ORIGINAL RESEARCH

Analysis of analgesia with quadratus lumborum in laparoscopic renal surgeries

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ABSTRACT
Background: One common technique for renal therapy is laparoscopic renal surgery (LRS), which can be performed via the retroperitoneal or transperitoneal approach. However, moderate-to-severe pain persists in the early postoperative phase even though LRS causes less surgical trauma than open surgery. The present study assessed efficacy of analgesia with QLB in unilateral laparoscopic renal surgeries. **Materials & Methods:** 70 patients of unilateral laparoscopic renal surgeries of both genderswere divided into 2 groups of 35 each. Group I received QLB and group II received no block at the end of surgery. A 1 mg bolus and a 10-minute lockout interval were used while administering morphine via a patient-controlled analgesia pump. The amount of morphine consumed overall was noted. Both groups received standardized general anesthesia. A Visual Analogue Scale (VAS) was used to measure the pain. **Results:** Group I had 21 males and 14 females and group II had 20 males and 15 females. The mean age was 39.2 years in group I and 41.7 years in group II, height was 167.2 cm in group I and 166.5 cm in group II, weight was 71.4 kgs in group I and 73.1 kgs in group II, duration of surgery was 45.3 minutes in group I and 46.2 minutes in group II, ASA grade I was seen in 20 in group I and 18 in group II, grade II 14 in group I and 15 in group II, and grade III in 1 and 2 in group I and II respectively. Total morphine consumption was 3.7 mg in group I and 9.4 mg in group II and duration of post- operative analgesia was 1120.3 minutes in group I and 149.6 minutes in group II. The difference was non- significant ($p > 0.05$). Type of surgery performed was laparoscopic pyelolithotomy seen in 15 in group I and 16 in group II, laparoscopic pyeloplasty 8 in group I and 9 in group II and laparoscopic nephrectomy 12 in group I and 10 in group II. The mean VAS was 2.9 in group I and 3.5 in group II. The difference was non- significant ($p > 0.05$). **Conclusion:** After laparoscopic renal procedures with ultrasound-guided QLB, there was a decrease in the use of opioids.
Keywords: Ultrasound-guided QLB, Renal, post- operative analgesia

INTRODUCTION

One common technique for renal therapy is laparoscopic renal surgery (LRS), which can be performed via the retroperitoneal or transperitoneal approach. However, moderate-to-severe pain persists in the early postoperative phase even though LRS causes less surgical trauma than open surgery.[1] For a speedy recovery following surgery, adequate pain management is essential. Despite being the most often used analgesics, opioids have adverse effects such respiratory depression, gastrointestinal ileus, and postoperative nausea and vomiting.[2] For moderate to severe post-operative pain following abdominal procedures, opioids are frequently utilized as the standard of care.[3] Strong opioids, however, can result in constipation, nausea, vomiting, pruritus, urine retention, decreased intestinal motility, and even respiratory depression. Non-steroidal anti-inflammatory medications (NSAIDs) used irrationally cause renal failure, gastrointestinal hemorrhage, and disturbed hemostasis.In contrast to transversus abdominis plane (TAP) block, which eliminates somatic pain, ultrasound (US)-guided quadratus lumborum (QL) block is a newly developed block that has been demonstrated to give both somatic and visceral analgesia.[4] Blanco has discussed the use of quadratuslumborum (QL) block as an analgesic for abdominoplasty procedures (unpublished). The distribution of the dye and local anesthetics from T4-L1 has been demonstrated by the radiological investigation on the posterior approach of Transversus Abdominis Plane block (now known as QL block) in volunteers. Its effectiveness in a major surgery has not yet been established.[5]The present study assessed

efficacy of analgesia with QLB in unilateral laparoscopic renal surgeries.

MATERIALS & METHODS

The present study comprised of 70 patients of unilateral laparoscopic renal surgeries of both genders.All were informed regarding the study and their written consent was obtained.

Data such as name, age, gender etc. was recorded. Patients were divided into 2 groups of 35 each. Group I received QLB and group II received no block at the end of surgery. A 1 mg bolus and a 10-minute lockout interval were used while administering morphine via a patient-controlled analgesia pump. The amount of morphine consumed overall was noted. Both groups received standardized general anesthesia. A Visual Analogue Scale (VAS) was used to measure the pain. Results thus obtained were subjected to statistical analysis. P value less than 0.05 was considered significant.

