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The effect of dexamethasone as an adjuvant in quadratus lumborum block to improves analgesia after laparoscopic cholecystectomy: Controlled randomized study

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ABSTRACT

Background: The pain following a laparoscopic cholecystectomy is multifaceted; Therefore, it can be controlled by multimodal methods such as Transmuscular Quadratus Lumborum Block (TQLB) and analgesics.

Objectives: Determine the effectiveness of TQLB using Bupivacaine or Bupivacaine-Dexamethasone in improving the quality of analgesia after laparoscopic cholecystectomy procedures.

Methods: Under general anesthesia, ninety patients, ranging in age from eighteen to sixty, were scheduled for elective laparoscopic cholecystectomy surgery. Three groups of patients (30 patients in each) were randomly assigned who underwent bilateral ultrasound guided TQLB injected with 21 ml of the drug on each side. The Bupivacaine group (B) received (20 ml Bupivacaine hydrochloride 0.25% + 1 mL 0.9% normal saline); the Dexamethasone-Bupivacaine group (D) received (20 ml Bupivacaine hydrochloride 0.25% + 1 mL dexamethasone 4 mg); and the Control group (C) received (21 ml 0.9% normal saline).

Results: The initial analgesic request was significant longer in group D (18 h) more than B (14 h), and C (0.8 h). The total analgesic requirements were increased in group C. The visual Analogue Score at rest and movement always revealed no significant distinctions between groups B and D. However, all values were raised in the control group more than in the other groups. The percentage of patients who were satisfied with the technique was greater in groups B and D than in group C.

Conclusions: Ultrasound guided TQLB is a useful technique for raising patient satisfaction and analgesic quality. Furthermore, the addition of dexamethasone can prolong the duration of analgesia and decrease the postoperative Analgesia requirement.

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Dexamethasone; quadratus lumborum block; laparoscopic cholecystectomy

1. Introduction

Although laparoscopic surgery is a less invasive surgical technique than open surgeries, there is still a significant degree of pain during the initial postoperative phase [1]. Three distinct types of pain are combined in laparoscopic cholecystectomy: visceral pain, which is deep intraabdominal pain; somatic pain (incisional pain); and shoulder discomfort (perhaps transferred visceral pain) [2,3].

Efficient pain management is crucial for achieving the best possible results and allowing for earlier postoperative mobility. Large doses of opioids have historically been used to treat pain, although this has been linked to dose-dependent adverse effects, including excessive drowsiness and postoperative nausea and vomiting [4]. Thus, for pain experienced during the postoperative period, multimodal analgesia therapy is used as opioids, paracetamol, nonsteroidal anti-inflammatory drugs, and gabapentinoids [5]. In addition, various truncal nerve blocks guided with ultrasound are performed as a part of perioperative pain management, which can reduce the opioid requirement in patients undergoing laparoscopic cholecystectomy [6]. The Quadratus Lumborum Block (QLB) is a unique abdominal truncal block that provides analgesia for abdominal surgeries such as laparoscopy, hernias, pyeloplasty, and colostomy [7–10].

A single local anesthetic injection has transient effects, making it insufficient for treating persistent acute postoperative pain [11]. One powerful and extremely selective glucocorticoid that has analgesic properties is dexamethasone. As an adjuvant to local anesthetic, dexamethasone may be utilized due to its anti-inflammatory properties and ability to block neural discharge and the transmission of nociceptor C fibers [12]. Steroids induce vasoconstriction and

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decrease the systemic absorption of local anesthetic [13]. In addition to providing an earlier onset of action in adults, the addition of steroids to local anesthetics efficiently and significantly prolongs the duration of analgesia [13,14]. The current investigation compared the efficacy of transmuscular quadratus lumborum block (TQLB) with the impact of mixing bupivacaine with dexamethasone to provide analgesia for patients undergoing laparoscopic cholecystectomy.

2. Patients and methods

The medical ethics committee of El-Minia University approved the study (ID: 88–11/2018) and ClinicalTrials.gov (ID: NCT03956966). https://classic.clinicaltrials.gov/ct2/show/NCT03956966)

El-Minia University Hospital served as the recruiting site for participants in this double-blind, randomized, controlled study from March to December 2018. Every patient gave written informed consent. Ninety patients, ages eighteen to sixty, who were categorized as class I or II by the American Society of Anesthesiologists, were scheduled for elective general anesthesia laparoscopic cholecystectomy surgery.

