Outcomes and safety among patients with obstructive sleep apnea (OSA) undergoing cancer surgery in a free-standing ambulatory surgical facility

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Background
Obstructive sleep apnea (OSA) continues to be a significant public health concern, affecting over 25% of the general population. [1] These patients have increased risks of arterial desaturations, sympathetic activation, and systemic inflammation causing a variety of cardiovascular and respiratory conditions and increase in mortality. [2, 3] Risk factors include obesity, male gender, hypertension, advanced age. [4]

In the perioperative setting, depression of upper airway muscle activity following sedation or general anesthesia may exacerbate OSA symptoms, resulting in increased perioperative complications, including hypoxemia and airway obstruction, which may lead to respiratory arrest and death. [5] Thus operating on at-risk OSA patients in an ambulatory surgery facility remains controversial. For this reason, the Society for Ambulatory Anesthesia (SAMBA) issued a consensus statement on the preoperative selection of these individuals [6], yet additional evidence is needed. The STOP-Bang Tool is a validated screening tool used to screen surgical patients for OSA (Box 1) [7] and may help reduce risk of perioperative complications and guide perioperative management. [3] The Josie Robertson Surgery Center (JRSC) is a free-standing surgical facility of the Memorial Sloan Kettering Cancer Center (MSKCC), dedicated to cancer outpatient procedures. It is unique in undertaking more advanced non-traditional outpatient procedures than other such centers and provides overnight capability.

Objective
In this study, we investigate an association between OSA status (low, moderate, high risk or diagnosed), and short term outcomes and safety of patients undergoing a variety of cancer ambulatory surgery procedures at the JRSC.

Methods
All patients scheduled for outpatient or extended ambulatory surgery (AXR- overnight stay) are screened in presurgical clinic for OSA by a nurse practitioner. Patients with diagnosed OSA are identified and asked whether they own and use OSA equipment. Undiagnosed patients are screened using the STOP-Bang tool (Box 1) to determine OSA risk. Postoperative respiratory events, including desaturations <90% SpO2 in an unstimulated environment and obstruction (apnea or snoring), are recorded by respiratory therapist. The need for CPAP, BiPAP, or continued
mechanical ventilation is also recorded. Postop length of stay (LOS), transfer to acute care facility, visits to the urgent care center (UCC), and readmissions within 30 days were documented as part of routine care. Kruskal-Wallis tests were used to assess the association between OSA risk and LOS. Fisher’s exact tests were used to assess the association between OSA risk and the probability of an adverse event. Multivariable analyses adjusting for age, ASA score, robotic surgery, type of anesthesia, and type of procedure were further conducted on comparisons yielding significant results at the univariate level. A sensitivity analysis was conducted repeating these analyses comparing low risk patients to moderate risk, high risk and diagnosed OSA patients.

Results

A total of 5721 procedures were included in the analysis. 4.1% of patients were diagnosed with OSA, with 3.5% at high risk and 1.6% at moderate risk. Among 233 patients with OSA, 65% had home devices, with 75% of these patients compliant. Additional patient characteristics are reported in Table 1. We found no evidence of a difference in length of stay by OSA risk among either outpatient (p=0.2) or AXR patients (p=0.4, Table 2). On multivariable analysis, we found no evidence that the rate of UCC visits differed between low or moderate risk patients and high risk or diagnosed patients (adjusted risk difference 1.1%, 95% CI -0.8%, 3.1%, p=0.2). There were also no differences in rates of readmissions between these two groups (adjusted risk difference 1.2%, 95% CI -0.3%, 2.8%, p=0.068). Sensitivity analysis results were similar when comparing outcomes between low risk patients and all other patients. Among the 527 patients diagnosed with or at moderate or high risk for OSA, 13% (95% CI 11%, 16%) experienced a postop respiratory event. The rate was similar between high risk (16%) and diagnosed patients (15%), as compared to a rate of 2.2% in moderate risk patients. Nearly half of patients with diagnosed OSA used a postop respiratory device (48%), as compared to only 13% of high risk and 2.2% of moderate risk patients.

Conclusions

Patients at risk for OSA can safely undergo ambulatory cancer surgery at JRSC, where patients underwent a variety of outpatient and non-traditional extended ambulatory surgery. We were able to exclude any clinically meaningful increase in postoperative adverse events among those with a high risk of or diagnosed with OSA. While there were an increased number of postop respiratory events among high risk and diagnosed OSA patients as compared to moderate risk patients, we excluded any clinically meaningful increase in risk of adverse events, and would not have reason to preclude these patients from treatment at JRSC based solely on preoperative OSA status. These results contribute to the growing need for evidenced based practice in managing the at risk OSA patients for ambulatory surgery.

References


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