

Letter to the Editor

Opioid sparing anaesthesia using dexmedetomidine in a morbidly obese patient with mandibular tumor requiring free fibular graft reconstruction surgery

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Sir,

A 45 year old male diagnosed as a case of Ameloblastoma mandible, requiring mandibular reconstruction with a Free Fibular Flap graft was planned under general anaesthesia (GA).

On preoperative evaluation, patient was morbidly obese (weight 120 kg, height 170cm, BMI= 41.3 kg/m²) with difficult mask ventilation, difficult intubation and difficulty in maintaining adequate postoperative ventilation. He had poor dentition, short neck, limited neck extension, thyromental distance of 3.5 cm and mouth opening of 6 cms. Prolonged surgery was expected (approximately 12-13 hours) and need for post-operative elective mechanical ventilation to prevent undue movement of the head after graft placement, was desired. Elective tracheostomy after induction of GA with an endotracheal tube (ETT) was planned by the ENT specialist.

Goals of anaesthetic management were securing of the airway, maintaining hemodynamics intra-operatively, preventing graft failure due to movement of head in postoperative period by elective mechanical ventilation and early weaning off the ventilator. To meet these goals, an “opioid free” anaesthetic technique was chosen. After establishment of standard monitoring, IV dexmedetomidine infusion was started considering lean body mass as 75 kg at a dose of 0.5µg/kg/hr.

For endotracheal intubation, difficult airway cart was prepared. Patient was placed in a “ramp position”, ensuring the external auditory meatus and the sternal notch was in same straight horizontal line (Figure 1). Anaesthesia was induced with Inj. Propofol, and Atracurium. Patient was intubated with video laryngoscope (iSCOPE, VBM international, Germany) using 8.0 mm ID ETT. A tracheostomy was done after intubation. A flexometallic ETT was inserted through the tracheal stoma to keep the airway clear for the surgeon. Correct position of flexometallic tube was confirmed using flexible bronchoscope. Patient was maintained on Inj. Dexmedetomidine (0.5 ug/kg/hr) titrated to maintain stable hemodynamics (within 20% of the baseline values) and boluses of inj. atracurium. The surgery lasted 12.5

hours during which supplemental opioid dose was not used. Inj paracetamol was given twice at 6 hours interval. After completion of surgery, tracheostomy tube was inserted by the ENT surgeon. Patient was shifted to the post anaesthesia care unit for elective ventilatory support to prevent movement of the head. For sedation and analgesia, Inj. dexmedetomidine infusion was continued. Next morning, IV anaesthetics were tapered and after evaluating the patient for any residual sedation, patient was shifted to ward with stable hemodynamics.



Figure 1: Ramp position of the patient.

DISCUSSION

Opioid administration, though providing excellent analgesia, is not without concerns. Many side-effects such as constipation, urinary retention, respiratory depression and postoperative nausea and vomiting are known to occur with opioids.¹ These side effects delay patient recovery, prolong the stay in recovery area, delay hospital discharge and cause unanticipated admission to hospital, all of which eventually increase health service costs.²

In a recent meta-analysis Frauenknecht et al demonstrated that opioid-inclusive anaesthesia does not offer an advantage over opioid free strategy for postoperative pain outcomes.³ This meta-analysis found a 20% reduction in postoperative nausea and vomiting with opioid free anaesthesia. Agents that help to achieve opioid free anaesthesia, include alpha-2 agonists, ketamine, magnesium, dexamethasone and esmolol.^{1,4}

Opioid free anaesthesia is desirable in morbidly obese in whom post-operative respiratory complications are common. Critical respiratory events like respiratory arrest, hypoxia, hypercapnia besides nausea, vomiting in obese patients are common, thus warranting an opioid free approach.⁵

One of the ways of reducing opioid during surgery is to use an alpha-1 agonist like dexmedetomidine for perioperative analgesia and sedation. There are few case reports of opioid free anaesthesia in abdominal surgeries using dexmedetomidine. Bakhamees et al used the drug in obese patients undergoing laparoscopic gastric bypass surgeries to good results.⁶ Hofer used dexmedetomidine infusion and opioid free anaesthesia to manage a morbidly obese patient for a Roux-en-Y gastric bypass.⁷ Gaszynski et al used dexmedetomidine for awake intubation and opioid free anaesthesia for a super obese patient undergoing bariatric surgery.⁸

Use of dexmedetomidine in plastic reconstruction surgeries has not been widely documented. Yang et al have demonstrated that dexmedetomidine lowers the incidence of delirium in the post anaesthesia care unit after free fibula flap surgery and has no adverse outcomes on the surgery.⁹ Further Nunes et al have shown that the drug does not compromise the viability of microvascular flap in a porcine model.¹⁰

This is the first case report where an opioid free approach was used in an obese patient undergoing a prolonged reconstruction surgery. Perioperative use of dexmedetomidine infusion provided satisfactory conditions for endotracheal intubation, surgery and postoperative recovery.

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