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Application Value of the Screening Questionnaires to Predict OSA-Related Complications Following Thoracic Surgery for Lung Cancer

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Objectives: Considering the increased prevalence of sleep apnea in patients with lung cancer and the relation between obstructive sleep apnea (OSA) and post-operative complications, it is important to screen lung cancer patients in terms of OSA before thoracic surgery. In this study we aimed to investigate whether sleep apnea screening questionnaires including STOP-Bang, Berlin and NoSAS, that used to identify sleep apnea risk, would also predict OSA-related complications following thoracic surgery for lung cancer.

Methods: This was a prospective cross-sectional study. Patients who had the diagnosis of lung cancer and eligible for the elective thoracic surgery were enrolled in the study between 01/06/2016 to 01/06/2017. All patients underwent preoperative pulmonary evaluation and filled out STOP-Bang and Berlin questionnaires. NoSAS score was subsequently calculated from the existing data of the patients. Post-operative follow up of the subjects was managed by intensive care unit team and complications were recorded. We considered the OSA-related complications as difficult endotracheal intubation, hypoxemia, hypercapnia, need for non-invasive mechanical ventilation support and invasive mechanical ventilation support. The relationship between post-operative OSA-related complications and screening questionnaires was assessed.

Results: A total of 71 subjects included in the study. Regarding screening questionnaires; 58(81.7%) subjects had a STOP-Bang score of ≥ 3 , 27(38%) subjects had a Berlin questionnaire score of ≥ 2 , 53(74.6%) subjects had a NoSAS score of ≥ 8 . A total of 27(38%) patients had the OSA-related complications. There was no statistically significant differences between the patient groups with OSA-related complications and without OSA-related complications in terms of STOP-Bang, Berlin and NoSAS scores ($p=0.586$, $p=0.586$, $p=0.799$, respectively). However, 21(77.6%) of the 27 patients who had OSA-related complications, were at high risk for OSA according to STOP-Bang questionnaire and NoSAS score. Additionally, OSA-related complications were more common in patients with the diagnosis of adenocancer, requiring additional surgical procedure, and female gender ($p=0.037$, $p=0.022$, $p=0.02$ respectively).

Conclusion: Neither Stop-Bang and Berlin questionnaires nor Nosas score would predict OSA-related complications following thoracic surgery for lung cancer. However, 77.6% of the patients who had OSA-related complications had high-risk for OSA according to Stop-Bang questionnaire and NoSAS score. Considering the increased prevalence of sleep apnea in patients with lung cancer and the relation between OSA and post-operative complications, we still believe that it is important to screen lung cancer patients in terms of OSA before thoracic surgery. Further studies should be carried out to meet this requirement in this specific group of patients.

Keywords: OSA, screening questionnaires, thoracic surgery, lung cancer