شبكة المعلومات الجامعية

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بسم الله الرحمن الرحيم

HANAA ALY

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Comparitive Study between Dexamethasone versus Fentanyl As Adjuvant to Local Anesthesia in Supraclavicular Nerve Block in Upper Limb Surgery

Thesis

Submitted for Partial Fulfillment of Master Degree in Anesthesia

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List of Abbreviations

Abb.	Full term
ACTH	Adrenocorticotropic hormone
ADRs	Adverse drug reactions
ALT	Alanine aminotransferase
ASA	American Society of Anesthesiologist
AST	Aspartate Aminotransferase
CAH	Congenital adrenal hyperplasia
CNS	Central nervous system
CVS	Cardiovascular system
DHEAS	De-hydroepiandrosterone sulfate
ECG	Electrocardiogram
HACE	High-altitude cerebral edema
HAPE	High-altitude pulmonary edema
hCG	Human chorionic gonadotropin
HR	Heart rate
INR	International Normalized Ratio
IV	Intravenous
MBP	Mean blood pressure
NIBP	Non-invasive blood pressure
NS	Normal saline
PACU	Post-anesthesia care unit
PT	Prothrombin time
PTT	Partial thromboplastin time
SpO2	oxygen saturation
VAS	Visual analogue score

INTRODUCTION

Brachial plexus blocks are among the most commonly performed peripheral nerve blocks for upper extremity surgeries in clinical practice. It offers many advantages over general anesthesia for upper limb surgeries such as sympathetic block, better postoperative analgesia, high success rate and fewer side effects ***(Kooloth et al., 2015).***

Various approaches to the brachial plexus have been described but the supraclavicular approach is the easiest and most consistent method for anesthesia and perioperative pain management in surgery below the shoulder joint. Local anesthetics alone for supraclavicular brachial plexus block provide good operative conditions but have shorter duration of postoperative analgesia. This problem can be overcome by using long acting local anesthetics like bupivacaine or by using adjuvant in regional anesthesia. Adjuvant added to brachial plexus block should prolong the analgesia, without having systemic side effects, prolong motor block and should also reduce the total dose of local anesthetic. Various studies have investigated several adjuvants including opioids, clonidine, neostigmine, bicarbonate added to local anesthetics in brachial plexus block to achieve quick, dense and prolonged block, but the results are either inconclusive or associated with side effects ***(Dhumane and Shakir, 2016).***

Dexamethasone, a high-potency, long-acting glucocorticoid, has been shown to prolong peripheral nerve blockade in animals and, when added to bupivacaine, to extend the duration of analgesia in humans. Although incompletely understood, dexamethasone's mechanism of action may stem from decreased nociceptive C-fiber activity via a direct effect on glucocorticoid receptors and inhibitory potassium channels. Other authors suggest a local vasoconstrictive effect, resulting in reduced local anesthetic absorption, or a systemic anti-inflammatory effect following vascular uptake of the drug ***(Albrecht et al, 2015).***

Fentanyl is a potent synthetic opioid that produces sedation and analgesia when administered intravenously. Many authors believe that it also prolong the effect of local anesthetics in peripheral nerve blocks through its direct effect on the peripherally-located opioid receptors ***(Narei et al., 2016).***

Aim of the Work

The aim of our study is to evaluate the effects of adding dexamethasone and fentanyl to bupivacaine in ultrasound guided supraclavicular brachial plexus block for upper limb surgery versus bupivacaine alone.