Anesthesiologist preference for postoperative analgesia in major surgery patients with obstructive sleep apnea

ABSTRACT

Obstructive sleep apnea (OSA) is prevalent and presents perioperative challenges. There are guidelines regarding perioperative care of OSA, but analgesia management of OSA patients is inconsistent or inadequate. This is a study of the United Kingdom anesthesiologists' postoperative analgesia preferences for OSA patients. Overall, the 1st choice of main analgesia was continuous epidural local anesthetic (LA) without opioid, at 30% rate; P = 0.001. The 2nd choice was continuous epidural LA plus fentanyl, at 21% rate; P = 0.001. The 3rd choice was intrathecal diamorphine, at 19% rate; P = 0.001. The 4th choice was nerve block catheter LA infusion, at 13% rate; P = 0.001. The 5th choice was wound infiltration with LA \pm epinephrine, at 8% rate; P = 0.001. The 6th choice was systemic opioid, at 7% rate; P = 0.007. The 7th choice was systemic nonsteroidal anti-inflammatory drugs, at 2% rate; P = 0.001. The hospital setting or anesthesiologists' experience did not significantly impact analgesia choice: P = 0.411. This study shows that current practice by anesthesiologists has a preference for regional or opioid-sparing analgesia for OSA patients. This safe approach conforms to guidelines and should be encouraged.

Key words: Obstructive sleep apnea; opioid-sparing analgesia; perioperative guidelines; postoperative analgesia; regional analgesia

Introduction

Obstructive sleep apnea (OSA) is increasingly prevalent in surgical patients, and it poses perioperative challenges. [1-4] OSA is associated with increased risk of postoperative cardiorespiratory complications, especially with systemic opioid analgesia. [3-6] There are few guidelines on the perioperative care of OSA patients. [5.7] However, postoperative analgesia management of OSA patients varies among anesthesiologists, and there is inadequate information regarding contemporary practice. This study is a survey of the United Kingdom (UK) anesthesiologists' postoperative analgesia preferences for OSA patients.

It compared anesthesiologists who manage OSA rarely (\leq 5 cases/year), occasionally (6–12/year), or regularly (\geq 13/year); in University Teaching Hospitals (UTHs) and District General Hospitals (DGHs).

Case Report

The survey was approved by the institutional review board (IRB) of Pennine Acute Hospitals, Manchester, UK; and was completed in 2013. The IRB confirmed that formal consent was not required from survey participants. A pilot survey of Northern England anesthesiologists was conducted

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in 2008; to validate the survey questions.^[8] A 2010 census reported a total of 6849 consultant anesthesiologists in the UK.^[9] However, the study population was focused to 4100 consultant anesthesiologists who regularly manage adult major surgery patients in hospitals with postoperative critical care facilities. The survey was E-mailed to consultant anesthesiologists, in suitable hospitals throughout the UK. It included 96 UTH and 204 DGH in England; 7 UTH and 32 DGH in Scotland; 6 UTH and 15 DGH in Wales; and 6 UTH and 6 DGH in Northern Ireland.

The survey asked anesthesiologists to rank their preferred main postoperative analgesia mode for major pelvic or lower limb surgery in OSA patients. Completed questionnaires were received from 1516 anesthesiologists; a 37% response rate. Data were analyzed with IBM® SPSS® Statistics 23 (IBM, Armonk, NY, USA); using Student's t-test and Pearson Chi-square test. P < 0.05 was considered statistically significant. Results are shown in Table 1. UTH anesthesiologists constituted 56%, and DGH anesthesiologists constituted 44%. About 41% of the anesthesiologists manage OSA patients rarely, 44% manage OSA occasionally, and 15% manage OSA regularly.

Overall, the 1st choice of main analgesia was continuous epidural local anesthetic (LA) without opioid; at 30% rate (UTH 16% and DGH 14%); P = 0.001. The 2nd choice was continuous epidural LA plus fentanyl; at 21% rate (UTH 12% and DGH 9%); P = 0.001. The 3rd choice was intrathecal diamorphine; at 19% rate (UTH 11% and DGH 8%); P = 0.001. The 4th choice was nerve block catheter LA infusion; at 13% rate (UTH 8% and DGH 5%); P = 0.001. The 5^{th} choice was wound infiltration with LA \pm epinephrine; at 8% rate (UTH 5% and DGH 3%), P = 0.001. The 6th choice was regular or patient-controlled systemic opioid; at 7% rate (UTH 4% and DGH 3%); P = 0.007. The last or 7th choice was systemic nonsteroidal anti-inflammatory drugs (NSAID); at 2% rate (UTH 0% and DGH 2%); P = 0.001. The hospital setting or anesthesiologists' experience did not significantly impact analgesia choice: P = 0.411. The best ranking for systemic opioid or wound infiltration, by any anesthesiologist, was 4^{th} choice. The best ranking for NSAID, by any anesthesiologist, was 5^{th} choice.

Discussion

This large, reliable study is the first to show that most anesthesiologists prefer postoperative regional analgesia to systemic analgesia for OSA patients; irrespective of anesthesiologist's clinical setting or experience. This confirms that most UK anesthesiologists provide perioperative care to OSA patients according to contemporary guidelines.^[5,7] The choice of regional analgesia is popular because of its efficacy; and associated reduction of systemic opioid complications.^[3,5,7] The current study shows that nonopioid neuraxial analgesia is preferred to neuraxial or systemic opioid analgesia. This approach avoids systemic opioid complications. The study confirms that neuraxial lipophilic opioids are popular and preferred to systemic opioids, LA infusion or infiltration; possibly, because of the better efficacy of neuraxial opioids.

The current study suggests that LA infiltration or infusion is preferred to systemic analgesia in OSA patients. This is probably related to the better safety and efficacy of LA in this patient population. The study also shows that systemic NSAID analgesia is the least preferred postoperative analgesic option in OSA patients. This may be related to the low efficacy and potential perioperative complications of NSAID. The perioperative use of NSAID remains controversial because of adverse effects, especially gastrointestinal, cardiovascular, and renal complications.^[10]

This unique study suggests that current practice by most anesthesiologists has a preference for regional or opioid-sparing postoperative analgesia for OSA patients. The study highlights that this safe approach conforms to guidelines and should be encouraged in the clinical teaching and practice of the perioperative care of OSA patients. However, the 37% response rate of the survey or study makes it prone to response bias, and this may be a limitation. Therefore, larger clinical studies or surveys will be useful.

Table 1: Anesthesiologist preference for postoperative analgesia in major surgery patients with obstructive sleep apnea

Analgesia type	1 st choice, n (%) Continuous epidural LA	2 nd choice, n (%) Continuous epidural LA + fentanyl	3 rd choice, n (%) Intrathecal diamorphine	4 th choice, n (%) Nerve block catheter LA infusion	5 th choice, n (%) Wound infiltration LA±epinephrine	6 th choice, <i>n</i> (%) Systemic opioid regular or patient controlled	7 th choice, n (%) Systemic NSAID	Total, n (%)
UTH	243 (16)	182 (12)	167 (11)	121 (8)	76 (5)	61 (4)	0	849 (56)
DGH	212 (14)	136 (9)	121 (8)	76 (5)	45 (3)	45 (3)	31 (2)	667 (44)
Ρ	0.001	0.001	0.001	0.001	0.001	0.007	0.001	

NSAID: Nonsteroidal anti-inflammatory drug; UTH: University Teaching Hospital; DGH: District General Hospital; LA: Local anesthetic

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Conflicts of interest

There are no conflicts of interest.

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