Communication from the ASGE Standards of Practice Committee

GUIDELINE

Guidelines for sedation and anesthesia in GI endoscopy

Prepared by: ASGE STANDARDS OF PRACTICE COMMITTEE

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The ASGE guidelines for sedation and anesthesia in GI endoscopy were reviewed and endorsed by the American Association for the Study of Liver Diseases, the American College of Gastroenterology, and the American Gastroenterological Association.

This document was reviewed and approved by the Governing Board of the American Society for Gastrointestinal Endoscopy.

This document is an update of guidelines for sedation and anesthesia in endoscopy prepared by the Standards of Practice Committee of the American Society for Gastrointestinal Endoscopy (ASGE). In preparing this guideline, a search of the medical literature was performed by using PubMed from January 1980 through August 2017 that related to the topic of "sedation and anesthesia for gastrointestinal endoscopy" by using the keyword(s) "sedation," "anesthesia," "gastrointestinal endoscopy," "endoscopy," "endoscopic procedures," and "procedures." The search was supplemented by accessing the "related articles" feature of PubMed, with articles identified on PubMed as the references. Pertinent studies published in English were reviewed. Additional references were obtained from the bibliographies of the identified articles and from recommendations of expert consultants. When little or no data existed from well-designed prospective trials, emphasis was given to results from large series and reports from recognized experts. Guidelines for appropriate use of endoscopy are based on a critical review of the available data and expert consensus at the time the guidelines were drafted. Further controlled clinical studies may be needed to clarify aspects of this guideline. This guideline may be revised as necessary to account for changes in technology, new data, or other aspects of clinical practice. The recommendations were based on reviewed studies and were graded on the strength of the supporting evidence by using the GRADE criteria (Table 1).[1]

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This guideline is intended to be an educational device to provide information that may assist endoscopists in providing care to patients. This guideline is not a rule and should not be construed as establishing a legal standard of care or as encouraging, advocating, requiring, or discouraging any particular treatment. Clinical decisions in any particular case involve a complex analysis of the patient's condition and available courses of action. Therefore, clinical considerations may lead an endoscopist to take a course of action that varies from these guidelines.

Sedation is a drug-induced depression in the level of consciousness. The clinical objectives of administering sedation for GI endoscopy are to relieve patient anxiety and discomfort, improve the outcome of the examination, and diminish the patient's memory of the event. A number of different sedatives and analgesics can be used to achieve appropriate levels of sedation for GI endoscopic procedures. The targeted level of sedation may vary depending on patient and procedural variables, and doses of sedatives should be titrated accordingly to achieve a safe, comfortable, and technically successful endoscopic procedure. Knowledge of the pharmacologic profiles of sedation agents is necessary to maximize the likelihood that the desired level of sedation is achieved.

Practice guidelines for non-anesthesiologists providing sedation have been put forth by the American Society of Anesthesiologists (ASA) Committee for Sedation and Analgesia by Non-Anesthesiologists and were approved by the ASGE.[2-4] A sedation continuum has been described, ranging from minimal sedation or anxiolysis to general anesthesia (Table 2). During endoscopic procedures

TABLE 1. System for rating the quality of evidence for guidelines[1]

Quality of evidence	Definition	Symbol
High quality	Further research is very unlikely to change our confidence in the estimate of effect.	⊕⊕⊕⊕
Moderate quality	Further research is likely to have an important impact on our confidence in the estimate of effect and may change the estimate.	⊕⊕⊕◯
Low quality	Further research is very likely to have an important impact on our confidence in the estimate of effect and is likely to change the estimate.	⊕⊕◯◯
Very-low quality	Any estimate of effect is very uncertain.	⊕◯◯◯

Adapted from Guyatt et al.[1]

TABLE 2. Levels of sedation and anesthesia

	Minimal sedation (anxiolysis)	Moderate sedation (conscious sedation)	Deep sedation	General anesthesia
Responsiveness	Normal response to verbal stimulation	Purposeful response to verbal or tactile stimulation	Purposeful response after repeated or painful stimulation	Unarousable even with painful stimulus
Airway	Unaffected	No intervention required	Intervention may be required	Intervention often required
Spontaneous ventilation	Unaffected	Adequate	May be inadequate	Frequently inadequate
Cardiovascular function	Unaffected	Usually maintained	Usually maintained	May be impaired

performed with moderate sedation (formerly referred to as *conscious sedation*), the patient maintains ventilatory and cardiovascular function and is able to make purposeful responses to verbal or light tactile stimulation.[2,5] In contrast, a patient undergoing deep sedation cannot be aroused easily but may respond purposefully to repeated or painful stimulation. Airway support maneuvers, such as performance of chin lifts or jaw thrusts as well as insertion of oral or nasal airways, may be required during deep sedation. At the level of general anesthesia, the patient cannot be aroused by painful stimuli, and cardiovascular function may be impaired. Individuals differ in their responses to sedation and may require different levels of sedation for the same procedure. In addition, patients may attain varying levels of sedation during a single procedure. Therefore, practitioners should possess the skills necessary to resuscitate or rescue a patient whose level of sedation is deeper than initially intended.[5]

This article evaluates the strength of evidence in the medical literature to provide guidelines for the use of sedation and anesthesia across all levels of sedation during GI endoscopic procedures and is an update of 3 previous ASGE documents.[3,6,7]

Providers of GI endoscopy should be trained specifically to provide procedural sedation across the sedation continuum, from minimal through moderate sedation. This training should include skills in recognizing when the level of sedation is deeper than planned as well as in the ability to rescue patients when this occurs. The multi-society sedation curriculum for GI endoscopy should serve as a guide to train providers in procedural sedation.[5]

PRE-PROCEDURAL PREPARATION AND ASSESSMENT

Patients should provide informed consent for administration of sedation through a process that involves a discussion of benefits, risks, and limitations as well as possible alternatives to the sedation plan.[8] As much as possible, the level of sedation targeted should be commensurate with the patient's expectation of sedation depth as well as that necessary to perform the procedure safely and effectively.

Because of risks of aspiration with blunting of airway-protective reflexes, patients undergoing sedation should be asked to fast for a specific time period. There are no data to support a direct relationship between duration of fasting and the risk of pulmonary aspiration, and the literature contains varying recommendations for oral intake before procedural sedation.[9] There is no practice standard for pre-procedural fasting that has been universally accepted. The ASA guidelines indicate that patients should not drink fluids or eat solid foods for a sufficient period of time to allow for gastric emptying before the procedure.[10] Specifically, these guidelines state that patients should fast a minimum of 2 hours after ingestion of clear liquids and 6 hours after ingestion of light meals before sedation is administered. In situations where gastric emptying is impaired or in emergent situations, the potential for pulmonary aspiration of gastric contents must be considered in determining (1) the target level of sedation, (2) whether the procedure should be delayed, or (3) whether the airway should be protected by