

Midazolam Premedication Improves Mask Ventilation

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Abstract

Mask ventilation is one of the most critical steps in a safe anesthetic induction. However, many clinicians can struggle to maintain adequate mask ventilation. Studies have shown that administering midazolam before entering the operating room improves mask ventilation and improves placement of adjunct airways. This project was set in a hospital in central Florida. Flyers were attached to pyxis machines in each operating room, informing the certified registered nurse anesthetists (CRNA) of difficult mask ventilation characteristics, the benefits of midazolam administration prior to induction of anesthesia, and the studies showing improvement in ventilation following midazolam administration. Data regarding the current pre-operative administration of midazolam, whether the CRNA has had trouble with mask ventilation, and whether the CRNA will increase their use of pre-operative administration, especially in patients with difficult mask ventilation characteristics via an anonymous survey was collected. This paper discusses the difficulty of mask ventilation and asks the question: do patients who receive midazolam for sedation and anxiolysis preoperatively, compared to those patients who do not, have less difficult mask ventilation issues?

Introduction

Anesthesia begins in the preoperative area with the initial assessment of the patient. This assessment includes the patient's medical and surgical history, lab values, physical characteristics, and a detailed inspection of the patient's airway. The anesthesia providers place particular importance on physical characteristics that could make the patient difficult to mask ventilate such as age greater than 55 years, body mass index greater than 26kg/m², a lack of teeth, facial hair, or a history of snoring (Lundstrom et al., 2019).

Mask ventilation can be a life-saving intervention and is performed on all patients prior to endotracheal tube (ETT) placement during general anesthetic induction. Midazolam, a well-known anxiolytic medication, has been shown to improve mask ventilation in patients with difficult mask ventilation characteristics (Jayadharan Balamurugan & Chandra Thendral Arasu, 2016). This paper discusses the difficulty of mask ventilation and asks the question: Do patients who receive midazolam for sedation and anxiolysis preoperatively, compared to those who do not, have less difficult mask ventilation issues?

Hypotheses

- Educating anesthesia providers about the benefits of preoperative midazolam administration for patients with difficult mask ventilation characteristics will result in more anesthesia providers premedicating patients who have difficult mask ventilation characteristics with midazolam.

Methods

- Informational flyers were placed in 15 ORs containing QR codes to a three-question survey and reference list.
- Survey replies were collected via Survey Monkey.

Questions:

- Do you have difficulty mask ventilating?
- Do you currently premedicate pt.s who have difficult mask ventilation characteristics with midazolam?
- If you don't already, will you now start to premedicate pt.s with difficult mask ventilation characteristics with midazolam?

Participants = 23

Results

Survey Answers:

- Do you have difficulty mask ventilating?

Yes= 26.09%

No= 65.22%

Other= 8.7%

- Do you currently premedicate pt.s who have difficult mask ventilation characteristics with midazolam?

Yes= 78.26%

No= 21.74%

Other= 0%

- If you don't already, will you now start to premedicate pt.s with difficult mask ventilation characteristics with midazolam?

Yes= 73.91%

No= 17.39%

Other= 8.7%

Discussion

Although most anesthesia surveyed stated they did not have problems with mask ventilation (65.22%), the majority did indicate that they will now premedicate patients who have difficult mask ventilation characteristics with midazolam (73.91%). This shows that educating anesthesia providers about the benefits of premedication with midazolam was worthwhile and has led to a practice change for some anesthesia providers. This will provide patients with a safer anesthetic induction and provide anesthesiologists and CRNAs with a smoother anesthetic induction.

Conclusions

Many anesthesia providers were familiar with midazolam and have administered midazolam for various reasons, including anxiolysis and retrograde amnesia. However, most anesthesia providers were unaware of midazolam's ability to relax airway muscles and provide better conditions for mask ventilation. After reading our flyer and having a brief discussion on the benefits of midazolam found in the referenced articles, even the providers who answered "No" when asked if they have difficulty mask ventilating their patients indicated they would now premedicate with midazolam. To help ensure that this information is not forgotten, both authors will continue to provide midazolam in the preoperative field to appropriate patients. Although this project has concluded, educating other anesthesia providers about the benefits of midazolam will continue.

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