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قسم

نقسم باللّه العظيم أن المادة التي تم توثيقها وتسجيلها

علي هذه الأقراص المدمجة قد أعدت دون أية تغيرات

Effect of Adding Dexamethasone to Bupivacaine in Ultrasound Guided Adductor Canal Block For Post-operative Analgesia Following Knee Arthroscopy

Thesis

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List of Abbreviations

Abb.	Full term
ACB	Adductor Canal Block
ASRA	American society of regional anesthesia
ATP	Adenosine 5′-triphosphate
BMI	Body Mass Index
Bp	Blood pressure
CNS	Central Nervous System
CPR	Cardiopulmonary Resuscitation
ECG	Electrocardiography
ERAS	Enhanced Recovery After Surgery
IV	Intravenous
IVC	Inferior Vena Cava
LA	Local Anesthetic
LAST	Local Anesthetic Systemic Toxicity
NRS	Numeric Rating Scale
NSAIDs	Nonsteroidal Anti-inflammatory Drug
PACU	Postanesthesia care unit
PCA	Patient-Controlled Analgesia
PONV	Postoperative Nausea and Vomiting
US	Ultrasound
VAS	Visual Analog Scale
WHO	World Health Organization

INTRODUCTION

Arthroscopic knee surgery refers to a large variety of surgical interventions in the knee, and numerous analgesic regimens have been investigated in order to find the best combination of analgesics for these procedures. The post-operative pain response depends on the type and duration of surgical intervention, and it can be challenging to predict which analgesic regimen will be the most appropriate for each patient until after surgery ***(Espelund et al., 2014).***

The post-operative pain of knee arthroscopy can affect early ambulation, range of motion and duration of stay in the hospital. Unrelieved post operative pain may result in clinical and psychological changes that affect quality of life ***(Carr and Goudas, 1999).***

Adequate analgesia with motor preservation has become the goal after knee arthroscopies to enable shorter hospital stay, early physiotherapy, and faster recovery. So many options are available for the treatment of post-operative pain, including systemic (i.e., opioid and non opioid) analgesics and regional (i.e., neuraxial and peripheral) analgesic techniques, multimodal analgesia is achieved by combining different analgesics that act by different mechanisms and at different sites in the nervous system, resulting in synergistic analgesia with lowered adverse effects of administration of individual analgesics ***(Slover et al., 2014).***

Epidural analgesia can produce adverse effects such as urinary retention and motor block, delayed early mobilization ***(Fowler et al., 2008).***

Femoral Nerve Block (FNB) is a well–established treatment for post-operative pain in knee arthroscopy but followed by reduced quadriceps muscle strength and associated with high risk of falling ***(Ilfeld et al., 2010 and Johnson et al., 2013).***

Adductor Canal Block (ACB) using Bupivacaine is a highly successful approach to the saphenous nerve, that was first described by Vander Wal ***(Vander-Wal et al., 1993).***

Compared with FNB, ACB results in less reduction in the quadriceps muscle strength as only the motor nerve to the Vastus medialis of the quadriceps muscle traverses the adductor canal ***(Grevstad et al., 2014).***

AIM OF THE WORK

The aim of our study is to assess the effect of adding dexamethasone perineurally to bupivacaine in adductor canal block for post operative analgesia following knee arthroscopy under spinal anaesthesia regarding duration of postoperative analgesia as a **primary** objective and one-day postoperative analgesic and opioid consumption as a **secondary** objective.

PAIN

Definition of pain has been updated as: an unpleasant sensory and emotional experience associated with, or resembling that associated with, actual or potential tissue damage and is expanded upon by the addition of six key Notes and the etymology of the word pain for further valuable context.

- Pain is always a personal experience that is influenced to varying degrees by biological, psychological, and social factors.
- Pain and nociception are different phenomena. Pain cannot be inferred solely from activity in sensory neurons.
- Through their life experiences, individuals learn the concept of pain.
- A person's report of an experience as pain should be respected.
- Although pain usually serves an adaptive role, it may have adverse effects on function and social and psychological well-being.
- Verbal description is only one of several behaviors to express pain; inability to communicate does not negate the possibility that a human or a nonhuman animal experiences pain ***(Raja et al., 2020).***

Nociception is the neural process involving the transduction and transmission of a noxious stimulus to the brain via a pain pathway. Pain is the result of a complex interplay between signaling systems, modulation from higher centers and the unique perception of the individual ***(Pasero and McCaffrey, 2005).***

Classification of Pain

Classifying pain is helpful to guide assessment and treatment. There are many ways to classify pain and classifications may overlap.

- **Nociceptive**: It represents the normal response to noxious insult or injury of tissues such as skin, muscles, visceral organs, joints, tendons, or bones.

It is classified into two forms:

  - **Somatic**: Musculoskeletal (joint pain, myofascial pain), cutaneous; often well localized.
  - **Visceral**: Hollow organs and smooth muscle; usually referred.

- **Neuropathic:** Pain initiated or caused by a primary lesion or disease in the somatosensory nervous system.Sensory abnormalities range from deficits perceived as numbness to hypersensitivity (hyperalgesia or allodynia) and paresthesia such as tingling. Examples include, but are not limited to, diabetic neuropathy, postherpetic neuralgia, spinal cord injury