

Tips from the Top

Propofol Ketamine Anesthesia

By Barry L. Friedberg, M.D., *Cosmetic Surgery Anesthesia*

There are no emergency facelifts in my practice. Ironically, the office based anesthesiologist, while dealing with a truly elective patient population, is actually held to a higher standard of care than his institutional based counterpart. Because there is no “fall back” position like a formal recovery room or hospital bed awaiting the “outliers,” it is absolutely imperative that patients emerge from their anesthetic, pain- and PONV-free. **Accurately** rather than **rapidly** medicating patients becomes the most treasured virtue in the office setting. As one of my surgeons often says, “I know I’m in trouble when the anesthesiologist *du jour* lays out ten syringes on his back table.” I use two or three.

Taking an otherwise healthy patient and slamming them off to unconsciousness for elective cosmetic surgery is indeed a violent act, totally without merit or reason in this setting. Ninety-nine percent of propofol ketamine (PK) anesthesia¹ is the titration of the propofol for both the induction and maintenance of the case. From 1992-1997, I performed PK anesthesia without the bispectral index (BIS) monitor. After gaining experience using PK anesthesia and the BIS monitor, I have achieved significant reduction in propofol dosing.²

Since 1998, all patients, excepting those with systolic pressures 100 or less, receive clonidine 0.2 mg po 30-60 minutes preoperatively, in lieu of midazolam or other similar agents. Since 2001, rofecoxib 50 mg po has been added to supplement the preemptive effects of the clonidine. Glycopyrrolate 0.2 mg IV is given immediately preceding induction.

Material appearing in Tips from the Top has been reviewed by the Editor, who finds it of interest to anesthesiologists. This material does not constitute CSA policy, and is subject to individual evaluation or confirmation before being deemed descriptive of applicable practice standards.

All patients have the mandated NIBP, EKG and pulse oximetry monitors. The BIS is still considered by many, although not this author, to be an option. Induction of anesthesia takes two-five minutes in order to custom fit the anes-

Tips from the Top-Cont'd

thetic dosing to the individual patient needs. The first two benefits to this induction approach are less waste of the propofol and the avoidance of the violent jerking of patients into unconsciousness. Many times I have been told by patients how much they liked the “going to sleep” part because they had no sensation of being “put out.” It “only” took me a few years of this type of feedback to “hear” what they were saying. The second two benefits of gradual induction (a kinder, gentler anesthetic) are the maintenance of spontaneous ventilation and the provision of a stable level of propofol to ward off ketamine induced hallucinations or dysphorias.³

I set my Harvard Clinical infusion pump for 250 µg/kg/20 sec for mini-induction boluses and the base rate at 100 µg/kg/min. Most patients require between one to six boluses to achieve either loss of lid reflex (LLR) and loss of verbal response (LVR) without the BIS or a BIS 70-75 before the dissociative dose of ketamine. The base rate is adjusted upwards or downwards according to clinical signs or to maintain a BIS 60-70. After the induction has been achieved, a bolus 50 mg dose of ketamine is given and the surgeon is given the “two minute warning” after which a 10-20 minute window of opportunity should exist in which the surgeon can inject the local anesthetic that comprises the “analgesia” portion of the case. Once the local is injected, there is no reason to continue to give more ketamine with the following exceptions: 1) the surgeon only wants to inject one side of the face or one breast at a time (I encourage my surgeons to inject both sides so the least amount of ketamine can be used. More than 200 mg aggregate ketamine is incompatible with a rapid emergence and discharge from the office); 2) a dissociative effect (no movement in response to the injection) was not obtained with the initial dose (either wait another minute or give an additional 25-50 mg ketamine depending on how much movement occurs with the local injection); 3) one cannot keep the patient still enough for the surgery despite an initial plus two additional injections of local to the operative field (a rare patient is ticklish or dreaming about dancing).

Using the BIS has been suggested as a “surgeon management” device.⁴ It is hard to argue with a box displaying 60-70 when the patient moves as an indication of too little propofol. Therefore, more local is used than otherwise happens when using clinical signs for the management of a sedation case. Despite an outdated and overly conservative PDR limit of 500 mg total lidocaine with epinephrine, my patients have tolerated totals of 1,000 mg for over a decade without stigmata of lidocaine toxicity. The BIS also alerted me to a lidocaine toxicity case (an inadvertant 4,000 mg dose instead of the intended 1,000 mg), before the EKG widened and the BP dropped. On

Tips from the Top-Cont'd

admission, the patient's lidocaine level was 12.0 µg/ml. Patient was ventilated overnight and discharged neurologically intact the following morning without medico legal consequence. This experience was the only hospital admission for my practice in over 3,000 PK anesthetics spanning a period of eleven years for over 80 different surgeons.

An essential feature of PK anesthesia is the absolute avoidance of opioids either in the premedication or the maintenance. Giving adequate local analgesia instead of dancing around the issue, has enabled me to only need postoperative meperidine twice for postop pain management in the past five years. Opioid avoidance is the reason end tidal CO₂ monitoring is not relevant. (Those who monitored it reported the CO₂s normal.) Opioid avoidance also allows the anesthesiologist to safely provide anesthesia without supplemental oxygen, a well recognized fire hazard in the presence of lasers. Lastly, opioid avoidance is the reason that only 13 patients experienced PONV out of 2,685 cases, one third of whom had had PONV with previous anesthetics, while not routinely using any antiemetics.

All patients were pleased with their anesthetic. Even the 13 PONV patients stated they preferred PK to their other anesthetic. Mu receptor block with opioids is passe. NMDA receptor block with ketamine paved the way for pre-emptive, PONV free, analgesia. PK anesthesia—safety, simplicity, satisfaction.

References

- ¹ Friedberg BL. Propofol ketamine technique; a five year review of 1,264 cases. *Anesth Plast Surg* 1999;23: 70-75.
- ² Friedberg BL, Sigl JC. Clonidine premedication decreases propofol consumption during bispectral index (BIS) monitored propofol ketamine technique for office based surgery. *Dermatol Surg* 2000;26: 848-52.
- ³ Friedberg BL. Hypnotic doses of propofol block ketamine induced hallucinations (letter) *Plast & Reconstr Surg* 1993;91: 196-7.
- ⁴ Friedberg BL. Propofol Ketamine Anesthesia for Cosmetic Surgery in the Office Suite chapter in Osborne I, ed. *Anesthesia for Outside the Operating Room. Internat Anesthesiol Clin.* Lippincott, Williams, & Wilkins. Baltimore, MD 2003;41(2):39-50.

More information may be obtained at www.doctorfriedberg.com.