بسم الله الرحمن الرحيم

MONA MAGHRABY

شبكة المعلومات الجامعية

التوثيق الالكتروني والميكروفيلم

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شبكة المعلومات الجامعية

التوثيق الإلكتروني والميكروفيلم

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Adductor canal block versus intravenous patient controlled analgesia for postoperative pain control for primary total knee arthroplasty

A Thesis

Submitted for partial fulfillment of Master degree
in ANAESTHESIA

By

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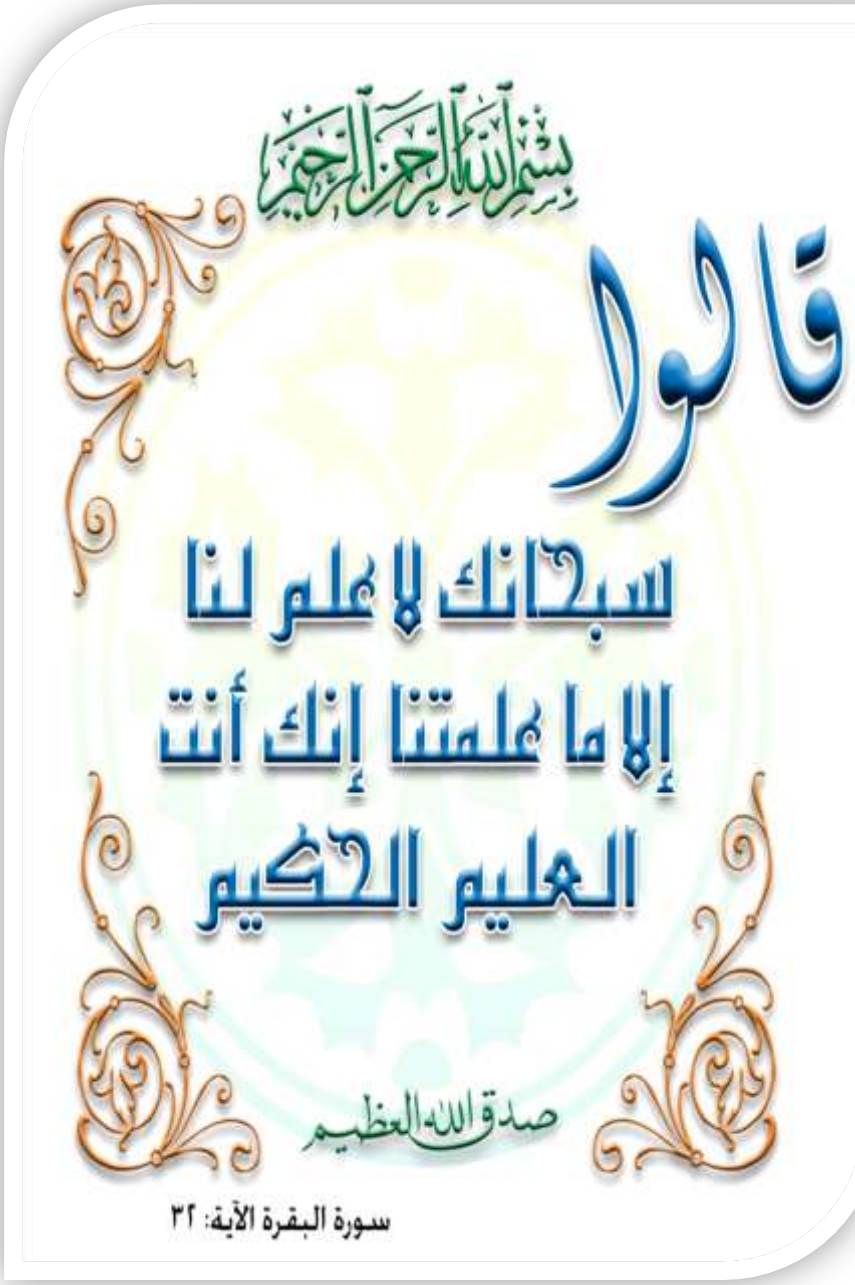
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✍ *Mohamed Hamza Elsaid Elsinsar*

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List of Abbreviations

Abbr.	Full-term
ACB	**:** Adductor canal block
ASA	**:** American Society of Anesthesiologists
BMI	**:** Body mass index
CPR	**:** Cardiopulmonary resuscitation
CT	**:** Computed tomography
EPCA	**:** Epidural patient-controlled analgesia
MPQ	**:** McGill Pain Questionnaire
NPI	**:** Numerical Pain Intensity Scale
NRS	**:** Numeric Rating Scale
PCA	**:** Patient-controlled analgesia
SD	**:** Standard deviation
TKA	**:** Total knee arthroplasty
TKR	**:** Total knee replacement
VAS	**:** Visual Analog Scale
VDS	**:** Verbal Descriptor Scale

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Introduction

Patients undergoing total knee arthroplasty (TKA) can experience significant postoperative pain. Adequate analgesia facilitates early rehabilitation and improves patient satisfaction. [1]

Pain control modalities for post-TKA include intravenous patient-controlled analgesia (PCA), peripheral nerve blockade, and continuous epidural analgesic techniques. All methods have been shown to be efficacious in relieving postoperative pain. However, conventional techniques that use intravenous PCA with morphine and fentanyl are associated with side effects, such as respiratory depression, sedation, pruritus, nausea and vomiting, hypotension, constipation, and urinary retention. [2]

Regional blocks of the lower limb using a combination of a sciatic nerve block with a femoral nerve block is an alternative technique to the conventional neuraxial (spinal or epidural) anesthesia, which is problematic as the patients may be septic with unstable cardiovascular system, and spinal/epidural. [3]

Anesthesia may drop the blood pressure further. In recent years, adductor canal block (ACB) has been introduced as a pure sensory nerve block for postoperative analgesia

following knee surgery. ACB technique is relatively easy and is performed under ultrasound guidance. [4]

Adductor canal blocks (ACBs), which target the saphenous nerve and provide comparable analgesia to femoral nerve blocks with a lesser degree of quadriceps weakness, have been the focus of multiple recent investigation. [5]

Aim of the Work

The purpose of this study is to compare efficacy , hemodynamic effects, opiate consumption and side effects of Adductor canal block and intravenous patient-controlled analgesia (PCA) in terms of postoperative primary total knee arthroplasty analgesia.

Chapter (I)
Post-Operative Pain

A. Definition of pain:

Pain is defined by the International Association for the Study of Pain as "an unpleasant sensory and emotional experience arising from actual or potential tissue damage or described in terms of such damage. (6)

B. Physiology of pain

Pain is often classified by its pathophysiology into 2 major types: nociceptive and neuropathic.

1. **Nociceptive pain** involves the normal neural processing of pain that occurs when free nerve endings are activated by tissue damage or inflammation. Pain pathway involves three orders neurons, The majority of the first-order nociceptive neurons make synaptic connections in Rexed layer II (substantia gelatinosa) and the second-order neurons make synaptic connections in laminae IV-VIII. The second-order neurons also receive input from mechanoreceptors and thermoreceptors, the cell bodies of third order neurons lie within the ventral posterolateral of the thalamus which terminate in the ipsilateral postcentral gyrus.(7) Nociception involves the four processes of transduction, transmission, perception, and modulation. These processes are highly complex, but a simple