Comparison of a simplified nasal continuous positive airways pressure device with nasal cannula in obese patients undergoing colonoscopy during deep sedation: A randomised clinical trial

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Objectives

The authors hypothesized that oxygenation and ventilation in obese patients undergoing deep sedation during colonoscopy using CPAP using the SuperNO$_2$VA™ (Vyaire Medical, Mettawa, IL) nasal mask would be better than routine care with oxygen supplementation provided by nasal cannula.

Study methods

In this study, 174 patients (average BMI 36 undergoing colonoscopy were randomly assigned to either a SuperNO$_2$VA group or the control group. Thirty-eight were excluded. Patients in the SuperNO$_2$VA group were given nasal CPAP at 10 cmH$_2$O and oxygen flow rate of 151*min-1. The controls were given oxygen via nasal cannula at a rate of 5 l*min-1. The primary outcome was elapsed time from anaesthesia induction to the first airway intervention. Other outcomes included hypoxemia events and minute ventilation.

Results

During the procedure, hypoxemia occurred more frequently in the Control group vs. the SuperNO$_2$VA group (22% vs. 5%, respectively, p<0.001) and airway intervention was less common in the SuperNO$_2$VA group than the Control group (23% vs. 63%, respectively, p<0.001). Minute ventilation was higher in the SuperNO$_2$VA group than in the Control group (p=0.001).

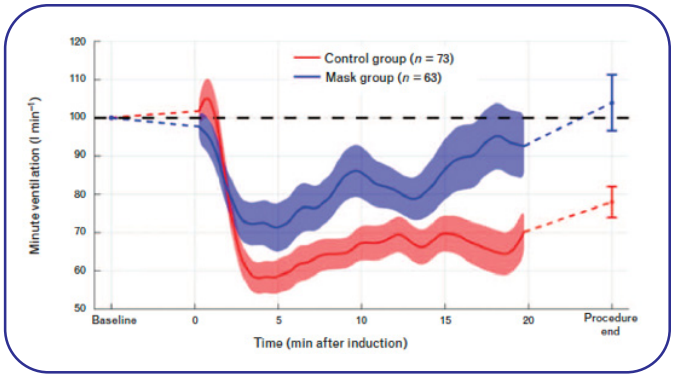

Figure 1 Time course of minute ventilation following anesthesia induction. Minute ventilation is shown as a function of time following anesthesia induction. Solid lines represent mean across Control and SuperNO$_2$VA subjects. Shaded areas are standard error of the mean

The time from induction of anesthesia to the first airway intervention was significantly longer in the SuperNO$_2$VA group compared to the Control group (19 ± 10 minutes vs. 10 ± 12 minutes, respectively, p<0.001)).

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.

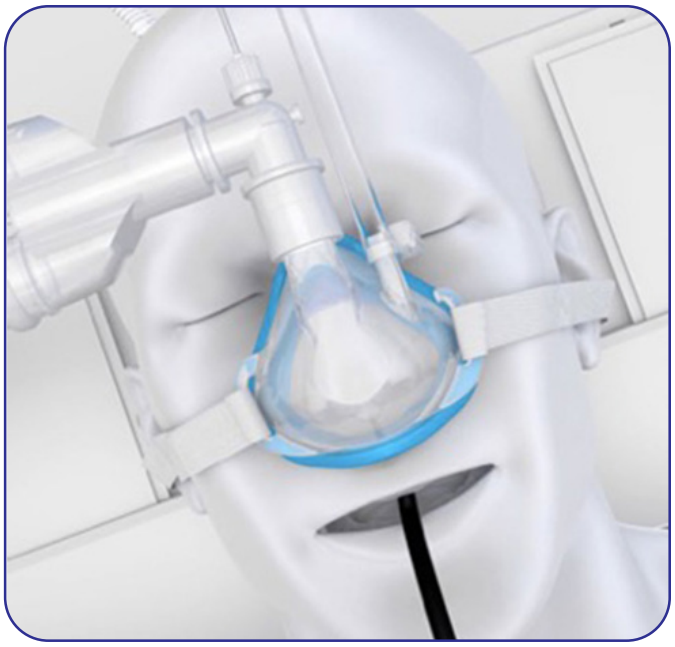

Figure 2 SuperNO$_2$VA nasal CPAP device with orogastric tube in place

Take home message

The SuperNO$_2$VA Satellite Set used during colonoscopy under deep sedation with spontaneously breathing obese patients improves ventilation and reduces the need for airway intervention, as well as the incidence and severity of hypoxemia. The SuperNO$_2$VA nasal mask is simple to apply and use with low oxygen flows already available in the procedure room. The incidence and severity of hypoxia events were less common in the SuperNO$_2$VA group.

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Vyaire Medical, Inc. | 26125 North Riverwoods Blvd | Mettawa, IL 60045, USA