Nasal positive pressure with the SuperNO$_2$VA™ device decreases sedation-related hypoxemia during pre bariatric surgery EGD

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Objectives

Bariatric surgery patients may require preoperative esophagogas-troduodenoscopy (EGD), and many of these morbidly obese patients have obstructive sleep apnea (OSA). Deep sedation in these patients can invoke hypoxia during EGD. The authors compared hypoxia events using SuperNO$_2$VA™ (Vyaire Medical, Mettawa, IL) versus conventional nasal cannula for intraprocedural oxygen supplementation.

Study methods

The authors conducted a prospective observational nonrandomized study in 56 consecutive patients undergoing preoperative EGD. At the discretion of the anesthesiologist, airway management was performed either with the SuperNO$_2$VA device (n=26) or nasal cannula (n=30). Data were collected including the incidence and number of hypoxemic events (SpO$_2$<90% for greater than 15 s), lowest SpO$_2$ during the procedure, number of procedure interruptions requiring bag-mask ventilation, and morbidity. Additional patient data collected included baseline SpO$_2$, post-operative SpO$_2$, procedure length, and length of stay in the post-anesthesia care unit.

Results

Patients treated with the SuperNO$_2$VA mask had higher BMI (47.5 vs 40.5 kg/m2, p<0.0001) and were more likely to have OSA (53.9% vs. 26.7%, p=0.04). ASA score was higher in the mask group (p=0.03). Baseline SpO$_2$ was similar between the groups. The incidence of desaturation events and hypoxia was significantly lower in the SuperNO$_2$VA group (11.5% vs. 46.7%, p=0.004) and the lowest O$_2$ measured was higher in the SuperNO$_2$VA group (100% vs. 90.5%, p<0.0001). Procedural interruptions requiring bag-mask ventilation were less common in the SuperNO$_2$VA group (not significant). Procedure and recovery times were not different.

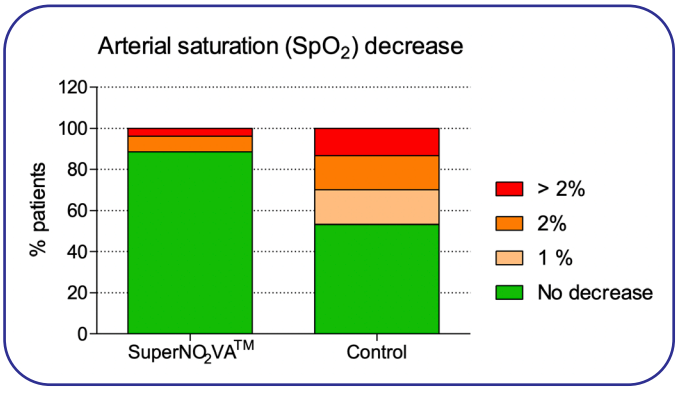

Figure 1 Patient desaturations during procedure

What is SuperNO$_2$VA?

The SuperNO$_2$VA nasal positive airway pressure mask directs the flow of gas to the upper airway, effectively stenting open the upper airway to prevent its collapse. The goal of SuperNO$_2$VA is to provide oxygenation and ventilation with positive pressure to keep the airway patent. Use of this device can improve patient care for those with high-risk comorbidities by reducing the risk of hypoventilation. Notably, this device can be used anywhere there is a fresh oxygen source and may be used during transport and recovery.

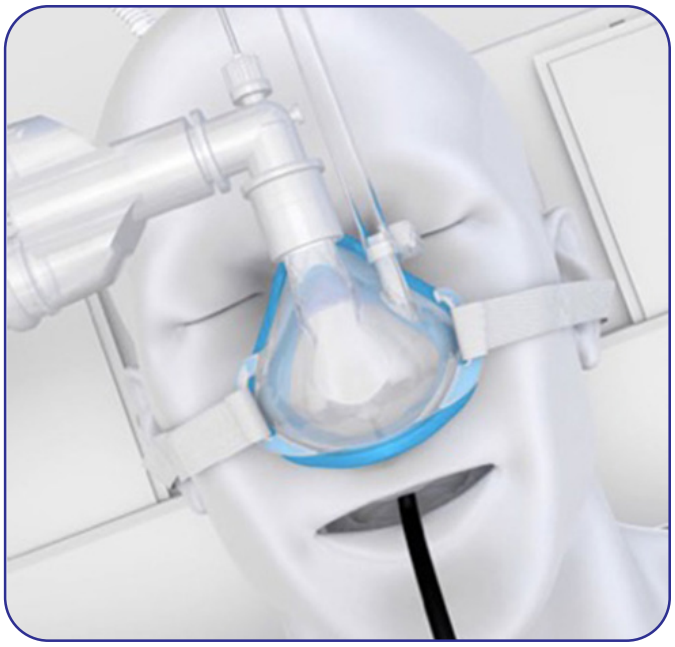

Figure 2 SuperNO$_2$VA nasal CPAP device with orogastric tube in place

Take home message

The SuperNO$_2$VA mask appears to offer advantages of improved oxygenation in morbidly obese patients undergoing procedural sedation for EGD prior to bariatric surgery. These findings were noted in a group of patients with higher BMI, higher anesthesia risk, and higher likelihood of obstructive sleep apnea. Use of the mask was not associated with a change in complications, length of procedure, or length of stay in the post-operative anesthesia unit. This device may help optimize care in these challenging patients.

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