2.1. Exclusion criteria

Patient decline to participate, abnormal coagulation, mental health conditions, localized skin infection, known allergy to the study medicines, BMI greater than 40 kg/m2, emergency laparoscopic cholecystectomy if the laparoscopic operation is converted to an open procedure, significant organ malfunction, and pregnant women.

The time of the first post-operative analgesic request was the primary end point. The secondary end points were the total analgesic requirement, pain score (VAS) at rest and during movement (sitting position), the hemodynamic changes, and patient satisfaction.

The patient's preoperative evaluation involved a thorough medical history take-off as well as a general and physical examination. Then, standard tests were performed, including an electrocardiogram, a full blood count, testing for liver and kidney function, and random blood sugar. The Visual Analogue Score (VAS), which consists of a straight, vertical line with a value of 10 cm for the worst possible pain and 0 cm for no discomfort, was explained to all patients in detail. Patients had to fast for two hours to consume water and clear liquids and six hours to consume solid foods. Standard monitoring was initiated upon arrival at the operating room, which included noninvasive blood pressure, electrocardiography (ECG), and pulse oximetry. Next, the skin was sterilized, local anesthetic skin infiltration with lidocaine 1% before IV-line insertion and an intravenous 18 G cannula was placed and preloaded the patients with Ringer lactate solution (10–15 ml/kg).

All the investigated drugs were prepared and administered in similar coded syringes in a sealed envelope. The coding remained blind until the end of the study. The anesthesiologists in charge of intraoperative management and collection of data, the surgeon, and those responsible for postoperative observation of the patient were unaware of the medication's assignment.

Then, randomization was established using a computer-generated table that distributed the number of instances among the groups that were studied. The subjects were sorted into three equal groups (n = 30 each) and TQLB using 21 ml of drug was given in each side; Control group (C): received (21 ml 0.9% normal saline); Bupivacaine group (B): received (20 ml Bupivacaine hydrochloride 0.25% (0.5% vial 20 ml; Actavis Group PTC) + 1 mL 0.9% normal saline) and. Dexamethasone-Bupivacaine group (D): received (20 ml Bupivacaine hydrochloride 0.25% + 1 mL dexamethasone "4 mg" (8 mg/2 ml, EPICO, Egypt).

Every patient underwent the identical anesthetic procedure, which included intravenous midazolam (0.05 mg/kg), fentanyl (1 µg/kg), and 0.5 mg of atropine. Intravenous propofol 2% at a dose of 2.5 mg/kg was used to induce unconsciousness. If necessary, 0.2 mg/kg aliquots were added until the patient stopped responding verbally. Atracurium 0.5 mg/kg was then administered to aid with tracheal intubation using a cuffed endotracheal tube of the proper size. To sustain anesthesia, inhalational isoflurane (MAC 1–1.5 in O2) was utilized, and a 0.1 mg/kg bolus of atracurium was employed to maintain relaxation. The following parameters were measured: mean arterial pressure (MAP), heart rate (HR), end-tidal CO2 (ETco2), and peripheral arterial oxygen saturation (SpO2%). If hemodynamics increased by more than 20% of the baseline, fentanyl (0.5 mic/kg) was administered as a rescue analgesic. With a tidal volume of 6–8 ml/kg and a respiratory rate of 12–14 breaths per minute, ventilation was regulated. With PEEP of 3–5 cmH2O and O2 flow of 5 L/min, the breathing parameters were changed to maintain ETco2 at 30–35 mmHg. Intravenous fluid therapy was administered in accordance with the computed formula (4/2/1 rule) every hour of fasting for maintaining fluid requirements, 4 ml/kg/h for loss of third space and replacing any surgical bleeding that may have occurred.

