بسم الله الرحمن الرحيم

MONA MAGHRABY

شبكة المعلومات الجامعية

التوثيق الالكتروني والميكروفيلم

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شبكة المعلومات الجامعية

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جامعة عين شمس

التوثيق الإلكتروني والميكروفيلم

قسم

نقسم بالله العظيم أن المادة التي تم توثيقها وتسجيلها
علي هذه الأقراص المدمجة قد أعدت دون أية تغيرات

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MONA MAGHRABY

Intraperitoneal Local Instillation of Levo-Bupivacaine versus Magnesium Sulfate versus Levobupivacaine Plus Magnesium Sulfate for Postoperative Pain Relief after Laparoscopic Sleeve Gastrectomy: Prospective Randomized Clinical Trial

Thesis

Submitted for Partial Fulfillment of Master Degree in Anaethesia

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وَقُل رَّبِّ
أَنزِلْنِي مُنزَلًا مُّبَارَكًا
وَأَنتَ خَيْرُ الْمُنزِلِينَ

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List of Abbreviations

Abb.	Full term
ADRs	*Adverse drug reactions*
ATP	*Adenosine Triphosphate*
BMI	*Body Mass Index*
BPD	*Biliopancreatic diversion*
CCK	*Cholecystokinin*
CGRP	*Calcitonin Gene-Related Peptide*
CNS	*Central nervous system*
COX	*Cyclooxygenase*
CRPS	*Complex Regional Pain Syndrome*
CSF	*Cerebrospinal fluid*
CYP	*Cytochrome*
DS	*Duodenal switch*
ETCO2	*End-tidal CO2*
FRS	*Faces rating scale*
GABA	*γ-Aminobutyric Acid*
IASP	*International Association for the Study of Pain*
ICU	*Intensive Care Unit*
IP	*Intraperitoneal*
IV	*Intravenous*
JIB	*Jejunoileal bypass*
LAGB	*Laparoscopic adjustable gastric banding*
LC	*Laparoscopic cholecystectomy*
LSG	*Laparoscopic Sleeve Gastrectomy*
MABP	*Mean Arterial Blood Pressure*
$MgSo_4$	*Magnesium sulphate*
MO	*Morbid obese*

List of Abbreviations (Cont...)

Abb.	Full term
NIBP	*Non-invasive blood pressure*
NMDA	*N-Methyl-D-aspartate*
NRS	*Numerical Rating Scale*
NSAIDs	*Non-steroidal anti-inflammatory drugs*
OSA	*Obstructive sleep apnea*
PAG	*Periaqueductal Gray matter*
PCA	*Patient-controlled Analgesia*
PGE_2	*Prostaglandin E_2*
PONV	*Postoperative nausea and vomiting*
RSD	*Reflex Sympathetic Dystrophy*
RYGB	*Roux-en-Y gastric bypass*
SDB	*Sleep disordered breathing*
SG	*Sleeve gastrectomy*
sP	*Substance P*
VAS	*Visual Analogue Scale*
VBG	*Vertical Banded Gastroplasty*
VIP	*Vasoactive intestinal peptide*
VMM	*Ventromedian Medulla*
VRS	*Verbal Rating Scale*
WLS	*Weight loss surgery*

INTRODUCTION

Currently, laparoscopic sleeve gastrectomy is the gold standard option for the management of morbid obesity ***(O'Brien et al., 2019).*** Laparoscopy offers many advantages over laparotomy, it is a less invasive procedure with better cosmetic results and shorter operative time and hospital stay ***(Hoyuela, 2017).*** Moreover, the current body of evidence shows that laparoscopic interventions are generally associated with less postoperative pain and analgesic requirements ***(Borzellino et al., 2008).***

On the other hand, laparoscopic procedures are associated with variable degrees of early postoperative pain; post-laparoscopic abdominal pain, mainly visceral, is proposed as a consequence of abdominal incision, tissue injuries, and pneumoperitoneum with subsequent peritoneal stretch ***(Liu et al., 2016).*** Moreover, concurrent shoulder tip pain may occur as a result of peritoneal irritation by carbone dioxide and phrenic nerve irritation by diaphragmatic muscle fibers stretch ***(Dey and Malik, 2015).***

Inadequate management of acute post-laparoscopic pain can significantly affect patient satisfaction, prolong hospitalization, and increase the risk of morbidities and development of chronic pain ***(Upadya et al., 2015).*** Previous reports have shown that the post-laparoscopic pain is

inadequately treated in approximately one-half of all surgical procedures ***(Guo et al., 2015).***

Thus, effective analgesia through a multimodal approach can modify these consequences and improve patient recovery and quality of life ***(Barazanchi et al., 2018).*** Different multimodal approaches including non-steroidal anti-inflammatory drugs (NSAIDs), opioids and local wound infiltration have been described ***(Tobias, 2013).*** However, NSAIDs may precipitate ischemic renal insufficiency and coagulopathy. Opioids are associated with respiratory depression, postoperative nausea and vomiting (PONV), and dependence ***(Ballantyne and Mao, 2003; Kontinen, 2012).***

Intraperitoneal instillation of drugs has been proposed as an effective option for post- laparoscopic pain management. According to a previous meta-analysis by ***Marks et al. (2012),*** intraperitoneally instilled agents can potentially block the visceral afferent signalling and inhibit the release and action of prostaglandins. Moreover, after systemic absorption from through the large peritoneal surface, they may further modulate peritoneal and visceral signalling to the brain, thereby attenuating the metabolic impact of visceral manipulations ***(Barash and Cullen, 2013).***

The current body of evidence shows that the intraperitoneal local anesthetics led to lower postoperative pain scores and rare serious adverse effects among patients who

underwent laparoscopic surgeries, regardless of the instillation time which may be pre-pneumoperitoneum or near the end of surgery ***(Barczyński et al., 2006; Sripada et al., 2006).***

In addition, different types of drugs were proposed for intraperitoneal instillation, including bupivacaine, magnesium, and cortisosteriods. Over the past decades, a growing body of evidence has suggested a significant role of glutamate receptors on peripheral nociceptive sensation; thus, an effective blockade of glutamate receptors, such as N-methyl-D-aspartate (NMDA) receptor, can alleviate different type of pain including postoperative pain ***(Kinkelin et al., 2000).*** Intraperitoneal magnesium has emerged as an effective, adjuvant, local and systemic analegsic due to its effective blockade of NMDA receptors and calcium channels after systemic absorption through the large peritoneal surface ***(Do, 2013).*** It also increases the number of nerve fibers affected by bupivacaine and therefore potentiates its conduction block ***(Büyükakilli et al., 2006).***

However, there is a scarcity in the published literature, which evaluates the efficacy of different types of drugs in the management of postoperative pain following laparoscopic sleeve gastrectomy. Therefore, the aim of the present trial is to compare the efficacy of intraperitoneal levobupivacaine, and/or magnesium sulphate in different combinations for postoperative pain relief in patients undergoing laparoscopic sleeve gastrectomy.

Aim of the Work

The aim of the present trial is to compare the efficacy and safety of intraperitoneal levobupivacaine, and/or magnesium sulphate in different combinations for postoperative pain relief in patients undergoing laparoscopic sleeve gastrectomy.