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Opioid-Free Anesthesia in Coronary Revascularization Surgery Monitoring with Nol®: A Case Report

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1. Introduction

The integrated nociception index (NOL, Medtronic®) provides an alert to the presence of pain, as well as its severity, integrating and evaluating physiological responses in response to it. According to the literature available to date, it is a tool that more precisely complements other indices based on individual parameters, such as variation in heart rate or blood pressure. This monitoring quantifies the data and translates it into a figure from 0 to 100, with 0 being the absence of nociception and 100 being the maximum response to nociception. The parameters it measures, non-invasively with a fingertip, are plethysmography, conductance, skin temperature and movement.

The practice of anesthesia in cardiac surgery usually involves the use of large doses of opioids; However, there are other alternatives such as opioid-free anesthesia - using other intravenous drugs - or the combination of general anesthesia with locoregional anesthesia [1-4].

2. Material and Methods

We present the case of a 64-year-old man, ASA III, who underwent coronary revascularization surgery of the anterior descending artery and right coronary artery due to ischemic heart disease. The following management was performed: placement of a thoracic epidural catheter (level T6) with initial bolus of 0.2% ropivacaine 10 mL and continuous infusion of 0.16% ropivacaine at 8 mL/h, induction of general anesthesia with midazolam 2 mg, sevorane at 4 MAC, fentanyl 100 mg and rocuronium 80 mg, orotracheal intubation and radial access cannulation and central venous line. Finally, a saphenous block was performed in the left lower limb with 0.5% ropivacaine (15 mL) to extract the saphenous vein. Standard monitoring in cardiac surgery was used as monitoring: cardiac output monitor, transesophageal ultrasound, invasive tension, and also, NOL nociception monitor (integrated nociception index). The entire surgery was performed without any opioid administration other than 100 mcg of fentanyl at induction. The eduction was carried out without incident with extubation in the operating room and transfer to the intensive care unit to begin immediate postoperative care.

3. Results

The integrated nociception index remained below 25 throughout the surgery, and no other pain warning data (tachycardia, hypertension, etc.) were observed. He was extubated without incident, with good respiratory mechanics and denying pain. After the residual effects of anesthesia had resolved, pain was evaluated with a VAS scale, being: Rescue boluses of local anesthetic were performed through the catheter for mobilization and toileting.

The catheter was removed on the third day, at which time he was discharged to the hospital ward.

Evaluated moment.	VAS Pain Scale
First post-surgical hour	3
Second post-surgical hour	3
Fourth post-surgical hour	2
Second post-surgical day	2
Third post-surgical day	2

Rescue boluses of local anesthetic were performed through the catheter for mobilization and toileting. The catheter was removed on the third day, at which time he was discharged to the hospital ward.

4. Conclusions

1. It seems that in this case the locoregional anesthetic management with epidural and saphenous block was adequate and sufficient.

2. The nociception monitor allows evaluating whether the patient requires another type of analgesia, for example intravenous opioids, intraoperatively.

3. This strategy allowed us to reduce the use of intravenous opioids in this surgery as well as early extubation in a comfortable way.

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