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**Incidence and Nature of Postoperative Complications in Patients with Obstructive Sleep Apnea Undergoing Noncardiac Surgery**

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**Purpose:** To study the nature and frequency of postoperative complications after noncardiac surgery (NCS) among patients with obstructive sleep apnea (OSA).

**Methods:** The Internal Medicine Preoperative Assessment, Consultation and Treatment (IMPACT) Center and polysomnography (PSG) databases were crossmatched to identify patients who underwent both NCS and PSG at our major tertiary care center. OSA (apnea-hypopnea index [AHI] > 5) was presumed to be present at the time of surgery, even if established by PSG within 3 years after NCS. Among patients who underwent multiple procedures, those with higher surgical risk class and the most recent PSG prior to the chosen NCS were selected. The impact of OSA on postoperative outcomes was analyzed with a multivariate logistic model that was adjusted for age, gender, race, type of anesthesia, BMI, ASA class, and medical comorbidities.

**Results:** A total of 471 patients underwent both NCS and PSG between February 2002 and June 2006. A total of 262 patients (56%) had OSA, and a majority of NCS (80%) were intermediate risk. Continuous positive airway pressure (CPAP) was recommended to 152 patients with OSA (58%) after diagnosis but was not consistently resumed postoperatively. The presence of OSA was associated with higher risk of unplanned ICU transfer (OR = 4.1,  $P = 0.047$ ), higher overall complications (OR = 6.4,  $P = 0.0005$ ), and longer hospital stay (OR = 1.7,  $P = 0.04$ ). Postoperative respiratory failure was the most frequent complication among OSA cases (6% vs 2%), but the difference was not statistically significant ( $P = 0.18$ ). Severity of OSA, defined by higher AHI, was not associated with postoperative complications ( $P = 0.21$ ) or hospital length of stay (LOS) ( $P = 0.35$ ). 70% of OSA patients for whom home CPAP was recommended were compliant as reported at their preoperative assessment. Among OSA patients, use of CPAP at home prior to NCS did not lower the risk of postoperative complications ( $P = 0.80$ ) or hospital LOS ( $P = 0.19$ ).

**Conclusion:** Higher risk of postoperative complications is noted after NCS in patients with OSA, resulting in unplanned ICU admissions and longer hospital stay. Further studies are needed to understand the impact of OSA severity and perioperative CPAP use on postoperative outcomes.

**Clinical Implications:** Patients with OSA should be closely monitored postoperatively. Resuming CPAP immediately postoperatively may help reduce the risk of postoperative complications.