Page 99 to 101

Volume 2 • Issue 1 • 2018

Case Report

Chronicle of Medicine and Surgery

ISSN: 2576-8298

Hemodinamic Inestability in an Opioid Free Anesthesia for Bariatric Surgery

Diaz-Crespo J, Escalona-Belmonte JJ, Malo-Manso A#, Bueno-García MS, Cruz-Mañas J and Guerrero-Orriach JL*

Department of Anaesthesia, Hospital Virgen de la Victoria, Málaga, Spain

***Corresponding Author:** Guerrero-Orriach JL, Department of Anaesthesia, Hospital Virgen de la Victoria, Málaga, Spain.

***Corresponding Author:** Alfredo Malo Manso, Department of Anaesthesia, Hospital Virgen de la Victoria, Málaga, Spain.

Received: April 18, 2018; **Published:** May 09, 2018

Abstract

Opioid free anesthesia (OFA) is getting popular as benefits from avoiding opioids in certain patients are becoming more evident. However there is still lack of information about the different combinations of drugs that can be used and the secondary effects you can expect from them. Hemodynamic stability is the most common response when we use our OFA protocol, but there is concern about how quick a hypotension situation could be reversed. With this case we want to show the OFA protocol developed in our hospital and how hemodynamic instability can be quickly solved using it.

Volume 2 Issue 1 May 2018

Introduction

The use of opioids became popular in anesthesia in 1960s [1], initially using large doses of morphine and, later, fentanyl and other synthetic opioids, essentially describing the hemodynamic stability they provide. In 1993, the notion of multimodal anesthesia was introduced as an "opioid-sparing technique", which aimed to improve analgesia through the use of drugs with synergistic or additive effects, improving not only the efficacy but also the safety of analgesic management. The opioid-free technique has been used successfully since 2005 for the management of obese patients undergoing bariatric surgery.

Opioid's secondary effects are well documented in literature. In severe obese people these secondary effects can be particularly dramatic as a result from the interaction with the specific pathophysiology of these patients. Breathing complications are more frequent in obese patients than in normal weight population. Not only for the obstructive sleep apnea syndrome (OSA), but for the increased prevalence of hypoventilation and atelectasis, and the elevated rate of post operatory nausea and vomiting (PONV). For these reasons Opioid free anesthesia (OFA) is being used especially for bariatric surgery with a very good result.

However, one of the concerns about the OFA is the lack of experience in certain situations, like hypovolemic or instable patients. Opioids promote peripheral vasoconstriction, so hypovolemic shock is one of the relative contraindications of OFA.

Case Report

A 50-years-old man was scheduled for sleeve laparoscopic longitudinal gastrectomy. It was a 167Kg, 174 cm, BMI 55 patient with OSA, hypertension with a very good control and atrial fibrillation. The physical exploration showed Mallampati III with a normal mouth opening and cervical mobility.

As soon as he entered the operation room electrocardiography, non invasive blood pressure (NIBP), pulsioximetry, sleep deepness with biespectral index (BIS) and muscle relaxation (TOF-watch) were monitorized.

Basal saturation was100%, blood pressure 132/66 mm Hg and his heart rate was 100 bpm. He was treated with a dexmedetomidine bolus of 0,2 mcg/Kg^{-1} and continuous infusion of dexmedetomidine 0.1 mcg/Kg^{-1}/min, ketamine 0.1 mg/Kg^{-1}/h and lidocaine 1 mg/Kg^{-1}/h, everything adjusted for ideal bodyweight (74Kg). After that, 2g metamizol, 50 mg dexketoprofen, 3g magnesium sulphate and 10 mg dexamethasone were administrated. 10 mins after the dexmedetomidine bolus induction was performed with 3 mg/Kg^{-1} of propofol, a bolus of dexmedetomidine 0.1 mcg/Kg^{-1}, ketamine 0.1 mg/Kg^{-1}, lidocaine 0.1 mg/Kg^{-1}, and rocuronium 1, 2 mg/Kg^{-1} and orotracheal intubation was attempt without any incidence. Hypnotic maintenance was achieved with sevoflurane end-tidal to obtain a BIS around 50. Deep muscular relaxation was obtained with rocuronium boluses.

