EFFECT OF MAGNESIUM SULPHATE INFUSION ON PAIN RELIEF AFTER Lower abdominal surgery

Thesis

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Introduction

Many patients still suffer from moderate to severe pain after lower abdominal surgery, treatment have been used to relieve pain, including nonsteroidal anti-inflammatory drugs, opioids, an anesthetics, but none has been consistently satisfactory. This may be because postoperative pain results from combination of inflammatory, incisional somatic, and visceral components. ***(Laurila,et al.,2006)***

Magnesium is essential for the formation of strong bones and healthy teeth, the transmission of nerve signals and the contraction of muscles. It activates several enzymes and is important in the conversion of blood sugar into energy. It also helps regulate the body's temperature. Magnesium occurs naturally in green, leafy vegetables, nuts wholemeal cereals, soya beans and seafoods. Drinking water in hard water areas is also a source of magnesium. Supplements are only necessary for magnesium deficiency associated with impairment of absorption from the intestines such as repeated vomiting or diarrhea, advanced kidney disease, severe alcoholism or prolonged treatment with certain diuretic medicines. It is also to treat abnormal heart rhythms, especially in situations when the levels of potassium are low. In this situation, the levels of magnesium are often also low. Adding magnesium can correct the abnormal heart rhythms by resetting the normal electrical activity in the heart. Magnesium sulphate may be given for the treatment of

high blood pressure and fits (convulsions) in the later stages of pregnancy (eclampsia). It reduces the electrical excitability of the brain and thereby reduces the chance of fitting. ***(Keus,et al.,2007)***

Uncontrolled post-operative pain is associated with a number of adverse sequales that can lead to post-operative morbidity. A greater understanding of these phenomena would help to motivate staff to provide better analgesia.

A long line of publications continue to highlight an ongoing inadequacy in modern acute pain management with up to 30% of patients still suffering moderate to severe pain following surgery. ***(Ko,et al.,2001)***

Severe pain produces a neurohumeral response with the release of catecholamines and activation of the sympathetic nervous system. This results in a number of physiological changes.

Cardiovascular. Tachycardia, hypertension, increased myocardial oxygen consumption, myocardial ischaemia.

Respiratory. Decreased lung volume, atelectasis, decreased cough, sputum retention, infection, hypoxia.

Gastrointestinal. Decreased gastric and bowel motility, ileus.

Genitourinary. Urinary retention.

Metabolic. Increased catabolic hormones, e.g., cortisol, glucagons, growth hormone etc., reduced anabolic hormones, e.g., insulin, testosterone.

Psychological. Anxiety, fear, sleep disturbances. ***(Jeong,et al.,2006)***

The N-methyl-D-aspartate (NMDA) receptor is an excitatory amino acid receptor that has been implicated in the modulation of prolonged pain states in animal models. NMDA antagonists have been shown to be useful in the reduction of acute post-operative pain, analgesic consumption, or both when they are added to more conventional means of providing analgesia in the perioperative period. ***(Bhatia,et al.,2004)***

magnesium is the fourth most plentiful cation in the body It has antinociceptive effects in animal and human models of pain. These effects are primarily based on the regulation of calcium influx into the cell and that is the natural physiological antagonism of the NMDA receptor. These effects have prompted the investigation of magnesium as an adjuvant for postoperative analgesia. Our study was designed to investigate the role of magnesium sulphate in the post-operative pain in the patients undergoing lower abdominal surgery.(***Kara,et al.,2002)***

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Aim of the study

To study effect of $MgSo_4$ in intraoperative analgesia, post-operative pain relief and in reducing the hospital occupying time.

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Patients &Methodes

-After obtaining institutional review board approval and written informed consent, 60 ASA I or II patients aged 20-50 years undergoing lower abdominal surgery included in the study and divided into three groups,each group formed of 20 patients.

-the1st group(F group)receive fentanyl(2 ug/kg) by i.v infusion(on 100 cc saline 0.9%) half an hour preoperatively.the 2nd group(M group)receive mgso4(3 gm)by i.v infusion(on 100 cc saline 0.9%)half an hour preoperatively . the 3rd group (FMgroup) receive fentanyl(2ug/kg)+mgso4(3gm) by i.v infusion(on 100 cc saline 0.9%) half an hour preoperatively . The criteria for exclusion are major hepatic,renal,diabetic,hypertensive or patients on anti-hypertensive drugs.

- All patients receive the same general anaesthetic technique in the form of i.v induction by propofol (2mg/kg) and intubation facilitated by atracurium(0.5 mg/kg).anaethesia maintained by isofluran(1.5 MAC) and incremental doses of atracurium(0.15 mg/gk) every 20 min.at the end of surgery N.M.B reversed by neostigmine(40 ug/kg)+atropine(20ug/kg) I.V. –patients will be monitored in the form of measuring cortisol level,glucose level,systolic blood pressure,diastolic blood pressure & HR (preoperative,after skin incision and just before skin closure).then postoperative we monitor 1st dose nalgesic required,post operative shivering and post operative hospital stay.

-Data will be collected,classified and statistically analyzed.

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