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Viewpoints

What Is General Anesthesia?

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Sir:

On the surface, this would appear to be a simple, straightforward question, but the evolution of anesthetic agents and newer brain activity monitors have made this question somewhat more challenging. Local anesthesia provides analgesia only in a localized area. General anesthesia, in contradistinction, provides generalized analgesia in addition to generalized hypnosis. A simplified, working equation for general anesthesia may be hypnosis plus analgesia.

Implicit in hypnosis is amnesia. Implicit in (adequate) analgesia is enough relaxation to perform cosmetic procedures. In this author's experience with hundreds of subpectoral breast augmentations and rectus imbrication for abdominoplasties, adequate analgesia has obviated the need for muscle relaxants.¹ The patient safety benefits of propofol-ketamine anesthesia demand not perfection with local anesthesia but merely persistence.²

Conscious patients tend to say "ouch" with inadequate local anesthesia. Currently, no monitors exist with which to measure analgesia levels in patients receiving general anesthesia who are unconscious.

In 1996, the U.S. Food and Drug Administration approved the bispectral index brain monitor for measuring levels of *hypnosis* in patients receiving anesthetic agents. Over the years, bispectral index monitoring has been validated by over 3000 peer-reviewed, scientific articles.³ Other brain activity monitors have been marketed by Baxter (PSA), GE Healthcare (Entropy), (Everest Biomedical Instruments (Snap), Cerebral State Monitor (Danmeter), and Schiller Medical (Narcotrend). No monitor maker has produced any literature demonstrating validation or outcomes superior to the bispectral index monitoring device.

Decades-long established science has established the hypnotic portion of general anesthesia, as measured by bispectral index monitoring, occurring below 60 on a 0- to 100-point scale.⁴ When a bispectral index monitoring value in this range is obtained with inhalational agents such as sevoflurane, it is obvious that general anesthesia is being administered (i.e., both generalized hypnosis and

generalized analgesia are being administered).

Propofol titrated with bispectral index monitoring can produce all three levels of sedation (minimal, moderate, or deep) when combined with local analgesia only.⁵ Coadministration of intravenous opioids (or narcotics) adds systemic analgesia that transforms an intravenous sedation technique into an intravenous general anesthesia.⁵ Intravenous sedation without opioids does not require end-tidal carbon dioxide monitoring; however, intravenous general anesthesia with opioids does.

How does ketamine fit into the definition of general anesthesia? Although the *Physician's Desk Reference* classifies the agent as a “general anesthetic,” the American Association for Accreditation of Ambulatory Surgery Facilities, since its inception (and in deference to one of its founding member's technique⁶) has recognized this dissociative agent as an intravenous sedation drug appropriate for class B facilities. Neither diazepam nor ketamine is a triggering agent for malignant hyperthermia. Diazepam-ketamine does not require an anesthesia machine for its administration. Accordingly, class B facilities do not need anesthesia machines, scavenging, or dantrolene for patient safety.

Bispectral index/propofol-ketamine monitored anesthesia care has been clearly, and repeatedly, published as propofol titrated to a bispectral index monitoring value of 60 to 75, followed by 50 mg of ketamine and local anesthesia only.⁷⁻⁹ No opioids, nitrous oxide, or inhalational agents are given.⁷⁻⁹

Absent the administration of systemic analgesia and relying solely on local analgesia abetted with only a dissociative agent, bispectral index/propofol-ketamine monitored anesthesia is clearly intravenous sedation, appropriate for class B facilities, and is not general anesthesia requiring class C equipment. Not only is the interest of patient safety best served by a class B classification for bispectral index/propofol-ketamine monitored anesthesia care, it is also in the interest of an economically viable office operator.

DISCLOSURE

The author has no conflicts of interest or financial disclosures to declare.

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