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

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MONA MAGHRABY

Comparison of Adding Magnesium Sulphate to Bupivacaine with Plain Bupivacaine in Ultrasoun Guided Pectoral Nerve Block for Postoperative Analgesia in Modified Radical Mastectomy

Thesis

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List of Abbreviations

Abb.	Full term
AA	*Axillary artery*
ASA	*American Society of Anaesthesiologists*
AV	*Axillary vein*
BMI	*Body mass index*
CNS	*Central nervous system*
ECG	*Electrocardiography*
HR	*Heart rate*
LA	*Local anaesthetics*
LPN	*Lateral pectoral nerves*
MPN	*Medial pectoral nerves*
MRM	*Block modified radical mastectomy*
NIBP	*Non-invasive blood pressure*
NMDA	*N- methyl D- aspartate*
NRS	*Numerical Rating Scale*
PABA	*Para-aminobenzoic acid*
PECS	*Pectoral nerve*
PECS-II	*Pectoralis minor and the serratus anterior muscle at the third rib*
SD	*Standard deviation*
SpO2	*Pulse oximetry*
TAA	*Thoraco-acromial artery*
US	*Ultrasound*
VAS	*Visual analog scale*

INTRODUCTION

The pectoral nerve (PECS) block is plane block that provides analgesia to the upper anterior chest wall. It has been used for analgesia after breast surgery. It is an alternative to paravertebral blocks in patients receiving breast surgery, is a less invasive new technique where local anaesthetic is injected into the plane between the two pectoralis muscles, pectoralis major and pectoralis minor muscles (PECS-I block) and between the pectoralis minor and the serratus anterior muscle at the third rib (PECS-II block) which is used for analgesia for different breast surgeries including soft-tissue excision and mastectomy ***(Blanco et al., 2011).***

Breast cancer is the most common malignancy in women, and its incidence continues to increase**.** Surgery is one of the mainstays of treatment of breast cancer, and modified radical mastectomy (MRM) is one of the standard treatments for multi-centric disease or tumors with extensive coexistent ductal carcinoma in situ, where achieving a clear surgical margin becomes difficult with a segmental mastectomy ***(Arsalani-Zadeh et al., 2011)***.

The growing increase in the number of breast surgeries as therapy for breast cancer and cosmetic purposes has resulted in an increased need for anaesthetic techniques with improved pain reduction, safety, and fewer complications ***(Pedrosa et al., 2016).***

In breast surgery, acute postoperative pain from injured muscles and nerves is a consistent risk factor for chronic pain in association with its severity. Postoperative pain can seriously reduce the life quality ***(Andersen and Kehlet, 2011).***

Over the past few decades, a great deal of research has been conducted to pursue better analgesia in patients receiving MRM. However, traditional opioid-based analgesia remains the mainstay; there are different regional techniques for patients undergoing MRM: thoracic epidural anaesthesia, thoracic paravertebral block, intercostal nerve block, and pectoral nerve block ***(Gärtner et al., 2009).***

Management of postoperative pain is required for a better outcome and patients' satisfaction. Regional techniques are regarded as the best choice to reduce postoperative pain ***(Abdelaziz Ahmed et al., 2018).***

Pectoral nerve (PECS I block) aiming by injection an interfacial plane between the pectoralis major and pectoralis minor muscles targeting to block the lateral region of the breast to provide analgesia for breast surgery. Subsequently, with the inclusion of PECS I block as the first injection, a second injection of local anaesthetic at the interfacial plane between the pectoralis minor muscle and serratus anterior muscle (PECS II block) for analgesia of the axilla was reported to be good analgesia for breast surgery ***(Fujiwara et al., 2015).***

Aim of the Work

The aim of this study is to elaborate the analgesic efficiency and safety of pectoral nerve block by adding magnesium sulphate to bupivacaine as an adjuvant versus bupivacaine as a sole agent in cases of modified radical mastectomy (MRM).

Chapter 1
ANATOMY OF THE THORACIC WALL AND BREAST

For adequate treatment of patients with breast cancer, Anaesthesiologists as those responsible for pain management, as well as surgeons, should have a complete understanding of the anatomy of the thoracic wall and breast ***(De la Pared, 2006).***

Anatomy of the thoracic wall:

Skeleton of the thoracic wall is formed by the twelve thoracic vertebra posteriorly, the sternum anteriorly and, on each side, by the twelve ribs and the respective costal cartilage (Fig 1) ***(Vidić, 1984)).***

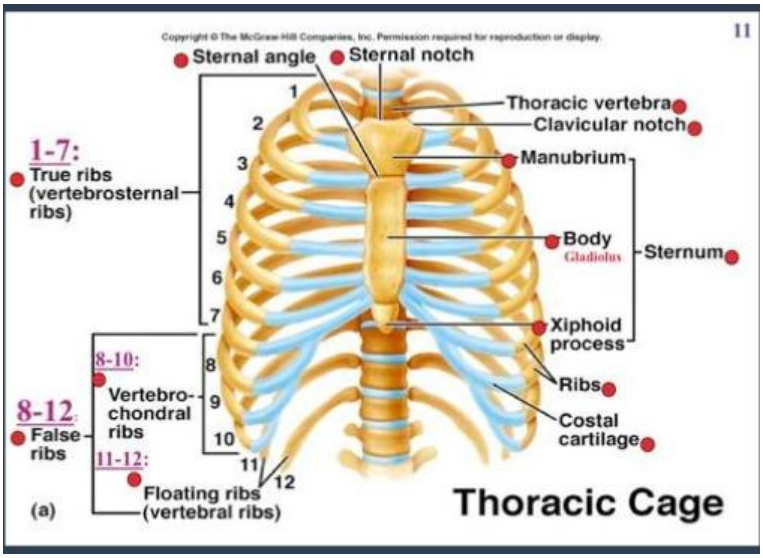

Figure (1): Skeleton of the thoracic wall ***(Vidić, 1984).***