After intubation, nasogastric tube was inserted for all patients and bilateral ultrasound guided transmuscular quadratus lumborum (TQL) block was conducted using ultrasound (SONOSITE NANOMAX, USA). The patient lied in the lateral decubitus position, the side to be blocked was kept up, and the probe (linear 25N multi-frequency 13–6 MHz transducer) was positioned in

the midaxillary line in the transverse plane directly above the iliac crest. The probe was then sided dorsally until the Shamrock sign was clearly visible. From the posterior end of the probe, a 22-G 90-mm spinal needle was inserted and pointed through the QL muscle toward the fascial plane that separates the PM and QL muscles. The solution was injected once the needle's precise position had been verified (after repeated negative aspiration of blood). The other side was likewise injected in the same way as before. The surgical procedure began fifteen minutes after the QL block.

Metoclopramide (10 mg) was administered intravenously to all patients prior to the end of the procedure to minimize the risk of nausea and vomiting. All patients received an intravenous infusion of 1 g of intravenous paracetamol every 8 hours, and residual neuromuscular blockade was alleviated by injecting 0.01 mg/kg of atropine and 0.05 mg/kg of neostigmine. Nasogastric tube was removed at the end of the surgery and the patients were taken to the PACU for two hours, and then they were left to spend 24 hrs. under monitoring in the ward.

Pain severity was evaluated with VAS [15–17]at the following time points: at 1, 4, 8, 16, and 24 hrs. Postoperatively. Patients with VAS score ˃ 3, rescue analgesia was given using intravenous nalbuphine 0.1 mg/kg (Eipico, Germany). We recorded the total amount of intraoperative fentanyl and the initial analgesic requirement time (the interval between the conclusion of surgery and the first patient's request for analgesia) and the amount of postoperative nalbuphine administered to the patients as rescue analgesia throughout a 24-hour. The hemodynamic variables as HR, MAP and SpO2% were recorded before and immediately after induction of anesthesia, after block, and then every 10 min, during surgery until the end of surgery, then at 1,4,8,16,24 hrs. post-operatively. Based on the patient satisfaction rating, (4) Excellent: The patient had no complaints; (3) Good: The patient had a little complaint that didn't require analgesia; (2) Fair: The patient had a complaint that needed more analgesia; (1) Unsuccessful = Patient administered maximum dosage analgesia and general anesthesia [18].

Using a four-point ordinal scale, the severity of postoperative nausea and vomiting (PONV) was rated as follows: I = not at all; II = sometimes; III = often or most of the time; and IV = always with vomiting [19]. Every patient whose PONV score was higher than II received an IV dose of 4 mg of the rescue antiemetic ondansetron. Furthermore, we recorded irritation, retention of urine, bradycardia and hypotension, respiratory depression, and problems associated to the procedure, such as injection site hematoma formation, vascular or lymphatic damage, neurologic symptoms, and local anesthetic toxicity.

2.2. Statistical analysis

The IBM SPSS 20.0 statistical package was used to do a statistical analysis of the data following data extraction and modification. Data were expressed as mean ±SD, minimum and maximum range for quantitative parametric measures, or median and interquartile range (IQR) for quantitative non-parametric measures, in addition to number and % for data that was categorized. For non-parametric quantitative data, the Kruskal-Walli's test was employed, and the Mann-Whitney test was used to compare each of the two groups; for categorical variables, the Chi-square test or Fisher's exact test was utilized; and for parametric data, analysis of variance (ANOVA) was employed to compare between independent groups and the Bonferroni post hoc test was used to evaluate intergroup differences. For parametric quantitative data, the paired sample t-test was used within each group, and for non-parametric quantitative data, the Wilcoxon signed rank test was employed. P-values were considered significant if they were less than 0.05.

2.3. Sample size calculation

Prior to the trial, the sample size was estimated, and using information from the pilot study, a power calculation was used to establish the number of patients needed in each group. The study found that the mean Postoperative VAS scale for groups D, B, and C was 1.6, 1.6, and 2.5, respectively, with a standard deviation of 1 for each group. Using G Power 3.1.9.2 software, the sample size of 30 patients per group was shown to give 95% power for a one-way ANOVA test at the 5% significant level.

3. Results

The patient's enrollment is in Figure 1.

Table (1) indicates that the patient characteristics of the analyzed groups were found to be comparable. These variables included age, sex, weight, ASA classification, and length of operation.

