

When to call the anesthesiologist for assistance with sedation

Picture these 2 separate scenarios: (1) It has been 45 minutes since the nurse started administering the medications for an endoscopy, but the patient is still wide awake. Your attending is starting to get fidgety and is questioning why you did not schedule the patient for deep sedation, when you should have known that the patient has a history of alcohol abuse. (2) As soon as the nurse administers the starting dose of sedatives, the patient stops breathing and a code is called. You remember that the patient has advanced congestive heart failure.

Although uncommon, these scenarios are by no means rare and are a source of significant frustration and anxiety on the part of the gastroenterology fellow. However, there is a common thread to most situations like these: a thorough preprocedure evaluation could have indicated the need to schedule these procedures with an anesthesiologist instead of with moderate sedation. Unfortunately, this is something that is usually not taught as a part of the formal fellowship curriculum and is rather learned “on the job.”

To hopefully prevent situations like these, we have invited Dr. DeLegge to share his thoughts on this topic in this month's *Fellows Corner*.

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The goal of sedation in the endoscopy suite is to provide analgesia and/or anesthesia safely and effectively while providing the “ideal” procedure environment to ensure success. GI endoscopic procedures are generally considered safe. However, cardiopulmonary complications account for 50% of all endoscopy-reported complications, with the majority occurring as a result of aspiration, oversedation, hypoventilation, vasovagal episodes, and airway obstruction.¹ A retrospective review of 21,011 endoscopic procedures noted a cardiovascular complication rate of 5.4 per 1000 procedures.² It is clear that sedation-related pa-

tient events are a risk to the success of the endoscopic procedure itself.

The gastroenterology fellowship training program is the foundation on which the practicing gastroenterologists build their career. It is usually the last time a physician has the opportunity to serve as a “trainee” and therefore be surrounded with the comfort and “safety” of experienced attending gastroenterologists. Endoscopic sedation training is a very important, but often smaller, component of the gastroenterology fellowship

Key Points

- Sedation is an intricate part of the endoscopic procedure.
- A focused preprocedure evaluation should include an assessment of sedation risk.
- Gastroenterologists should be familiar with the American Society of Anesthesiologists classification and the Mallampati scoring system.
- Gastroenterologists should be familiar with the rationale and reasons to call for anesthesiology assistance with sedation.
- The anesthesiology and gastroenterology departments should work together to achieve the goal of safe and effective sedation for patients undergoing endoscopy.

curriculum.³ The most critical issue the gastroenterology fellow can learn about sedation is when to call for help and when to enlist the services of anesthesiologists to perform the sedation component of the endoscopy. This usually means the use of propofol for deep sedation or general anesthesia. However, this could also occur in some unique, high-risk situations in which moderate sedation is used.

The gastroenterology fellow should take the patient preprocedure assessment very seriously. This evaluation should not only be for the appropriateness and risks of the endoscopic procedure, but also to formulate an appropriate sedation plan for the patient to ensure that it is safe, efficient, and cost-effective. The preprocedure assessment and physical examination are designed to identify the aspects of the patient's medical history and physical ex-

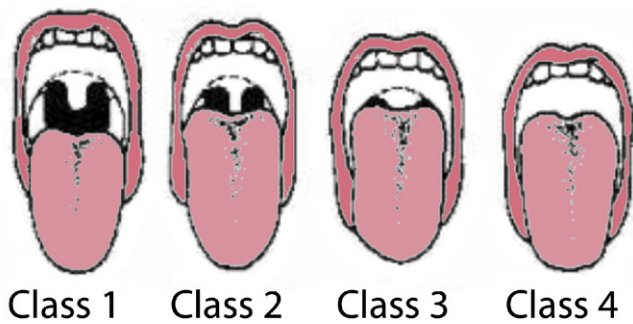


Figure 1. Mallampati score.

amination that could adversely affect the outcome of the endoscopic procedure, including the sedation component.⁴ A critical aspect of the patient's preprocedure evaluation is to identify high-risk patients. This includes patients with significant cardiac or pulmonary disease, neurologic or seizure disorders, snoring or sleep apnea, previous adverse reactions to sedation or anesthesia, current medications and medication allergies, alcohol or drug abuse, and psychiatric issues. In addition, the time of last oral intake, procedure location, and the type and duration of the procedure may also aid in identifying those deemed at higher risk of moderate sedation.

