INTRODUCTION

The use of ultrasound guided nerve blocks have become an integral part of post operative pain management in modern day practice ,unless there is a contraindication for it.Ultrasound guided transversus abdominis plane(TAP) block has been commonly employed for pain relief in lower abdominal surgeries.Since transversus abdominis plane block is limited to somatic sensory blockade,the introduction of quadratus lumborum block(QLB) has provided a different approach not only in terms of technique,but also in covering both somatic as well as visceral pain.Quadratus lumborum block may provide analgesia over a longer period and larger number of dermatomes.This study focuses on further understanding these two different types of block. With the use of ultrasound, nerve plexus or muscle and fascial can be exactly located for delivery of drug.It also helps in visually guiding the block needle to target nerves or plane,thus prompting fewer attempts with higher success rate of block.Nerve localization by trial and error as done with anatomical landmark approach is avoided.The use of ultrasound also help in markedly reducing the volume of local anaesthetic drugs used and lower the risk of side effect

AIMS & OBJECTIVES

To compare the efficacy of quadratus lumborum vs transverse abdominis plane block for postoperative pain relief after lower abdominal surgeries.

BACKGROUND

Effective postoperative analgesia after lower abdominal surgeries enhances early recovery, ambulation and duration of hospital stay. The effectiveness of transversus abdominis plane for post operative pain relief in abdominal surgeries have been well established.Quadratus lumborum block in recent years have gained much popularity in poatoperative pain management.However,not much studies have been conducted to directly compare and contrast the effecacies of these two blocks. . In the current study,it has been hypothesized that quadratus lumborum block would be equal to or better than the transversus abdominis plane block with regard to pain relief and its duration of action after lower abdominal surgeries.

MATERIAL AND METHODS

This study was done on patients undergoing mesh repair for bilateral inguinal hernia in the Department of General Surgery, Madurai Medical College, Madurai. The approval of the Institutional Ethical Committee was attained.

Study Design : Prospective, randomized, comparative study.

Sample size : 80 patients

Group 1 - Transversus Abdominis Plane Block,n=40

Group 2 - Quadratus Lumborum Block ,n=40

INCLUSION CRITERIA

1. Age: 18-40 years

2. Male patients undergoing hernioplasty for unilateral inguinal hernia

3.American society of anaesthesiologists status: Grade 1,2,3

EXCLUSION CRITERIA

1. Patient refusal

2. Patients with coagulopathy

3. Patients with local skin infections over abdominal wall

4. Chronic preoperative opioid consumption

5. Allergy or contraindication to use any of the drugs

6. Previous abdominal surgery

7. ASA grade IV and V.

8. Psychiatric illness

Posterior TAP block and QL block 2(posterior QLB) were performed both in supine position at the end of surgery in their respective groups using 0.125% injection bupivacaine at 0.4ml/kg. A high frequency linear probe was used for the TAP block whereas a low frequency curvilinear probe was used for the quadratus quadratus lumborum block.

RESULT

The sample size for this study was 80 which was divided randomly into 2 groups, namely Group 1(TAP block) and Group 2(QL block).All the blocks performed were successful.Demographic parameters i.e.age and sex (only male patients were included) showed no significant differences in the two groups.The duration of surgery with mean duration for both groups at 105 minutes and p value of 0.9581was statistically insignificant. However, the duration of performing TAP block was significantly less(mean = 6.7mins;p value = 0.0001) as compared to QL block(mean = 9.45). The VAS scores for the 1st and 2nd post operative hour were 0 for both blocks.VAS score at poat operative hours 2,4 and 8 were significant ly less in Group 2. Group 2(mean = 3.75;p value = 0.0001) also showed significantly less number of requirement for rescue analgesia.The time for the first rescue analgesia was also found to be longer in Group 2(mean = 5.7 hours;p value = 0.0001) .Group 1 had a mean duration of 4.55 hours.This This signifies that the duration of analgesia provided by QL block was longer.

DISCUSSION

Ever since it's first description in 2007 by Blanco et al,quadratus lumborum block has steadily gained popularity in being deployed as a technique for post operative pain management.TAP block on the other hand has been relatively more established for the same purpose. However,a

direct comparison between the techniques is still rare.Okusz H ,Department of Anaesthesiology,Kocaeli University Hospital,Turkey compared the 2 blocks in children undergoing lower abdominal surgeries with the conclusion that quadratus lumborum block provided longer duration and more effective analgesia than TAP block. Murouchi et al. compared the intramuscular QL block with the lateral TAP block for laparoscopic surgery. Compared to the TAP block, QL block resulted in a widespread and long-lasting analgesia after laparoscopic ovarian surgery . Blanco et al. compared the spinal anesthesia in addition to either the anterior or posterior QL block versus using only spinal anesthesia for caesarean sections.The QL block after caesarean section was effective and provided satisfactory analgesia in combination with a typical postoperative analgesic regimen. They also compared the posterior QL block with the TAP block, where the posterior QL block was found more effective in reducing morphine consumption and demands than TAP block.

Quadratus lumborum block is a fascial plane and does not target a single nerve. Posterior QL block that we used in this study can cover dermatomes from T7 to L1(some studies suggest even upto T4).A study by the New York Society of Regional Anaesthesian suggested that QL block provides analgesia from both somatic as well as visceral pain while the effect of TAP block is limited to somatic pain.Although the spread of local anaesthetic drug in QL block is still a subject of discussion,the

thoracolumbar fascia is believed to play an important role. The thoracolumbar fascia consists of 3 layers.The anterior layer is anterior to the quadratus lumborum muscle. The middle layer lies between the erector spinae and the quadratus lumborum muscle muscle. The posterior layer encases the erector spinae. The anterior layer also blends medially with the fascia of the psoas major and laterally with the transversalis fascia. Injection between the anterior layer and quadratus lumborum can spread cranially under the lateral arcuate ligament to the endothoracic fascia and reach the lower thoracic paravertebral space posterior to the endothoracic fascia. A triangular structure called the lumbar interfascial triangle (LIFT) is the target of injection for QL2 block (quadratus lumborum 2). The fascia besides serving as portal for spread of local anaesthetic to the thoracic paravertebral space also contains a dense network of sympathetic fibers as well as mechanoreceptors that majorly contribute to effects of quadratus lumborum block.

CONCLUSION

In summary, the study concludes that the quadratus lumborum block provides longer duration of analgesia ,which is evident by the time for the requirement of first analgesia.The significant reduction in total VAS score(for 24 hours) and number of rescue analgesia for QL block as compared to TAP block also suggest s that QL block afforts better quality

of analgesia. Therefore, QL block can be adopted as an alternative technique for management of postoperative pain management.

KEY WORDS

Quadratus lumborum blocl, transversus abdominis plane block, ultrasound guided, tramadol, visual analog score