

## SLEEP MEDICINE PEARLS

# Asthma Exacerbation in the Spouse of a Patient With Obstructive Sleep Apnea

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A 68-year-old female never smoker with a history of allergic rhinitis and mild intermittent asthma accompanied her husband to his sleep physician visit and inquired about returning his continuous positive airway pressure (CPAP) cleaning device (SoClean2, SoClean Inc Peterborough, New Hampshire, United States) for a refund. She reported worsening shortness of breath, wheezing and increased need to use her rescue inhaler. Her symptoms started after being exposed to a smell linked to the device. Due to cold winter weather, she was unable to open windows to improve their bedroom's ventilation. Historical triggers for her asthma include dusts, pollens

and perfumes. Her asthma medications were albuterol inhaler as needed, used only occasionally with allergen exposures, and montelukast in the fall and spring seasons. The patient's asthma exacerbation did not require an urgent medical visit and she self-treated by frequent use of albuterol inhaler in addition to restarting montelukast.

**QUESTION: Given the situation, what course of action is recommended?**

**ANSWER: Discontinue use of ozone cleaning device.**

After discontinuing use of the ozone cleaning device, the patient's asthma symptoms improved in 2–3 days and she stopped montelukast 2 weeks following improved symptoms. She did not have any wheezing on examination during a subsequent visit to her primary care doctor.

**DISCUSSION**

Higher ambient ozone concentration may be associated with increased incidence of asthma in children<sup>1</sup> and adults.<sup>2</sup> Ozone pollution has been linked to respiratory symptoms<sup>3</sup> and an increase in asthma exacerbations.<sup>4,5</sup> There is also some evidence to suggest that ozone exposure increases reactivity to allergens in mild atopic asthma<sup>6</sup> and increases risk of death in severe asthma.<sup>7</sup> Sanitizing devices that utilize ozone for disinfecting CPAP machines have been increasingly adopted by CPAP users. This case illustrates a possible link between asthma flare and the use of ozone generating CPAP cleaner. It is important for sleep physicians to be alert to the possible pulmonary complications of these cleaning devices. The potential effects of ozone exposure on asthma should be discussed with an asthmatic patient who is considering the use of an ozone cleaning device. We also advise that history be obtained about family members, especially bed partners, who may have asthma and suffer consequences of ozone exposure. A CPAP cleaning device using UV light<sup>8</sup> may be an option if asthma flare is a concern. Further post-marketing studies may be helpful to clarify the potential risks associated with the use of various CPAP cleaners.

**SLEEP MEDICINE PEARLS**

1. CPAP cleaning devices that utilize ozone may be associated with worsening asthma symptoms.
2. Clinicians who prescribe CPAP machines should be aware of the potential pulmonary complications of ozone generating CPAP cleaning devices and provide accordingly appropriate education to CPAP users.

**CITATION**

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All authors have seen and approved the manuscript. Work for this study was performed at University Hospitals Cleveland Medical Center. The authors report no conflicts of interest.