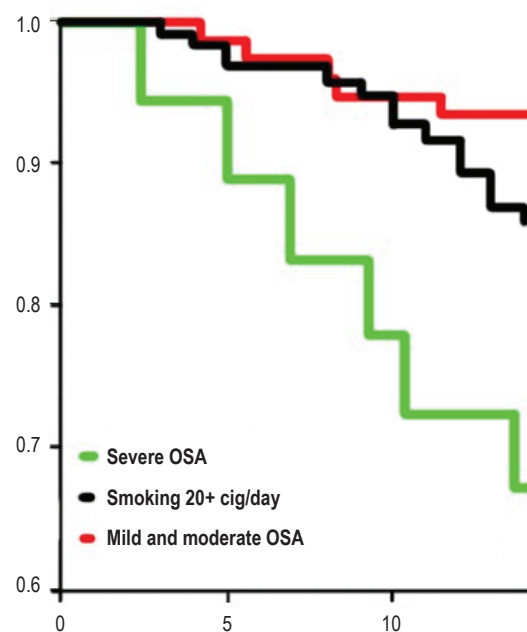
Non-compliance with continuous positive airway pressure (CPAP) treatment is a concern for physicians. CPAP treatment is tolerated to variable extents, and the compliance rates range from 28% to 84%.^{1,2} Compliance/adherence with any proposed behavioral change is complex, involving many factors (such as psychological factors of the patient, the style and delivery of care by the physician, the clinical context, and financial factors).¹

One way to facilitate compliance may be to compare the effects of cigarette smoking with the effects of sleep apnea. Currently, there are no data summarizing the information to make a direct comparison between smoking and untreated obstructive sleep apnea (OSA). We sought data on morality due to smoking and OSA to provide comparative information to assist in the endeavor of CPAP compliance.

When it comes to data on smoking and mortality, multiple studies have shown that among men, smoking shortens lifespan by 7 to 10 years. Strandberg et al. showed that the number of cigarettes smoked shortened life expectancy proportionately.³ The study noted that among patients who smoked 20 cigarettes per day, only 60% survived at the end of 25 years. As a result, physicians encourage smokers, especially heavy smokers, to reduce their amount of smoking, as this has a significant impact on life expectancy.

In contrast, there is a lack of long-term data on life expectancy with untreated OSA. This may be because OSA is a relatively newly described disease, and only a few studies have considered the issue of mortality associated with untreated OSA.⁴⁻⁶ Studies currently available have shown that patients who are undiagnosed, untreated, or non-compliant with OSA treatment tend to have high mortality.⁵ An Australian study observed that the hazard ratio of early death is 4.4-6.2 for untreated moderate-to-severe sleep apnea (RDI ≥ 15 episodes/h) after controlling for different covariates (age, gender, BMI, smoking status, and total cholesterol level).⁷ The Wisconsin study (which found no significant increase in all-cause mortality in untreated individuals with an AHI between 15 and 30 episodes/h) noted that the hazard ratio was 2.7-3.8 for severe OSA (AHI ≥ 30 episodes/h), depending

Figure 1—Comparison of Kaplan-Meier curve from studies predicting long term outcome due to smoking with patients who have non-treated obstructive sleep apnea (OSA)



Smoking data from the study of Strandberg et al.³; OSA data from the study of Marshall et al.⁷

on which subjects and confounding variables were included in their analyses.⁴ Recently the Sleep Heart Health Study,⁶ utilizing a fully adjusted model for men younger than 70 years, reported that the hazard ratios for mild, moderate, and severe sleep disordered breathing were 1.24 (95% CI: 0.90–1.71), 1.45 (95% CI: 0.98–2.14), and 2.09 (95% CI: 1.31–3.33), respectively. These studies do not include the risk of postoperative complications common among untreated obstructive sleep apnea patients.⁸ The incidence of complications is high enough that the American Society of Anesthesiologists recommends screening all patients preoperatively for sleep apnea to avoid perioperative and postoperative complications.⁹

Based on the evidence provided above,³⁻⁸ we compared the mortality among various available studies (as depicted through the published Kaplan-Meier curves; **Figure 1**). We propose that

patients with severe OSA and who were not compliant to CPAP have a higher mortality rate when compared to heavy smokers. In other words, although both lead to premature death, non-compliance to CPAP treatment for those with severe sleep apnea is even more dangerous than smoking heavily.

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DISCLOSURE STATEMENT

The authors have indicated no financial conflicts of interest.