Opioid Free Anaesthesia for Laparoscopic-assisted Urological Procedure - A Case Report

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Introduction

Traditionally, opioids have been used regularly during major abdominal surgeries. However, patient may be at risk of ileus, especially if they are used in larger amounts. In addition, they can also develop post-operative nausea and vomiting.

Dexmedetomidine is a centrally acting selective alpha-2 adrenergic agonist with analgesic properties as well as sedative, anxiolytic and sympatholytic effects. Based on recent meta-analysis, there is moderate evidence that use of dexmedetomidine intra-operatively can improve pain outcomes¹.

Case Report

We describe a case of opioid free anaesthesia for an elective **laparoscopic right nephroureterotomy** which was subsequently converted to open surgery.

Our patient is a 71 years old gentleman with known hypertension and right urothelial carcinoma. On day of surgery, he presented with rhinorrhea and improving productive cough.

Anaesthesia

Dexmedetomidine loading at 1 ug/kg was stated over 10 minutes, followed by co-induction with propofol, lignocaine (1.5mg/kg) and atracurium.

Anaesthesia was maintained with sevoflurane and dexmedetomidine infusion. Dexmedetomidine infusion was titrated between 0.2-0.3 ug/kg/hr during the laparoscopic phase.

A Giibson incision was performed by the surgeon on right side for dissection. Thereafter, dexmedetomidine was increased to 0.5 ug/kg/hr. Intermittent boluses of ephedrine was given to maintain MAP >65

Depth of anaesthesia was monitored using Sedline® and Patient State Index (PSI) was kept between 25-50.

Multimodal analgesia

IV Paracetamol 1gram, Magnesium 10mmol, Dexamethasone 4mg, IV Lignocaine infusion at 1mg/kg/hr.

References

1. Intra-operative analgesia with remifentanyl vs. dexmedetomidine: a systematic review and meta-analysis with trial sequential analysis S. Grape, Anaesthesia 2019

Opioid-free total intravenous anesthesia with propofol, dexmedetomidine and lidocaine infusions for laparoscopic cholecystectomy: a prospective, randomized, double-blinded study. Bakan M Braz., J Anesthesiol. 2015

Towards the end of surgery, dexmedetomidine infusion was decreased to 0.2 ug/kg/hr and continued until patient was extubated awake.

In the recovery, patient was given a dose of oral oxycodone 5mg routinely and he was pain free.

In the ward, patient took regular paracetamol in the ward and no further oxycodone was given. His pain score (VAS) at rest was 0-1 and his dynamic pain score was 0-2.

He was able to ambulate on post-operative day 1 (POD1). Patient had an uneventful recovery and was discharged on POD 4.

Discussion

Dexmedetomidine infusion is a useful adjunct during anaesthesia as it has good analgesic and anxiolytic properties. In addition, it has anti-sialagogue properties which would be useful for patients who have “flu” peri-operatively. In this case, the patient did not have much oral or laryngeal secretions intraoperatively and post-operatively. It also does not impair ventilatory response as much when compared to opioids.

There have been concerns that dexmedetomidine may cause more hypotension/bradycardia due to its alpha -2 adrenergic effects. Based on S Grape’s meta-analysis¹, it is not more common when compared with the use of remifentanyl.

Lignocaine infusion has been proven to be able to reduce opioid consumption and VAS pain scores in many studies. NSAID/Cox-2 inhibitor was not given in view of risk of acute kidney injury.

Learning Points

Opioid free anaesthesia for abdominal surgeries is possible and should be considered for patients that are at risk of side effects of opioids.

However, it may not be possible to avoid opioids completely after the operation, especially if there are contraindications to other modalities of analgesia.