Regarding to post-operative analgesia, Table (2) shows that the time to the first analgesic request was longer in group D (18.4 ± 3.3 hours) than in group B (14 ± 6.3 hours) *(p* ≤0.0001). While in-control group was (0.83 ± 0.5 hours) which was significantly shorter than groups D and group B (*p* ≤*0.0001, p* ≤ *0.0001, respectively)*. Additionally, postoperative nalbuphine consumption in the first 24 hrs. was significantly increased in group D (9.0 ± 7.2) more than in group B (14.4 ± 5.1) *(p* ≤0.005). However, group C showed an increase in nalbuphine consumption in the first 24 hrs. (31.7 ± 6.8), with a significant difference between group D and group C (*p* ≤*0.0001) and* a significant difference between group B and group C (*p* ≤*0.0001)*.

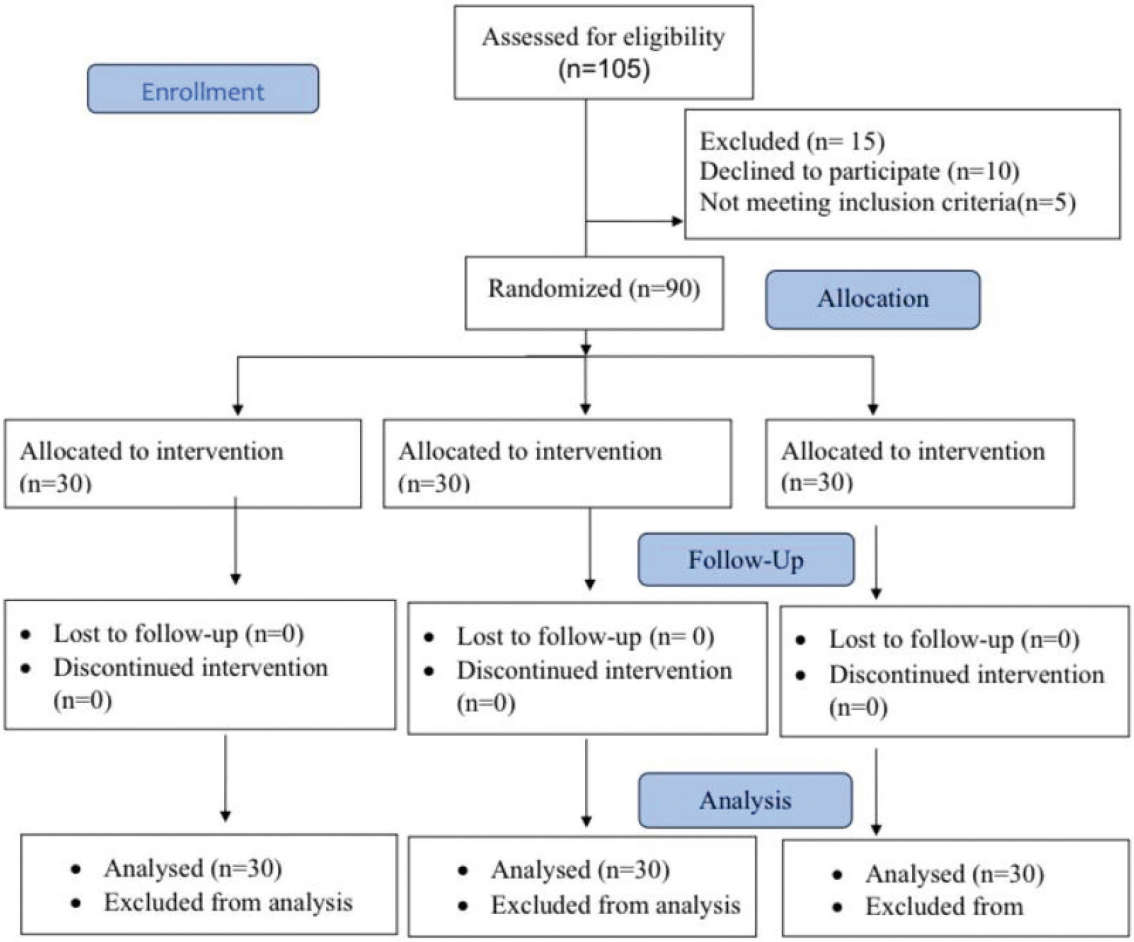

Figure 1. Flowchart for patient requirement.