RESULTS

Table I Distribution of patients

Groups	Group I	Group II
Agent	QLB	No block
M:F	21:14	20:15

Table I shows that group I had 21 males and 14 females and group II had 20 males and 15 females.

Table II Comparison of parameters

Parameters	Variables	Group I	Group II	P value
Age (years)		39.2	41.7	0.72
Height (cm)		167.2	166.5	0.19
Weight (Kgs)		71.4	73.1	0.64
Duration of surgery (mins)		45.3	46.2	0.90
ASA	I	20	18	0.81
	II	14	15	
	III	1	2	
Total morphine consumption (mg)		3.7	9.4	0.01
Duration of post-operative analgesia (mins)		1120.3	149.6	0.001

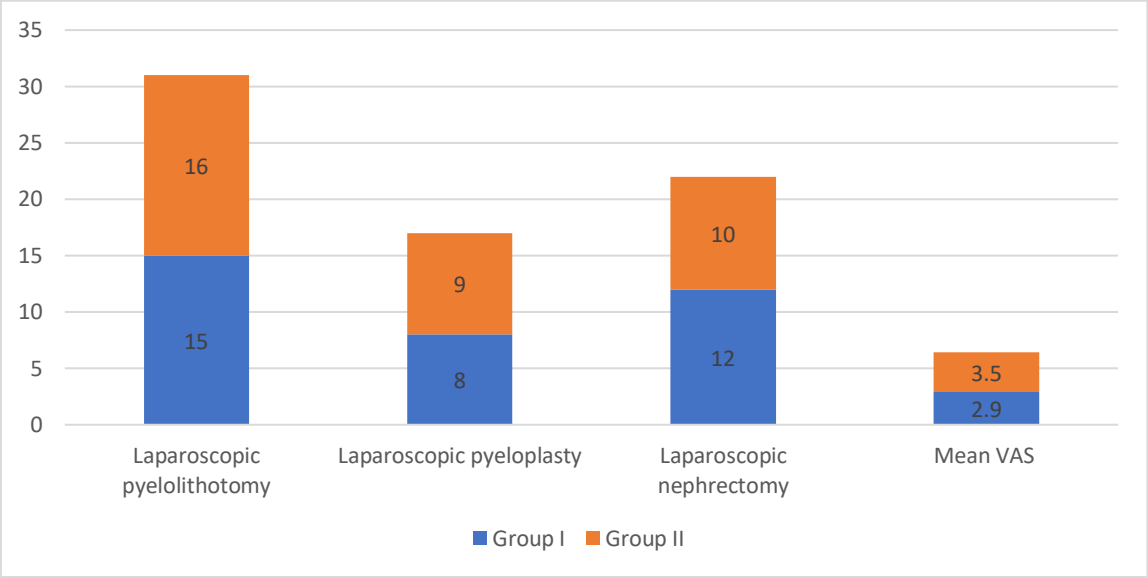
Table II shows that mean age was 39.2 years in group I and 41.7 years in group II, height was 167.2 cm in group I and 166.5 cm in group II, weight was 71.4 kgs in group I and 73.1 kgs in group II, duration of surgery was 45.3 minutes in group I and 46.2 minutes in group II, ASA grade I was seen in 20 in group I and 18 in group II, grade II14 in group I and 15 in group II, and grade III in 1 and 2 in group I and II respectively. Total morphine consumption was 3.7 mg in group I and 9.4 mg in group II and duration of post- operative analgesia was 1120.3 minutes in group I and 149.6 minutes in group II. The difference was non- significant ($p > 0.05$).

Table III Assessment of type of surgery performed and VAS

Surgery	Group I	Group II	P value
Laparoscopic pyelolithotomy	15	16	0.85
Laparoscopic pyeloplasty	8	9	0.97
Laparoscopic nephrectomy	12	10	0.90
Mean VAS	2.9	3.5	0.17

Table III, graph I shows that type of surgery performed was laparoscopic pyelolithotomy seen in 15 in group I and 16 in group II, laparoscopic pyeloplasty8 in group I and 9 in group II and laparoscopic nephrectomy12 in group I and 10 in group II. The mean VAS was 2.9 in group I and 3.5 in group II. The difference was non-significant ($p > 0.05$).

