

## **Evaluation of Oxygenation in Low- and High-Flow Anesthesia Applications by Oxygen Reserve Index: A Randomized Prospective Study**

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**Aim:** While arterial blood gas (ABG) analysis is invasive, intermittent, and costly, the oxygen reserve index (ORI) is a new method that can be non-invasive and continuous measurement aimed at providing information about the patient's O<sub>2</sub> status in the moderately hyperoxic range. In our study, the ORI to PaO<sub>2</sub> relationship in different fresh gas flows was evaluated.

**Methods:** This randomized prospective study was conducted between November 2018 and November 2019. All patients were ventilated for the first 10 min after intubation with 50% O<sub>2</sub> /air and 6 L/min fresh gas flow. Then, the flow rate was randomly set to 4 L/min for high-flow anesthesia (group H) or 1 L/min for low-flow anesthesia (group L). ABG's were taken before preoxygenation, intraoperative 60th min, and at the end of surgery, and simultaneous ORI and SpO<sub>2</sub> were recorded.

**Results:** The study was completed with 70 patients. Mean PaO<sub>2</sub> values were higher in group H, apart from before preoxygenation ( $p < 0.05$ ). Mean ORI values differed between groups except before preoxygenation and the intraoperative 10th min ( $p < 0.05$ ). A statistically significant, positive and weak correlation was identified between ORI and PaO<sub>2</sub>. According to the regression analysis, the ORI value was approximately 0.2 when the PaO<sub>2</sub> value was  $\geq 100$  mmHg at the intraoperative 60th min and at the end of the surgery, and 0.3 when the PaO<sub>2</sub> was  $\geq 150$  mmHg.

**Conclusion:** ORI may be an alternative to PaO<sub>2</sub> in monitoring the oxygen status of intraoperative patients.