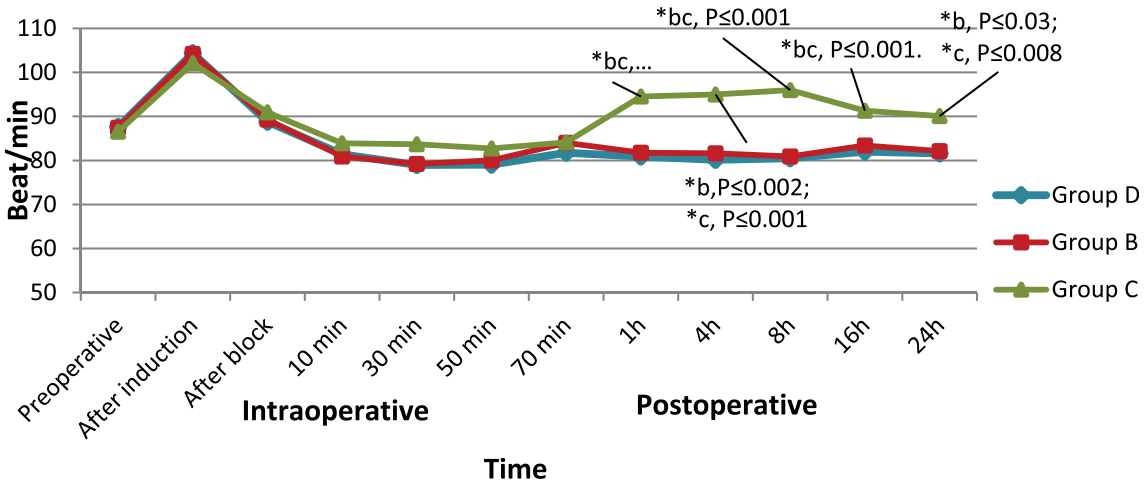

Figure 2. Heart rate changes (beat/min.) in the three groups. Data were analyzed using ANOVA test with post hoc test (Bonferroni). *P is significant at ≤ 0.05. D: dexamethasone-bupivacaine, B: bupivacaine, C: control. *a: comparison between groups D&B; *b: comparison between groups D&C; *c: comparison between groups B&C.

Eight patients in group C (26.7%), three patients in group B (10%), and one patient (3.3%) in group D required a rescue dosage of fentanyl (0.5 mg/kg) in relation to the intraoperative fentanyl requirement. These indicated that group C and group B did not significantly differ from one another. Furthermore, group B and group D did not significantly differ from one another. On the other hand, group C had a significantly higher requirement than group D *($p \leq 0.012$)*.

Tables (3,4) showed the changes in VAS at rest and during movement. When we compared the three groups, VAS score at rest and during movement significantly lowered in groups (D and B) compared to group C at all time points *($p \leq 0.0001$);* nonetheless, there was no significant distinction

Table 1. Patient's data.

Variables	Group D ($n = 30$)	Group B ($n = 30$)	Group C ($n = 30$)	p value
Age (year)	35.8 ± 9.4	40 ± 10.6	36.6 ± 9.6	0.227
Sex, n (%)				0.786
Male	8 (26.7)	8 (26.7)	6 (20)	
Female	22 (73.3)	22 (73.3)	24 (80)	
Weight (kg)	77.6 ± 8.8	79.8 ± 11.4	77.1 ± 11.4	0.586
ASA classification, n (%)				
ASA I	26 (86.7)	24 (80)	23 (76.7)	0.602
ASA II	4 (13.3)	6 (20)	7 (23.3)	
Operative time (min.)	66.3 ± 4.9	66.3 ± 4.9	68 ± 4.1	0.280

Variables are presented as Mean ± SD, Data were analyzed using ANOVA test with post hoc test (Bonferroni), or number and percentage (n %) using chi-square test Fisher's exact test. *P is significant at ≤ 0.05. D: dexamethasone-bupivacaine, B: bupivacaine, C: control. ASA: American society of anesthesia.

Table 2. Postoperative analgesia.

