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التوثيق الالكتروني والميكروفيلم

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قسم

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

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تحفظ هذه الأقراص المدمجة بعيدا عن الغبار

The Effect of Intravenous versus Intra Thecal Dexamethazone in Bupivacaine Spinal Anesthesia on Postdural Puncture Headache (PDPH)

Thesis

Submitted for Partial Fulfillment of Master Degree in Anesthesiology, Intensive Care and Pain Management

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Masry Eid Fawzy

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List of Abbreviations

Abb.	Full term
ADRs	*Adverse drug reactions*
BMI	*Body mass index*
CNS	*Central nervous system*
CSF	*Cerebro spinal fluid*
CT	*Computed tomography*
CV	*Cardiovascular*
EBP	*Epidural blood patch*
FDA	*Food and Drug Administration*
HR	*Heart rate*
IV	*Intravenous*
LA	*Local anesthetic*
LAST	*Local anesthetic systemic toxicity*
LP	*Lumbar puncture*
NSAID	*Nonsteroidal antiinflammatory drug*
PDPH	*Post dural puncture headache*
PONV	*Postoperative nausea and vomiting*
PR	*Pulse rate*
RR	*Relative risk*
SBP	*Systolic blood pressure*
SPGB	*Sphenopalatine ganglion block*
SPO_2	*Peripheral oxygen saturation*
SVR	*Systemic vascular resistance*
TRI	*Transient Radicular Irritation*
UDP	*Unintentional dural puncture*

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INTRODUCTION

Spinal anesthesia is a popular method of anesthesia, used for many lower abdominal and lower limb surgeries. However, penetrating the meninges for local anesthetic injection into subarachnoid space may be associated with many undesirable effects ***(Onwochei et al., 2017).*** Post dural puncture headache (PDPH) is one of the most frequent side effect of spinal anesthesia. It may be mild self-limited or severe distressing, affecting the life style of the patient. There have been studies to determine the pathogenesis and possible causes of PDPH ***(Arevalo-Rodriguez et al., 2016).*** But till now, the pathophysiology of PDPH is still unclear. It's supposed that cerebro spinal fluid (CSF) leakage through the dural puncture may lead to decreased CSF volume and pressure. However, the relationship between the low CSF pressure and volume and (PDPH) is yet unclear ***(Zorrilla-Vaca et al., 2018)***. Another theory suggests that loss of CSF activates adenosine receptors which lead to vasodilatation and headache ***(Sen and Sen, 2014)***.

For PDPH, conservative measures such as hydration and bed rest should be started immediately but these measures have a history of being not very effective. Therefore, other numerous strategies have been suggested. Some are non-invasive such as giving caffeine. Others are invasive such as epidural morphine injection or to replace CSF or to seal the dural puncture site by

epidural saline bolus, epidural colloid or blood patch ***(Parris, 1989)***.

Dexamethazone is widely used in anesthetic practice; as anti-inflammatory, antiemetic and analgesic. Dexamethasone has been used intra-thecally as an adjuvant to local anesthetics, and intravenously to produce analgesia and sedation, with improving the outcome of PDPH ***(Marinangeli et al., 2002)***. However, no studies have been conducted to compare between intrathecal versus intravenous dexamethazone for prevention of PDHD.

AIM OF THE WORK

So, the aim of this study was to compare the effect of IV dexamethasone (8 mg) versus intrathecal dexamethasone (4 mg) as adjuvant to bupivacaine, on post dural puncture headache (PDPH), in surgeries of lower abdomen and lower limb.

Review of literature

BASIC ANATOMY

To understand the pharmacokinetic, pharmacodynamic, and pharmacotherapeutic activity of local anesthetics in neuraxial region, one needs a thorough understanding of neuraxial anatomy. The term "neuraxis" refers to the axial unpaired portion of the central nervous system. Of great importance of neuraxial anesthesia is the spinal cord, nerve roots, and the meninges and vertebral bodies that house and protect them ***(Broadbent et al., 2010)***.

A. Membranes

The spinal cord is surrounded by three protective membranes or meninges, which delineate potential and actual neuraxial spaces. From outermost to innermost, these membranes are the dura mater, the arachnoid mater and the pia mater. The pia mater directly envelops the spinal cord. Epidural refers to the potential space between the ligamentum flavum and outer surface of the dura mater. Subdural refers to a potential space between dura mater and arachnoid mater. The term intrathecal refers to the thecal sac or the dura mater enclosure of the cerebrospinal fluid-filled sub-arachnoid (i.e., subarachnoid mater) space. This space is outside the pia mater. These spaces are surrounded by bony architecture created by the vertebrae (**Figure 1**) ***(Margarido et al., 2011)***.

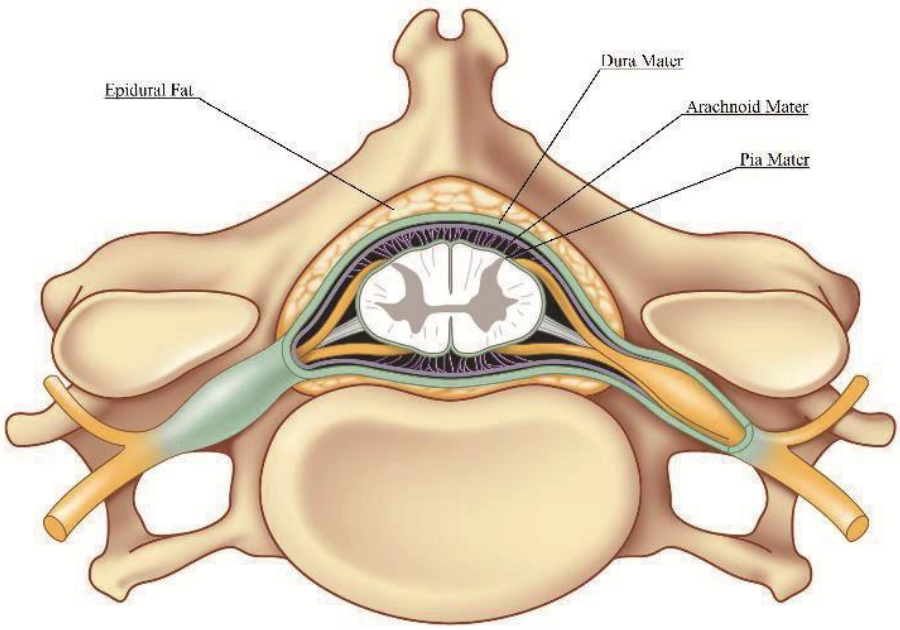

Figure (1): Meninges—protective membranes of the spinal cord ***(Margarido et al., 2011)***.

B. Bones and ligaments

The vertebral column protects the spinal cord and provides support for standing and walking. It has 3 curvatures (cervical lordosis, thoracic kyphosis, and lumbar lordosis) and 5 regions; cervical, thoracic, lumbar, sacral and coccygeal, which consist of 7, 12, 5, 5, and 4 vertebrae respectively for a total of 33. Each vertebra consists of two components: a vertebral body and vertebral arch. The vertebral arch is composed of laminae, pedicles, spinous, and transverse processes (**Figure 2**) ***(Saifuddin et al., 2011)***.

Variation in bony structure between lumbar, thoracic, and cervical vertebrae will dictate the approach to these specific