A focused physical examination should be performed before any endoscopic procedure and should include assessment of the vital signs, weight, heart, lungs, abdomen, level of consciousness, mobility, and airway. The airway assessment is critical to perform. No one wants to be in a situation in which emergent intubation is required but becomes technically challenging because of anatomic abnormalities of the mouth, teeth, tongue, pharynx, neck, or cervical spine. The most common airway assessment tool used today is the Mallampati score (Fig. 1). The gastroenterology fellow should be very familiar with this scoring system and perform this assessment before any endoscopic procedure. Patients with a score of III or IV should have the sedation component of the endoscopic procedure provided by the anesthesia team.

Patient's physiologic risk assessment is also a critical component of the preprocedure patient evaluation. The most common risk stratification tool used today for sedation is the American Society of Anesthesia (ASA) score (Table 1). ASA class IV and V patients require the services of an anesthesiologist to provide the sedation component of the endoscopic procedure. The GI fellow should be very knowledgeable about this scoring system and use it for all endoscopic procedures.

There are additional patient populations that are often not appropriate candidates for sedation administration by the gastroenterologist performing the endoscopic procedure. This includes those at the extremes of age or with significant symptomatic renal or liver dysfunction, a history of difficulty with moderate sedation, major cognitive dysfunction, increased intracranial pressures, symptomatic

TABLE 1. ASA Classification

Class	Description
1	Healthy patient, no medical problems
2	Mild systemic disease
3	Severe systemic disease, but not incapacitating
4	Severe systemic disease that is a constant threat to life
5	Moribund, not expected to live 24 h irrespective of operation

pneumonia resulting in ventilation abnormalities, severe congestive heart failure, and a history of antianxiolytic medication abuse.⁵ More complex procedures requiring prolonged periods of time or precise instrumentation should also be strongly considered for using the services of an anesthesiologist. This includes procedures such as endoscopic retrograde cholangiography, EUS, balloon enteroscopy, direct percutaneous jejunostomy, and the endoscopic treatment of reflux. For some of these cases, the anesthesiologist's provision of the sedation component of the procedure is not necessarily for the patient's safety only, but also to allow the endoscopist to concentrate on the complex procedures.

The Clinical Outcomes Research Initiative is a database that captured information from more than 600 endoscopists performing more than 300,000 procedures in the United States. When this database was used, certain risk factors were identified that were associated with an increased odds ratio (OR) of any cardiopulmonary event.⁶ Those are ASA class V (OR 7.4), inpatient status (OR 1.5), a Veterans Administration hospital versus a university practice (OR 1.4), and involvement of a gastroenterology trainee (OR 1.4).

The gastroenterology fellow should strive to acquire the skills necessary to administer endoscopic sedation safely and effectively.⁴ This requires an understanding of the pharmacology of sedation agents, the knowledge and the ability to monitor patients during endoscopic procedures, and the resources and clinical skills to address any complications that may arise. Most importantly, you should be able to recognize, *before the procedure*, the potential for sedation complications in patients undergoing endoscopy. When in doubt, it is better to ask your anesthesia colleagues for help with sedation.

Endoscopic procedures, whether diagnostic or therapeutic, have their own associated complexity. A risk-benefit analysis and knowledge of GI disease and endoscopic equipment allows the endoscopist to usually obtain a safe and effective clinical outcome. The same risk-benefit analysis, knowledge of patient comorbidities, and familiarity with anesthesia pharmacology and rescue will allow these same safe and effective outcomes to be ob-

tained. Furthermore, the anesthesiology and gastroenterology departments at training institutions should work together to achieve the goal of safe sedation for all patients. The anesthesia component of the fellows' curriculum should be designed in concert with anesthesiology and gastroenterology department input and should adapt to changes in sedation that will occur over the next 10 to 20 years. Remember, any progress in medicine is not because of the effort of solo players, but the multidisciplinary effort of experts working together.

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