Variables	Group D ($n = 30$)	Group B ($n = 30$)	Group C ($n = 30$)	*All*	p value *D vs B*	*D vs C*	*B vs C*
Time of first analgesic request (hrs.)	18.4 ± 3.3	14 ± 6.3	0.83 ± 0.5	0.0001*	0.0001*	0.0001*	0.0001*
Nalbuphine dose (mg)	9.0 ± 7.2	14.4 ± 5.1	31.7 ± 6.7	0.0001*	0.005*	0.0001*	0.0001*

Variables are presented as Mean ± SD, Data were analyzed using ANOVA test with post hoc test (Bonferroni); *P is significant at ≤ 0.05. D: dexamethasone-bupivacaine, B: bupivacaine, C: control.

Table 3. Visual analogue score at rest.

Variables	Group D ($n = 30$)	Group B ($n = 30$)	Group C ($n = 30$)	*All*	p value *D vs B*	*D vs C*	*B vs C*
After 1 h	0 (0–3)	1 (0–3)	4(2–7)	0.0001*	0.139	0.0001*	0.0001*
After 4 h	1.5 (0–4)	2(0–9)	3(1–9)	0.0001*	0.198	0.0001*	0.0001*
After 8 h	0 (2)	1(2.2)	4(2)	0.0001*	0.082	0.0001*	0.0001*
After 16 h	1(1.2)	1(1.2)	3(1)	0.0001*	0.213	0.0001*	0.0001*
After 24 h	2 (1)	2 (2)	4(3)	0.0001*	0.439	0.0001*	0.0001*

Variable are expressed as Median (Inter-Quartile Range). Kruskal-Walli's test was employed to compare between independent groups, and the Mann-Whitney test was used to compare each of the two groups; *P is significant at ≤ 0.05. D: dexamethasone-bupivacaine, B: bupivacaine, C: control.

Table 4. Visual analogue score at movement.

Variables	Group D ($n = 30$)	Group B ($n = 30$)	Group C ($n = 30$)	*All*	p value *D vs B*	*D vs C*	*B vs C*
After 1 h	1(2)	2(1.2)	5(2)	0.0001*	0.200	0.0001*	0.0001*
After 4 h	2(1)	3(1)	4(1)	0.0001*	0.150	0.0001*	0.0001*
After 8 h	1(1)	2(1)	4(3)	0.0001*	0.116	0.0001*	0.0001*
After 16 h	4(1)	4(2.2)	6(1.2)	0.0001*	0.225	0.0001*	0.0001*
After 24 h	3(1.2)	3(1)	5(2)	0.0001*	0.476	0.0001*	0.0001*

Variable are expressed as Median (Inter-Quartile Range). Kruskal-Walli's test was employed to compare between independent groups, and the Mann-Whitney test was used to compare each of the two groups; *P is significant at ≤ 0.05. D: dexamethasone-bupivacaine, B: bupivacaine, C: control.

between the two groups (D, B) throughout the study.

Seven patients were noted to have substantial shoulder pain: one in group D (3.3%), two in group B (6.6%), and four in group C (13.2%), with no significant distinction.

The HR (Figure 2) and MAP (Figure 3) values in groups B and D were comparable throughout time when compared it with baseline data; there was a significant increase in all post-operative values in group C when compared to baseline data. Concerning with the comparison between groups, at every time point, the three groups' HR and MAP seemed to be comparable, except for post-operatively (1,4,8,16,24 hrs.), when there was a significant increase in group C as indicated by ($p \leq 0.05$), However, SpO2 showed no significant difference between groups.

In terms of patient satisfaction, group C recognized a statistically significant decline in comparison to group D and B groups ($p \leq 0.0001$), as shown in Table (5).

As regards to complication as shown in Table (6)., there was a postoperative nausea and vomiting, all of which were grade II, were reported by two patients in group D, four patients in group B, and eleven patients in group C, with a significant difference between group D and group C ($p \leq 0.01$) with no difference between group D and group B or between group B and group C. All these patients received intravenous ondansetron. One patient in group C experienced itching, which resolved on its own. Two patients in group C had

