

# COVID-19 & Obstructive Sleep Apnea: Association and Management

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The rate and severity of COVID-19 transmission has elevated the morbidity and mortality rate across the world with failure of respiratory system being the major cause. The corona virus approach the cells through ACE-2 receptor and induce cytopathic effect triggering the pro-inflammatory marker against the lung damage [1]. Therefore, induction of cytokines like IL-6, ferritin, IL-8, leptin amongst others may contribute to the most prevailing sleep-related respiratory disorder, Obstructive sleep apnea (OSA) [2]. OSA is characterized by intermittent hypoxia, which can further deteriorate the COVID-19 associated hypoxemia and prompt the pulmonary damage. Hence, OSA by itself puts at risk of COVID-19 complications and increase the mortality rate. Moreover, literature suggests the association of OSA with various comorbidities such as diabetes mellitus, chronic respiratory issues, cardiovascular disease, hypertension, cerebrovascular disease etc., which might be more likely to develop complications of COVID-19 than other individuals considering the present statistics. Thus, OSA requires special assistance and, the management of OSA should be stressed upon for prevention and control [3].

The OSA patient with intermittent hypercarbia and COVID-19 induced hypoxemia disturb the cardio metabolic pathway against the occluded airway and appear as cardiovascular disease [4]. In addition, the binding of COVID-19 spike protein with ACE-2 receptor elucidate their entry and regulates the hypertension in mild to moderate with early diagnosed OSA patients. Furthermore, ACE-2 zinc motif peptidase dependently disgrace the bradykinin and impare the nitric oxide production which can influence the various pathological role of cardiovascular risk and hypertension with increase COVID-19 mortality rate [5].

Thus, to reduce the COVID-19 complications in OSA patients, utilization of continuous positive airway pressure (CPAP) has been suggested which is the gold standard of management of OSA. As COVID 19 spreads through droplet transmission, certain guidelines and recommendations needs to be followed while using CPAP. Accordingly, the aim and objective of this communication is to enhance the efforts for prevention, treatment, management, and better patient care, with improved quality of life. This should be very helpful to patients who routinely use positive airway pressure therapy (CPAP).

S.No	Guidelines
01	OSA patients should use the CPAP machine in continuation at home as normal. [6]
02	The control of infection followed by routine respiratory hygiene to be followed such as surface and cleaning of equipment with hot soapy water and continous change of machine filters. [7]
03	The quality and quantity of mask and tubing to be maintained without over storing keeping in mind a probable temporary shortage in future. [8]
04	CPAP machines and mask not to be co-shared with anyone to prevent transmission of infection [9]
05	Only emergency patients encouraged to visit hospitals, routine out-patient visits should be avoided unless urgent. [10]
06	CPAP not to be used by the patients until instructed by clinicians. [11]
07	Use of a humidifier with CPAP machine can be avoided to reduce the droplet spread decreasing the risk of COVID-19 infection.

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