Evaluation of the relationship between the stop-bang score with oxygen reserve index and difficult airway: a prospective observational study

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Background: Patients diagnosed with Obstructive Sleep Apnea (OSA) syndrome have a tendency towards hypoventilation, hypoxia, and hypercarbia in the perioperative period. This study hypothesized that the Oxygen Reserve Index (ORi) could predict possible hypoxia and determine difficult airways in patients at risk for OSA, as determined by the STOP-Bang questionnaire.

Methods: This prospective study included adult patients undergoing elective surgery under general anesthesia with endotracheal intubation, divided into two groups: low risk (0–2 points) and high risk (3–8 points) based on their STOP-Bang questionnaire results. The primary outcome measure was the highest ORi value reached during preoxygenation and the time to reach this value. Data were recorded at four time points: before preoxygenation (T1), end of preoxygenation (T2), end of mask ventilation (T3), and end of intubation (T4), as well as partial oxygen pressure values in T1, T2, and T4. The secondary outcome measures were the grading scale for mask ventilation, Cormack-Lehane score, tonsil dimensions, use of a stylet, and application of the burp maneuver during intubation.

Results: In the high-risk group, preoperative peripheral oxygen saturation values, the highest ORi value reached in preoxygenation, and ORi values at T3 and T4 times were lower, and the time to reach the highest ORi value was longer ($p < 0.05$).

Conclusion: Using ORi in patients with OSA may be useful in evaluating oxygenation, and since difficult airway is more common, ORi monitoring will better manage possible hypoxic conditions.