

# Obstructive Sleep Apnea in Head and Neck Cancer Patients

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Head and neck cancer (HNC) is the sixth most common cancer in the United States. Toxicity during treatment and disease itself may cause long-term disabilities in HNC patients and decrease quality of life (QoL). With the increasing numbers of HNC survivors it becomes even more important to address QoL issues [1]. One such factor that may impact QoL, sleep disturbances, is common in patients with HNC. Poor sleep quality is often associated with fatigue, pain, depressed mood and poor QoL. In addition, the cancer diagnosis itself, psychosocial disturbances and comorbid medical problems may also cause sleep disruption. Xerostomia, smoking and alcohol use are additional factors associated with decreased sleep quality in these patients.

Obstructive sleep apnea (OSA) is an important cause of decreased sleep quality in the general population and is understudied among HNC patients [2]. OSA is the most common sleep-related breathing disorder and affects approximately 22% of males and 17% of females in the United States. In the general population, OSA is associated with hypertension, cardiac arrhythmias, type 2 diabetes mellitus, stroke and depression. Severe OSA with apnea-hypopnea index (AHI) >30 is an independent risk factor for all-cause mortality [3].

The prevalence of OSA among HNC patients is higher than in general population. The impact of OSA on the outcome of cancer treatment has not been well studied. Intermittent hypoxia may cause increase in pro-inflammatory cytokines and result in systemic inflammation. Higher levels of IL-6 were found in OSA patients and were reduced after treatment with continuous positive airway pressure (CPAP). Higher baseline IL-6 levels in HNC patients is predictive for cancer recurrence and overall survival [2].

Tumors in the head and neck region may cause anatomic abnormalities of the upper airway and result in airway obstruction. Treatment with surgery and/or radiation may further exacerbate these changes and create neurosensory dysfunction. Predictors of developing OSA are larger tumor size and primary site in larynx or hypopharynx. In a retrospective study of 56 patients, 47 were found to have OSA, and 46% had severe OSA. There was a higher prevalence of OSA in the patients group who received radiation (88% vs 67%). The most common complaints were daytime

fatigue (93%), hypersomnia (89%) and snoring (82%) [4]. In a study of Payne et al. [5] 13 out of 17 untreated patients with oral or oropharyngeal cancer were found to have OSA with a mean apnea-hypopnea index (AHI) of 44.7 events per hour. In Zhou et al. [2] study, 22 out of 24 surgically treated patients had clinically significant OSA with respiratory disturbance index (RDI) greater than 15. Of note, these 22 patients had normal or low BMI [2].

In a study of Gilat et al. [6] eight out of fifteen surgically treated patients were found to have OSA and OSA rate was significantly higher than in general population ( $p=0.001$ ). Although obesity is a strong risk factor for development of OSA in general population, there seems to be no association between body mass index (BMI) and development or severity of OSA in HNC patients. Since HNC patients do not have high BMI and body habitus similar to usual OSA patients, and clinical symptoms like fatigue and sleepiness are often mixed with cancer presentation, it is important to decrease the OSA screening threshold for these patients.

## References

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