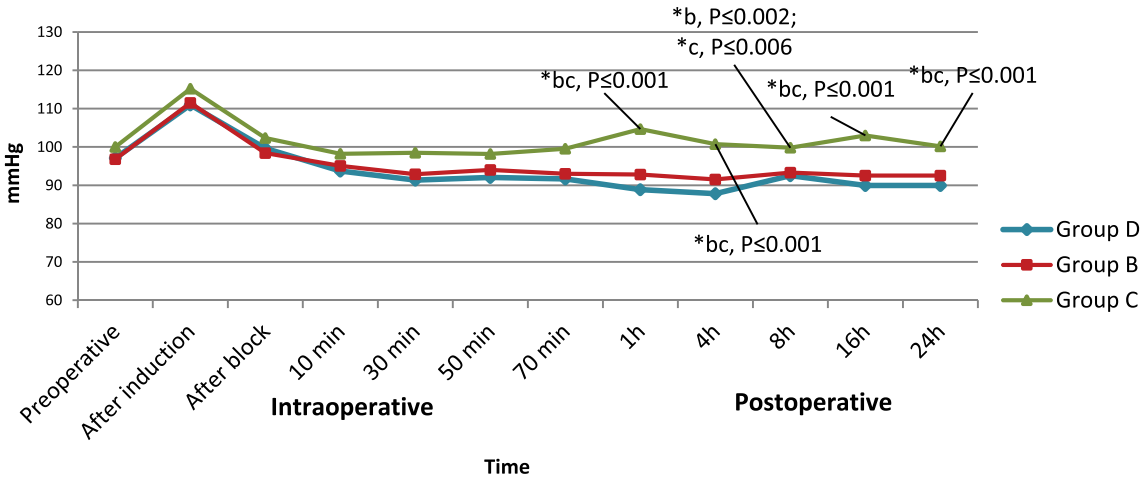

Figure 3. Mean blood pressure changes (mmHg) in the three group. Data were analyzed using ANOVA test with post hoc test (Bonferroni). *P is significant at ≤ 0.05. D: dexamethasone-bupivacaine, B: bupivacaine, C: control. *a: comparison between groups D&B; *b: comparison between groups D&C; *c: comparison between groups B&C.

Table 5. Patient satisfaction.

Satisfaction, n (%)	Group D ($n = 30$)	Group B ($n = 30$)	Group C ($n = 30$)	*All*	p value *D vs B*	*D vs C*	*B vs C*
Bad	0 (0)	0 (0)	0 (0)	0	0	0	0
Fair	0 (0)	1 (3.3)	25 (83.3)	0.0001*	1.000	0.0001*	0.0001*
Good	8 (26.7)	15 (50)	5 (16.7)	0.042*	0.110	0.532	0.013*
Excellent	22 (73.3)	14 (46.7)	0 (0)	0.0001*	0.064	0.0001*	0.0001*

Variables are presented number and percentage (n %) using chi-square test and Fisher's exact test. *P is significant at ≤ 0.05. D: dexamethasone-bupivacaine, B: bupivacaine, C: control.

Table 6. The complications.

Complications n (%)	Group D ($n = 30$)	Group B ($n = 30$)	Group C ($n = 30$)	*All*	p value *D vs B*	*D vs C*	*B vs C*
PONV							
Grade I	0 (0)	0 (0)	0 (0)				
Grade II	2 (6.7)	4 (13.3)	11 (36.7)	0.008*	0.671	0.010*	0.072
Grade III	0 (0)	0 (0)	0 (0)				
Grade IV	0 (0)	0 (0)	0 (0)				
Bradycardia	0(0)	0(0)	2(6.66)	0.129	0	0.492	0.493
Itching	0(0)	0(0)	1(3.33)	0.364	0	0.100	0.100

Variables are presented number and percentage (n %) using chi-square test and Fisher's exact test. *P is significant at ≤ 0.05. PONV: postoperative nausea and vomiting, D: dexamethasone-bupivacaine, B: bupivacaine, C: control.

bradycardia and were treated with intravenous atropine (0.01 mg/kg). None of the other patients experienced side effects from the medications or the procedure, such as neurological symptoms of toxicity, accidental intravascular injection, hypotension, hematoma formation, or respiratory depression.

4. Discussion

The quadratus lumborum block (QLB) is among the most efficient abdominal truncal blocks to relieve upper and lower abdominal somatic pain. In light of this, it might be useful for analgesia after laparoscopic and other abdominal surgeries [20]. Several randomized controlled trials and meta-analyses have examined the benefits of administering several specific adjuvants that have been theorized to enhance local anesthetic peripheral nerve blockade potentially [21]. As a local anesthetic adjuvant, dexamethasone may be utilized due to its anti-inflammatory properties and ability to block neuronal discharge and the transmission of nociceptor C fibers [12].