Graph I Type of surgery performed and VAS



DISCUSSION

Compared to open urological treatments including nephrectomy, pyelolithotomy, and pyeloplasty, the laparoscopic approach offers several advantages. This entails a shorter hospital stay, less tissue damage, quicker recovery, and a smaller incision.[6] Following laparoscopic urological operations, post-operative pain can impact improved recovery programs, increase morbidity, induce psychological disruptions, and lengthen hospital stays. There have also been numerous adverse effects and difficulties linked to epidural analgesia.[7] Regional nerve blocks and intravenous (IV) patient-controlled analgesia are being used in post-operative pain management. Excellent site-specific pain relief and a decrease in significant adverse effects are provided by regional nerve blocks. 8. In addition to being helpful in effectively managing acute pain, newer methods of regional analgesia, longer-acting LA and adjuvants, and ultrasonic safety also help avoid the development of chronic pain.[8]The present study assessed efficacy of analgesia with QLB in unilateral laparoscopic renal surgeries.

We found that group I had 21 males and 14 females and group II had 20 males and 15 females. Carney et al[9], described that the contrast solution placed posteriorly accumulates near the lateral border of the QL and then spreads in a posterior-cranial fashion to the anterior aspect of the QL and psoas major to lie at the paravertebral space. They also saw the contrast enhancement from T4-L2.

We found that mean age was 39.2 years in group I and 41.7 years in group II, height was 167.2 cm in group I and 166.5 cm in group II, weight was 71.4 kgs in group I and 73.1 kgs in group II, duration of surgery was 45.3 minutes in group I and 46.2 minutes in group II, ASA grade I was seen in 20 in group I and 18 in group II, grade II14 in group I and 15 in group II, and grade III in 1 and 2 in group I and II respectively. Total morphine consumption was 3.7 mg in group I and 9.4 mg in group II and duration of post-operative analgesia was 1120.3 minutes in group I and 149.6 minutes in group II. McDonnell JG et al[10]evaluated its analgesic efficacy in patients during the first 24 postoperative hours after abdominal surgery, in a randomized, controlled, double-blind clinical trial. Thirty-two adults undergoing large bowel resection via a midline abdominal incision were randomized to receive standard care, including patientcontrolled morphine analgesia and regular nonsteroidal anti-inflammatory drugs and acetaminophen (n 16), or to undergo TAP block (n 16) in addition to standard care (n 16). After induction of anesthesia, 20 mL of 0.375% levobupivacaine was deposited into the transversus abdominis neuro-fascial plane via the bilateral lumbar triangles of Petit. Each patient was assessed by a blinded investigator in the postanesthesia care unit and at 2, 4, 6, and 24 h postoperatively. The TAP block reduced visual analog scale pain scores (TAP versus control, mean sd) on emergence (1 1.4 vs 6.6 2.8, P< 0.05), and at all postoperative time points, including at 24 h (1.7 1.7 vs 3.1 0.05). Morphine requirements in the first 24 postoperative hours were also reduced (21.9 1.5, P 8.9 mg vs 80.4 19.2 mg, P< 0.05). There were no complications attributable to the TAP block. All TAP patients reported high levels of satisfaction with their postoperative analgesic regimen.

We found that type of surgery performed was laparoscopic pyelolithotomy seen in 15 in group I and 16 in group II, laparoscopic pyeloplasty 8 in group I and 9 in group II and laparoscopic nephrectomy 12 in group I and 10 in group II. The mean VAS was 2.9 in group I and 3.5 in group II. Tran et al[11] conducted a study comparing QLB with TAPB in caesarean delivery. They were able to demonstrate that QLB produced long-lasting analgesia for more than 24 hours and required less consumption of

opioids.Blanco et al[12] conducted a study comparing QLB with TAPB in caesarean delivery. They were able to demonstrate that QLB produced long-lasting analgesia for more than 24 h and required less consumption of opioids.
The shortcoming of the study is small sample size.

CONCLUSION

Authors found that after laparoscopic renal procedures with ultrasound-guided QLB, there was a decrease in the use of opioids.

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