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EDITORIAL VIEW

Postoperative pain, nausea and vomiting need not continue to plague our patients

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SUMMARY

Postoperative nausea and vomiting has long troubled the anesthesiologists and the surgeons, besides making the life of the patients miserable during this specific period. The main stay of management of this troublesome condition has been drugs belonging to assorted groups of anti-emetics with variable results. None of these drugs comes without side effects. Lately the emphasis has been focused on limiting the use of inhalational agents and resort to opioid free anesthesia. The author has vast experience of administration of deep sedation and anesthesia without the use of both. This editorial highlights his experience of anesthesia virtually without postoperative nausea and vomiting.

Key words: Postoperative nausea and vomiting; Morbidity; Anesthesia, General; Sedation;Diazepam; Ketamine; Day case surgery

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In December 1991, the author attended a talk by Las Vegas plastic surgeon Charles A. Vinnik, who presented his surgeon-directed, diazepam ketamine IV sedation for elective cosmetic surgery in a remote, office based setting.[1] In early March 1992, the author went to his office and observed two cases. The first patient received 25 mg diazepam IV prior to ketamine! The second one received 50 mg diazepam IV. Both patients were discharged home in the care of a nurse for 24 hours at the patient's expense - a practice obviously unacceptable to any anesthesiologist.

The provision of sedation in an office-based practice has been known to have led to deaths related to fentanyl.[2] The surgeons would accept any type of IV drug regimen except opioids, as they knew the difficulties faced by the patients caused due to use of opioids. Ketamine was potentially a very useful agent for day surgery but it was rejected by many anesthesiologists due to the need of considerably higher doses of diazepam during the procedure. Vinnik thought of the newer agent propofol, "You just want to use that drug because it's expensive."[3]

Internet search during 1992 made it very difficult to find out if hypnotic doses of propofol or benzodiazepines would block ketamine hallucinations. The author began clinical experimenting to find out if sleep doses of propofol or benzodiazepines would block ketamine hallucinations. Twenty-five cases later, it was evident that propofol was as effective.[4] By the 50th case, a surprise observation was made; there was no postoperative nausea and vomiting (PONV). After the surgeon injected local anesthesia after the ketamine, there was no postoperative discomfort requiring opioid rescue. Having found the solution to both postoperative pain and PONV, the author presented first 50 propofol ketamine (PK) cases to the Society of Ambulatory Anesthesia (SAMBA) annual meeting, which fetched excoriating criticism. Subsequent experience based upon the recording of every case led to a series of published papers on the topic.[5-10]

So much has been written on postoperative pain and

PONV, the author naively assumed that there would be a great interest in the newly found solutions. However, non-academic clinicians face great obstacles in achieving sufficient recognition of their work and to get published in major journals. With considerable persistence, the author succeeded to a limited degree by finding a welcome platform in the trade journal - Outpatient Surgery Magazine[11-14] One of the articles[15] was also cited on Sweden's prestigious Karolinska Institute website. When Cambridge University Press was searching for an anesthesiologist to write the first textbook on anesthesia for cosmetic surgery, they chose the author first from the forty thousand American anesthesiologists.[16] This textbook was published in 2007 and has subsequently been translated into Portuguese (2009) and Mandarin Chinese (2015).

In 2004, the US military was searching for an anesthetic technique that would be suitable for the field conditions or be more mobile. They liked the author's work and later contributed a chapter for his textbook.[17] At last solutions to postoperative pain and PONV were gaining attraction in the world of anesthesia beyond cosmetic surgery. A special U.S. Congressional Award of Recognition for contribution to military anesthesia in Iraq and Afghanistan was presented to the author. This type of anesthesia spared the need for anesthesia machines in the field hospitals as well as the logistical difficulties involved in supplying large quantities of oxygen to run the machines.

One must remember that at least 50% of all published articles are never subsequently cited by the latter authors. The PK work has been cited by more than 160 papers and more than 50 anesthesia textbooks. Dr. Apfel had written about four primary causes of PONV[18] but subsequently referenced the author's 0.6% PONV rate without anti-emetics6 in chapters on PONV in 2010 and 2015 editions of Miller's Anesthesia.[19,20]

Producing less tachycardia than atropine, IV glycopyrrolate 0.2 mg precedes the incremental propofol induction that provides a stable CNS level to ward off hallucinations. Although a programmable pump is preferred, the first 5 PK years were performed diluting propofol to 5 mg/ml in a 50 ml IV bag connected to a 60 drops/ml IV set with the initial drip rate set to the patient's heart rate and adjusted prn with scrupulous attention to airway maintenance. If a programmable pump is available, set the propofol base rate @ 25 μg/kg/min and the bolus @ 50 μg/kg and titrate to BIS 60- 75 with baseline EMG prior to giving ketamine.

Propofol is titrated over 2-4 min for elective cases to an endpoint of loss of lid reflex and loss of verbal response. Only then should ketamine be given 3 min prior to stimulation; i.e. local anesthetic injection, skin incision or trocar puncture. Better outcomes result when local anesthesia is injected prior to the incision as well as splashing bupivacaine, not to exceed a total of 125 mg or 50 ml 0.25%, prior to closure. The longer the brain is deprived of the noxious stimuli from the breach of the skin barrier, the longer the pain free period before the patient starts to feel the pain.

Rarely will laryngospasm occur with PK anesthesia. It is heralded only by a cough or sneeze. No crowing noise will be appreciated as the vocal cords close tightly. Anterior jaw thrust and/or positive pressure ventilation will not break this spasm. Immediately treatment with IV lidocaine 2 mg/kg will be required.

Ketamine is unique among IV anesthetic agents. In the spontaneously breathing patient, immobility with skin incision defines N-methyl, D-aspartate (NMDA) receptor saturation (dissociative effect), setting the stage for non-opioid, preemptive analgesia. Over 25 years of experience and more than 6,000 spontaneously breathing patients, are sufficient to confirm that the effective dose of 50 mg ketamine is not related to body weight. The weight of the brain of a 100 kg male patient in not twice that of a 50 kg female patient. The NMDA receptors are a small part of the midbrain, a very small part of the adult brain. No patients were ever admitted to hospital for postoperative pain or PONV management.

Once drugs that make patients experience emesis are avoided, anti-emetics are unnecessary and PONV is essentially zero. Once the brain is deprived of the invasion of the outer world of danger (pre-stimulation NMDA block), wind-up phenomenon does not occur and only rare patients require modest (25-100 μg) fentanyl for pain. Others, who sometimes request something for discomfort, receive 1,000 mg oral acetaminophen or 30 mg IV ketorolac. "Less is more." Mies von der Rohe

Conflict of interest: All the matter presented in this manuscript is based upon published work of the author. More complete information can be had at; (https://www.youtube.com/watch?v=7OKEAbIv_uc&t=142s) and http://www.goldilocksfoundation.org

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