Sedation for gastrointestinal endoscopy - Is it time for standardization of services?

Basavana Goudra¹ and Preet Mohinder Singh²

1. Hospital of the University of Pennsylvania and Perleman School of Medicine, USA
2. All India Institute of Medical Sciences, New Delhi, India-110029

EDITORIAL

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Corresponding Author:
Basavana Goudra MD FRCA FCARCSI
Hospital of the University of Pennsylvania and Perleman School of Medicine
Philadelphia, PA, USA
Email: goudrab@uphs.upenn.edu

With the decline in the number of operating room surgeries, procedures performed outside the operating room have taken a centre stage. In the hospital of the University of Pennsylvania, Philadelphia, USA, such procedures form nearly 40 per cent of all the procedures necessitating anaesthesia services (Figure 1). It is probably a reflection of the global trend. An increase in gastrointestinal (GI) endoscopy procedures is particularly noticeable.

The evolution of sedation services has not moved in tandem with the challenges posed by unexpected and unprecedented expansion of GI endoscopy procedures. The variation in the provision of sedation services is noticeable both across the continents and within the same country.¹⁻³ While, majority of GI endoscopies are performed with no sedation or conscious sedation in Japan, endoscopist supervised and nurse administered propofol seems to be the standard in Europe. The practice is highly variable in the USA. Whereas propofol is used in majority of both upper gastrointestinal (GI) endoscopy and colonoscopy on the east coast, conscious sedation is the dominant practice on the west coast.⁴ Let us explore the reasons for such a variation and their consequences—both in terms of patient safety and healthcare burden.

We have repeatedly documented that propofol is less safe than intravenous conscious sedation.⁵,⁶ However, research has also demonstrated that the risk of propofol sedation is minimal when administered by registered nurses under the supervision of gastroenterologists. In a recent study involving 177,944 GI endoscopic procedures, a total of 332 minor complications were documented (0.2 per cent). There were no major complications or deaths.⁷ Intravenous conscious sedation generally involves administration of a short acting benzodiazepine (typically midazolam) along with a short acting opioid (generally fentanyl). Infrequently, addition of a first generation antihistamine with sedative properties like diphenhydramine is necessary. Propofol is used either on its own or along with a short acting opioid. Although the term moderate sedation is used to describe propofol sedation, often the patient experiences general anaesthesia. In fact, about 46 per cent of the time they were experiencing general anaesthesia and about 6 per cent of the time deep general anaesthesia.⁸ Unfortunately, the level of monitoring used and the backup help available during GI endoscopic procedures is not same as that for general anaesthesia. For example, use of end tidal carbon dioxide (ETCo2) monitoring is not universal. Even when it is used, its reliability in the setting of a spontaneously breathing patient undergoing endoscopy is questionable.⁹

Patient expectations might be a factor responsible for global variations. At least in the USA, there is an anticipation that the experience will be similar to general anaesthesia.¹⁰ Often patients clearly express a desire to be completely unaware during the entire procedure. Frequently, they have a history of unpleasant experience with previous conscious sedation. The expectation of the endoscopists is no different. Immobility during the entire procedure is preferred and any patient movement is not appreciated. As a result, it was not surprising that, even though the frequency of events like fall in oxygen saturation, hypotension, laryngospasm and cardiac arrest were low in patient’s receiving propofol under the
endoscopist supervision, both endoscopist and patient satisfaction were low as well.\textsuperscript{11}

Adding to the above mentioned complexities is the issue of remuneration. In Europe and most developing countries, the healthcare is nationalized in some form or another. There is no incentive for administering propofol by an anaesthesia provider to patients undergoing GI endoscopy. Job preservation might have been the incentive for the retraction of the approval accorded by the European society of anaesthesiologists to the idea of endoscopist administered/supervised sedation.\textsuperscript{12} In the developing world like India and China (where the health services are a mixture of rich and poor countries), the type of sedation administered depends on the affordability as well as the procedure complexity. While most of the endoscopic retrograde cholangiopancreatography (ERCPs) are performed under anaesthesia provider administered sedation, non-advanced procedures are performed either with no sedation or mild sedation, unless the patient can afford to pay for additional anaesthesia services.

With the above in the background, it is important and in fact necessary to standardize the sedation services. Although any such proposal needs to take into account the national/regional factors, sufficient knowledge has accumulated to have agreements in certain areas. Any guidelines formulated, should keep the logistics of implementation in mind. The following are some general considerations.

It is necessary and probably in the interest of the patients to perform all the advanced endoscopic procedures with propofol and under the supervision of an anaesthesiologist. As some of the gastroenterologists are competent in the airway management, provision should exist for such a practice. However, a skilled anaesthesiologist should be available within 30 seconds reach for any eventuality. Considering, valuable time would have been lost while trying to address any desaturation, and keeping in mind the slope of the oxygen haemoglobin saturation curve,\textsuperscript{13} presence of an anaesthesiologist is strongly encouraged.

All existing nurses involved in the provision of endoscopy services should be trained in the administration of propofol. Teaching airway management skills with a particular emphasis on the recognition of impending airway compromise is mandatory. Such nurses should be supervised either by an anaesthesiologist or a gastroenterologist as the case may be. Appropriate monitoring, drugs and resuscitation equipment must be in place and checked before starting any procedure. At a minimum a Mapleson C breathing system and necessary tools for re-establishing ventilation is necessary. An example of such equipment is in Figure 2.

An option to provide intravenous conscious sedation should exist and such a choice should be available to all patients. Additionally, an unbiased discussion regarding the pros and cons of propofol and conscious sedation should be part of the consent process.

Research has shown that hypoxemia and aspiration are some of the commonest adverse events during propofol based sedation. Any history and examination should focus on factors that predispose to such events.

Accurate documentation of any relevant discussion with the patient and the gastroenterologist along with all intraprocedural events is crucial, especially in the event of an adverse outcome.

It is hoped that incorporating these recommendations in formulating guidelines can increase the safety of sedation during GI endoscopy. It is likely that such standardized care can improve the patient satisfaction and outcome. The recommendations might be flexible in case of simple endoscopic procedures e.g., those scheduled for screening, where no therapeutic intervention is planned. It is also time for all national societies (both gastroenterology and anaesthesiology), to place aside the politics of propofol administration and work towards the common good.

\textbf{References}


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The authors declare that they have no competing interests.

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Figure 1: Total number of procedures performed with anaesthesia assistance from 2007-2016, Courtesy Dr Jonathan Tanner, Assistant Professor, Hospital of the University of Pennsylvania

Figure 2: Typical equipment needed for providing safe sedation in an endoscopy suite