Our study suggested that ultrasound guided QLB was an effective technique for lowering pain following laparoscopic cholecystectomy, as demonstrated by a lower pain score, a later request for analgesics, and a lower need for analgesics. Moreover, bupivacaine plus dexamethasone could extend the analgesic effect and reduce the need for postoperative analgesic requirement.

In agreement with our study, *Ökmen et al.* [22], examined the effect of QLB on post-operative pain following laparoscopic cholecystectomy, comparing QLB + patient-controlled analgesia (PCA) (Group B) versus PCA alone (Group S). The VAS scores of the two groups were found to be statistically considerably

lower in Group B *($p < 0.001$);* they concluded in Group B, the mean values for tramadol consumed were found to be statistically considerably lower (P< 0.001). Furthermore, further research comparing the post-operative analgesic benefits of QLB with other local blocks, such as transversus abdominis plane block (TAP) [23] or epidural catheter [24], found that the QLB was superior in lowering morphine demands and consumption.

According to a meta-analysis [25], in order to do a subgroup analysis stratified by local anesthetic (long vs. intermediate), a random effects model was employed to carry out the analysis, in which dexamethasone increased the analgesic duration for intermediate anesthetic from 168 to 343 minutes and for long-acting local anesthetic from 730 to 1306 minutes. There was a 664-to-1102-minute extension of the motor block. Their study was complementary to ours because the mean time of the first analgesic request in group D was 20 hours (1200 minutes), and in group B was 12 hours (720 minutes) – both significantly longer than the control group's 0.8 hours (48 minutes).

Moreover, *Noss et al*. [26] found that dexamethasone definitely prolongs analgesia after reviewing eleven studies on dexamethasone as an adjuvant in brachial plexus anesthesia. This localized method maintains a high degree of patient satisfaction while reducing the need for early postoperative analgesics.

In addition, *Huynh et al.'s meta-analysis* [27] of twelve randomized studies on adjuvant dexamethasone in peripheral nerve blocks, indicated a significant reduction in PONV with roughly doubling the duration of postoperative analgesia.

Rasmussen et al. [28], conducted a retrospective evaluation of 1,040 patient records and found that the length of various peripheral nerve blocks in the upper and lower extremities increased by a median of 37% when dexamethasone was added to ropivacaine. This conclusion is consistent with our research. In this trial, patients treated with dexamethasone reported statistically significant reductions in pain on the day of surgery, less severe pain after surgery, increased satisfaction, and no increase in adverse events.

Contrary to our findings, *Cummings et al*. [29], examined how long interscalene nerve blocks with ropivacaine or bupivacaine lasted when dexamethasone was used and discovered that perineural dexamethasone prolonged analgesia duration but did not lower post-operative opioid intake over the first 72 hours. Their result was, most likely due to a few factors. First off, a period of cumulative 72 hours is too long to expect variations in opioid use, especially when the duration of analgesia is short. Second, different analgesic techniques probably affected how much opioid was consumed.

In line with our findings regarding patient satisfaction, *Sebbag et al*. [30], who performed bilateral QLB using ropivacaine 0.25% in 3 women who had spinal anesthesia for cesarean deliveries, they found that no more opioids were consumed in the first 24 hours after the block, the women were all quite satisfied with the level of pain reduction.

We concluded that the ultrasound guided quadratus lumborum block, which results in a lower pain score, delayed analgesic request, and less analgesic necessity, is an efficient method for lowering post-operative pain following laparoscopic cholecystectomy. Longer post-operative analgesia is produced by mixing Dexamethasone with Bupivacaine in ultrasound guided QLB, which reduces the need for side-effect-free rescue analgesia.

This study had some limitations since QLB is being done when the patient is asleep. The ability to assess the analgesic level while doing QLB simply and safely while awake. As a result of the difficulties in visualizing, morbidly obese patients are also excluded. Future research could be crucial in assessing the QLB effect in patients who are morbidly obese.

Disclosure statement

We have no conflicts of interest to disclose.

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