Laparoscopic wounds were infiltrated with 10cc of levobupivacaine 0.25%. At the beginning of the surgery blood pressure was 103/48, heart rate was 78 bpm, pulseoximetry was 100% and end-tidal carbon dioxide was 32. It was decided not to give a new bolus before the beginning of the surgery as heart rate had already drop by 30 bpm and blood pressure seemed to be dropping down too, however, after 10 minutes from the surgical insult blood pressure was down to 55/32, heart rate was down to 60 bpm and end-tidal carbon dioxide had decreased to 21. At this point 15 mg ephedrine were administrated, perfusions of ketamine, lidocaine and dexmedetomidine were stopped and sevoflurane was diminished to 1% end-tidal. After that there was a gradual hemodynamic stabilization which leaded after 6 minutes to a mean arterial pressure higher than 65 mm de Hg. After 12 minutes blood pressure was 112/62, heart rate of 90 bpm and end-tidal carbon dioxide of 31. From there on, the anesthetic maintenance was achieved with dexmedetomidine 0.05 mcg/Kg^{-1}, lidocaine 0, 5 mg/Kg^{-1}, and ketamine 0, 5 mg/Kg^{-1} and hemodynamic stability was constant for the rest of the intervention.

10 min before awakening, 1g paracetamol, 0,4mg ondansetron and 50mg ranitidine were administrated and perfusions were reduced by half. Once the surgery finished neuromuscular block was reverted with 2 mg/Kg^{-1} of sugammadex adjusted to ideal body weight + 40%. Surgery duration was 160 minutes.

At his arrival to the recovery room he had a Visual Analog Scale (VAS) of 2, Ramsay 2, saturation was 97% without oxygen supply, blood pressure was 122/67, and heart rate was 112 bpm. He left the hospital 2 days later without any incidence. Analgesia while he was kept in hospital was provided with metamizol and dexketoprofen. No opioids were used at all, he had no vomiting and he did not need oxygen supplies.

Discussion

OFA is a relatively new technique of which there are not many publications. There are not too many negative consequences known of the OFA, possibly due to the lack of investigation in this regard. Through this case we want to highlight a side effect of the combination of drugs used in this technique, something that is still little known.

There is growing evidence of how low pressure during surgery can be harmful for organ protection, particularly to kidneys and heart [2]. In fact, recent studies relate higher levels of mean blood pressure than the ones thought before. It seems that even descends in mean arterial pressure below 65 mm de Hg can induce heart and kidney damage in patients without previous hypertension [3].

The first OFA report was in 2005, since then evidence for OFA use is growing as this technique spreads worldwide, however, there is still lack of reports about the different drugs combinations and the specific use of them.

Although the 3 drugs in which our OFA protocol is based have a short half life there are not reports about how they could be used in a hypotension situation. There is special concern about using OFA in patients with severe hypotension or hypovolemic as the OFA drugs don´t provoke peripheral vasoconstriction as opioids but vasodilatation.

Dexmetomidine is a relatively new drug, of which many aspects are known. It is known that the initial response to rapid infusion of dexmedetomidine may be transient hypertension. Nevertheless the predominant effect of dexmedetomidine is hypotension mediated by central alpha2a-receptors [4]

In this case hypotension was probably due to an overdosing of the drugs, even do they were adjusted by ideal bodyweight. As with other anesthesia techniques there are some patients who have an unusual response to regular doses. However, the hemodynamic response was as you could expect from using drugs with a short half-life.

It is true that at least, theatrically the OFA drugs have worse hemodynamic profile than opioids, but having a fast response to recovery from hypotension makes them safe for daily practice.

We expect that this case would help OFA to keep spreading out as it is still a not well known technique and it has obvious advantages for certain patients.

Conclusión

Our OFA protocol can be safely used and it has a quick response to hypotension. Further communications are needed to question hemodynamic instability as an OFA contraindication.

References

1. Mulier JP. "Opioid free anesthesia: A paradigm shift?" *Revista Espanola De Anestesiologia Y Reanimacion* 64.8 (2017): 427-430.
2. Walsh M., *et al*. "Relationship between intraoperative mean arterial pressure and clinical outcomes after non-cardiac surgery". *Anesthesiology* 119.3 (2013): 507-15.
3. Salmasi V., *et al*. "Relationship between intraoperative hypotension, de need by either reduction from baseline or absolute thresholds, and acute kidney and myocardial injury after non cardiac surgery". *Anesthesiology* 126 (2017): 47-65.
4. Afshani N. "Clinical application of dexmedetomidine". *Southern African Journal of Anaesthesia and Analgesia* 16:3 (2010): 50-56.