MAGNESIUM SULPHATE WITH ASSOCIATED TRASVERSUS ABDOMINAL PLANE (TAP) BLOCK AS A BLENDED ANESTHETIC OPPIOID-FREE TECHNIQUE IN LAPAROSCOPIC AND ROBOTIC-ASSISTED MAJOR ABDOMINAL SURGERY. PRELIMINARY FINDINGS OF A RANDOMIZED TRIAL

D. Rampulla[1], L. La Brocca[2], G. Candela[1]

[1] Department of Neuroscience and Emergency, with Trauma Center. Villa Sofia- Cervello Hospital, Palermo- Italy
[2] School of Anaesthesia- Analgesia- Emergency- Intensive Care. Palermo University Medical Center- Italy

Background and AIM:

The use of opioids in patients undergoing laparoscopic and Robotic-assisted major abdominal surgery is associated with the onset of post operative complications. For this reason we have developed and tested a protocol of opioid-free blended anesthesia using magnesium sulphate associated with an analgesic abdominal wall block. The aim of this study is to demonstrate its effectiveness in ensuring an adequate intraoperative anesthesia and satisfactory postoperative pain control.

Methods:

80 adult patients undergoing laparoscopic major abdominal surgery were enrolled for the study. The following exclusion criteria were identified: pregnant women, patients with an established diagnosis of electrolyte imbalance, acidosis states, renal failure, dysthyroidism, neuromuscular pathologies, bradyarrhythmias, PM carriers, shock states, age below 18). Each patient has been premedicated with iv midazolam 2 mg + im clonidine 75 mcg + iv 100 mL solution of magnesium sulphate 35 mg/Kg + NaCl 0.9% in bolus), administered in 5'. For induction of anesthesia, pcs received iv propofol (2 mg/kg) + iv rocuronium (0.6 mg/kg). Bilateral TAP block (25 mL of ropivacaine 0.3%, for each side) is performed in combination with bilateral abdominal recti fascia block (10 mL of ropivacaine 0.3%, for each side), using a guided echo technique. Pcs received desflurane anesthesia + iv continuous infusion of magnesium sulphate (8 mg/Kg/h). Rescue therapy with opioid drug boluses is limited to insufficient or not optimal pain control. One hour after incision, iv continuous infusion of ketorolac 90 mg (48mL solution, 2mL/h) is administered.

At the end of surgery, iv paracetamol 1g bolus is administered and the infusion of magnesium sulphate is suspended. All patients underwent continuous multiparameter intraoperative monitoring to verify the adequate depth of the anesthesia and were evaluated in terms of acute postoperative pain control according to The Numerical Rating Scale (NRS) in the first 24 hours. Adequate control of postoperative acute pain was considered reached with NRS values < 3 to 24h.

Results:

The protocol used ensured an adequate anesthesia. Intraoperative rescue therapy was never used. About the postoperative pain, its control was optimal in 76 out of 80 patients, 4 required a rescue dose of paracetamol 1g iv at 8h post-operatively.

Conclusion:

The results obtained, considering the advantages of opioid-free anaesthesia, easy applicability of the protocol and the reduced/null adverse effects associated with its application, encourage further studies.
Open surgery would be the next step on which to investigate its applicability, effectiveness and safety.

References

1. *J.-H. Ryu M.-H. Kang K.-S. Park S.-H. Do - Effects of magnesium sulphate on intraoperative anaesthetic requirements and postoperative analgesia in gynaecology patients receiving total intravenous anaesthesia - BJA: British Journal of Anaesthesia, Volume 100, Issue 3, March 2008, Pages 397–403*
2. *Stefan G. De Hert, M.D., Ph.D., Markus W. Hollmann, M.D., Susanne Herroeder, M.D.,Marianne E. Schonherr, M.D., D.E.S.A. - Magnesium—Essentials for Anesthesiologists - Anesthesiology, V 114 • No 4, April 2011*
3. *Hyun Jung Shin and Sang Hwan Do - Magnesium Sulfate: A Versatile Anesthetic Adjuvant - J Anest & Inten Care Med, Vol 4, Issue 5, December 2017*
4. *Soave PM, Conti G, Costa R, Arcangeli A (2009) Magnesium and anaesthesia. Curr Drug Targets 10(8): 734-7435*
5. *Ra YS, Kim CH, Lee GY, Han JI. - The analgesic effect of the ultrasound-guided transverse abdominis plane block after laparoscopic cholecystectomy - Korean J Anesthesiol. 2010;58(4):3*