

TRANSVERSUS ABDOMINIS PLANE BLOCK IN ABDOMINAL ANALGESIA

Essay

Submitted for the partial fulfillment of the
Master Degree (M.Sc.) in
ANESTHESIOLOGY

By

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**FACULTY OF MEDICINE
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2013**

ACKNOWLEDGEMENT

First and foremost thanks to Allah the Most Gracious and the Most Merciful Who Guides us to the right way.

*I would like to express my sincere gratitude and appreciation to **PROF. DR. RAFAAT ABD EL-AZIM HAMMAD**, Professor of Anesthesiology, Faculty of Medicine, Ain Shams University, for his academic and scientific support and for honoring me by his supervision on this essay.*

*I would like to express my thanks, great appreciation and deepest gratitude to **DR. AMR Mohamed ABDEL-FATTAH**, Assistant Professor of Anesthesiology, Faculty of Medicine, Ain Shams University, and **DR. AMIR KAMAL ESHAK**, Lecturer of Anesthesiology, Faculty of Medicine, Ain Shams University, for their patience, kind supervision, generous cooperation, great encouragement and valuable guidance.*

I would like to thank my mother for her support, encouragement and giving me the example and the push to success in my entire life.

Last but not least, I dedicate this work to my husband and my family for their patience, unlimited guidance, constant encouragement, and generous care.

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LIST OF ABBREVIATIONS

| | |
|-----------------|--|
| AAG | Alpha acid glycoprotein |
| ARNI | Anesthesia related nerve injury |
| ASIS | Anterior superior iliac spine |
| BVs | Blood vessels |
| Cm | Minimum effective concentration |
| CNS | Central nervous system |
| CT | Computerized tomography |
| CYP | Cytochrome P |
| dB | Decibel |
| DCIA | Deep circumflex iliac artery |
| DIEA | Deep inferior epigastric artery |
| EO | External oblique muscle |
| GABA | Gamma amino benzoic acid |
| ICU | Intensive care unit |
| IO | Internal oblique muscle |
| IV-PCA | Intravenous patient-controlled analgesia |
| LA | local anesthetic |
| LA _s | Local anesthetic agents |
| LD | Latissimus dorsi muscle |
| PABA | Para amino benzoic acid |
| PCA | Patient-controlled analgesia |
| PNBF | Peripheral nerve blood flow |
| RA | Rectus abdominis muscle |
| TA | Transverses abdominis muscle |
| TAP | Transversus abdominis plane |
| TGC | Time gain compensation |
| TRI | Transient radicular irritation |
| US | Ultrasound |

INTRODUCTION

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Regional anesthesia is a rapidly evolving subspecialty area. Over recent years there has been growing interest in abdominal plane blocks, with promising data emerging on efficacy. The transversus abdominis plane (TAP) block allows sensory blockade of the lower abdominal wall via local anesthetic deposition above the transversus abdominis muscle. Abdominal field blocks and costo-iliac block have been used in anesthesia for surgery involving the anterior abdominal wall for several decades (*Atkinson et al., 1987*).

TAP block technique was developed with a blind landmark technique, via the 'lumbar triangle of Petit'. The clinical efficacy of the landmark technique and, more recently, ultrasound guided techniques have been investigated in several centres around the world (*Hebbard et al., 2007*).

The principal of the TAP block is to deposit local anesthetic into the tissue plane between the internal oblique and the transversus abdominis muscles. The two methods used include a **blind technique**, based on surface anatomy landmarks,

and **an ultrasound guided** technique performed under direct vision. The block takes up to 30minutes to be effective so should be performed after induction and prior to surgery where possible (*Rafi, 2001*).

TAP block can be used for any surgery involving the lower abdominal wall. This includes bowel surgery, cesarean section, appendicectomy, hernia repair, umbilical surgery and gynecological surgery. A single injection can achieve sensory block over a wide area of the abdominal wall. The block has been shown to be useful in upper abdominal surgery (*McDonnell et al., 2007*).

TAP block is particularly useful for case when an epidural is contraindicated or refused. The block can be performed unilaterally (e.g. Appendicectomy), or bilaterally when the incision crosses the midline (e.g. Pfannenstiel incision). A single injection can be used, or a catheter inserted for several days of analgesic benefit. TAP block also has a role as rescue analgesia on awake postoperative patients who did not receive blocks prior to abdominal surgery (*Hebbard et al., 2007*).

Potential advantages include that it is a simple and effective analgesic technique, appropriate for surgical procedures where parietal pain is a significant component of postoperative pain. It can be performed when neuroaxial blocks are contraindicated. Potential drawbacks include that a bilateral block is required in most surgical procedures. In addition, the duration of the block may be limited to a few hours and could be too short to guarantee a pain free postoperative course.

Although the technique is apparently safe, it may be difficult, especially in obese patients because of failure to identify the landmark of the triangle of Petit resulting in an incorrect location of the needle (*Farooq & Carey, 2008*).

AIM OF THE WORK

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This study is going to give a highlight on TAP block as a new modality for analgesia in abdominal surgeries.