The SuperNOVA Nasal Ventilation Mask to Decrease Sedation-Related Hypoxemia in High-Risk Patients: A Case Series

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With increasing popularity of outpatient and minimally invasive procedures, moderate to deep sedation is becoming a more commonly used method of anesthesia. The ASA Committee of Standards and Practice Parameters recommends providing every patient with a continuous course of passive supplemental oxygen and continuously monitoring oxygenation and ventilation during procedural moderate to deep sedation. However, morbid obesity and OSA are independent risk factors for sedation-related upper airway obstruction and intra-operative hypoxemia, which occurs at rates up to 42% of patients, despite the use of standard oxygenating devices.

This study involved the review and analysis of 4 case reports featuring 10 high-risk patients requiring deep procedural sedation. Nine of the 10 patients were obese with a BMI ≥ 34.4, and all patients were at high-risk for or diagnosed with Obstructive Sleep Apnea (OSA). When the SuperNOVA nasal ventilation mask was connected to either an anesthesia circuit or hyperinflation bag, a Positive Airway Pressure (PAP) was generated that maintained airway patency throughout each procedure and was well tolerated by all patients. The lowest oxygen saturation (SpO2) recorded was 98.0% and there was zero incidence of airway obstruction.

This case series suggests the utility of a pressurized nasal ventilation mask, such as the SuperNOVA, to maintain airway patency and provide ventilatory support in patients at risk for upper airway obstruction (UAO) during deep sedation. The outcome in this case is encouraging and suggests that a pressurized nasal ventilation mask may be used to improve oxygenation and ventilation in high-risk patients. Further randomized clinical trials are necessary to assess its utility compared to standard devices.