Nasal Continuous Positive Airway Pressure During Intubation in Superobese Patients Prolongs Safe Apnea Period

To the Editor

I read with great interest the article by Toner et al1 on apneic oxygenation with buccal oxygen administration during prolonged laryngoscopy in healthy nonobese patients. Earlier work by these authors demonstrated similar benefit in obese patients with body mass index of 30–40.2 I would like to share our experience with oxygenation during intubation efforts in superobese patients with body mass index >50. In a prospective observational study, we evaluated the use of nasal continuous positive airway pressure (Paw) during intubation efforts in superobese patients. Our hypothesis was that if nasal continuous Paw effectively treated sleep apnea, then it should provide sufficient oxygenation during apnea associated with anesthetic induction and intubation.

After obtaining institutional ethics committee of Medical University of Lodz approval (RNN/363/13/KB, date May 21, 2014, head: Prof P. Polakowski), 20 superobese patients were enrolled. We obtained written informed consent from the study participants. Patients were scheduled for elective bariatric surgery. Anesthetic management was based on guidelines of European Society of Peri-Operative Care of Obese Patient. After induction, a facemask was placed over the nose of the patient and fixed with a silicone band around the head the way that nasal continuous Paw is installed. Continuous Paw was created with a fresh gas flow of 12 L/min of 100% oxygen and regulated with to keep airway pressure at 15 cm H2O. No active ventilation of the patient anesthetized during the apneic period. After intubation, the mean level of end-tidal carbon dioxide was 40 mm Hg.

In all cases, visualization of entrance to the larynx was good. The use of nasal continuous Paw did not compromise the effective use of the videolaryngoscope. In all cases, we stopped after 6 minutes with no drop in Spo2 so as not to prolong the time to start surgical procedure. In every patient, Spo2 remained above 94% during the entire apneic period. After intubation, the mean level of end-tidal carbon dioxide was 40 mm Hg.

Simultaneous oxygenation during attempts of visualization of entrance to the larynx increases patient safety. In our observation, there were no episodes of hypoxia in superobese patients when nasal continuous Paw was used during intubation. Heard et al3 described successful use of the buccal oxygenation via a modified 3.5-mm Ring–Adair–Elwyn tube apposed to the left internal cheek in obese patients. Baraka et al4 used nasopharyngeal oxygen supplementation via the nasopharyngeal tube and reached 4 minutes of safe apnea period. Similar observations were made by Ramachandran et al.4 We increased effectiveness of oxygenation by using nasal continuous Paw, which may be similar in effectiveness to high-flow transnasal oxygenation now recommended in cases of suspected difficult intubation.

In conclusion, nasal continuous Paw provided effective oxygenation during intubation efforts in superobese patients without compromising the use of videolaryngoscopes for intubation.

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REFERENCES

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In Response

Thanks to Professor Gaszynski for your interest in our article2 examining tracheal oxygen levels, tracheal pressure, and carbon dioxide accumulation during apneic oxygenation. One goal of our study was to highlight the physiological end points that determine the efficacy and...