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Original Research Article

A comparison of Rectus sheath block with epidural analgesia for postoperative pain relief

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Abstract

Background & Methods: The aim of the study is to study Efficacy of Rectus Sheath Block for Postoperative Pain Management**.** In epidural group before inducing anesthesia, using the loss of resistance approach with air between T9 & T11 spaces, the epidural catheter was inserted while the patient was awake. Following a negative aspiration test, a bolus dose of 10 ml 0.125% Bupivacaine was given at the conclusion of the procedure & then every 6 hours until the catheter was removed 72 hours later. Patient randomised to Rectus sheath block group had bilateral catheters inserted in space between posterior Rectus sheath and Rectus muscle under direct vision at level of and 4cm lateral to superior end of laparotomy incision.

Results: 36 patients in the EA group required rescue analgesia with an average time to rescue of 5.34h. 22 patients in the RSB group required rescue doses of opioids with average time to rescue of 4.8h.

Conclusion: One of useful techniques for reducing postoperative discomfort following major gynecological surgery includes rectus sheath block. With a quicker onset of action & a faster functional recovery in terms of ambulation & return of bowel function, we found it to be just as beneficial as epidural analgesia in our trial when it came to postoperative pain scores.

Keywords: Efficacy, Rectus, Sheath, Block & Pain.

Study Design: Comparative Study.

Introduction

By promoting early ambulation, early alimentation, & a decrease in pulmonary & thromboembolic problems, effective postoperative analgesia is a crucial part of improved recovery following major gynecological oncosurgery [1]. The gold standard for postoperative analgesia after midline laparotomies is still epidural analgesia (EA), although it may not always be feasible because to patient-specific contraindications, a lack of anesthesiology staff, perioperative changes in the surgical plan, & overtime time restrictions. In between 30 & 35 percent of cases, the insertion of an epidural catheter may be technically challenging or may not result in sufficient postoperative analgesia. Hypotension, motor block, & a greater need for anesthetic & nursing staff are issues with the use of EA [2]. Some people may not feel comfortable having an epidural catheter inserted while they are awake. Depending on when an epidural catheter is placed, patients' use of pharmaceutical thromboprophylaxis must

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be controlled.

Abdominal field block has emerged as a result of recent multimodal techniques that target incisional pain rather than visceral discomfort. The use of RSB has been documented in a wide range of surgical procedures, such as midline laparotomies, major open urological pelvic surgeries, open gynecological surgeries, & the treatment of umbilical & epigastric hernias.

There are four locations where RSB can be displayed. On either side of the umbilicus, position 5 cm cephalad-5 cm lateral & 5 cm caudad-5 cm lateral, with 0.25% of 10–15 ml at each location [3]. For RSB in adult patients, Yarwood et al. suggested a safe & effective dosage of 0.25% of 30–40 ml bupivacaine. Using 0.2–0.3 ml/kg of 0.25% bupivacaine, Johnson et al. also developed the RSB for pediatric patients 2-3 cm from the midline, which was repeated on the other side [4]. The medication is applied to a possible gap between the posterior rectus sheath & the rectus muscles.

RSB avoids the pain of an epidural catheter, has a low risk of hemodynamic alterations, & can mobilize patients early. The effectiveness of RSB when carried out using the landmark technique following laparoscopic surgery, umbilical, & paraumbilical incisions was supported by various investigations [5]. Additionally, the pain & quality of life of individuals with abdominal wall discomfort treated with RSB were significantly improving [6]. However, the landmark procedure, which may involve the inaccurate injection of the local anesthetic agent in relation to the prospective gaps, can impact the block's effectiveness & distribution. R SB based on ultrasound could increase the block's safety & certainty. If the body mass index (BMI) is greater than 35 kg/m2, obesity has a significant impact on the RSB success rate [7].

Material & Methods

One hundred patients undergoing midline laparotomy for surgical staging or radical hysterectomy were randomly assigned to the arms of rectus sheath block (RSB, n = 50) & epidural analgesia (EA, n = 50). Following surgery, both groups were given top-up doses of 0.125% (10 ml bolus) & 0.25% (20 ml bolus) buprevacaine six hours apart, beginning at the time the procedure was finished, in rectus sheath & epidural catheters, respectively. Diclofenac 100 mg rectal suppository once daily, as well as injections of paracetamol 1g IV & tramadol 50 mg IV six hours apart, were given to both groups. On demand, rescue doses of 75 mg of injectable mepiridine were given.

Prior to abdominal closure, bilateral rectus sheath catheters were inserted under direct vision using a 16G Tuohy needle 4 cm laterally to the cranial end of the incision, between the posterior rectus sheath & the rectus abdominis muscle, & inserted through to the 10-cm mark. The placement of the catheters was verified by palpation & direct inspection. Steristrips TM was used to adhere catheters to the skin. At the conclusion of the procedure, a bilateral bolus dose of 20 ml 0.25% bupivacaine was given. This was repeated every 6 hours following a negative aspiration test until the catheter was removed 72 hours later.

Result

Table No. 1:

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S. No.	Parameter	Epidural Group n=50	Rectus sheath group n=50	P value
1	Age 30-40	06	08	0.616
	Age 40-50	12	14	
	Age 50-60	16	12	
	Age 60-70	12	12	
	Age 70-80	04	04	
2	CA Cervix RAH	14	14	.031
	CA Ovary Primary CRS	06	06	
	CA Ovary Interval CRS	16	16	
	CA Endometrium Staging	14	14	
3	ASA I	22	22	.047
	ASA II	14	14	
	ASA III	14	14	
4	Mean operative time (min)	160	160	

Table No. 2: Visual Analogue Score

S. No.	Parameter	Epidural Group n=50	Rectus sheath group n=50
1	VAS6	5.68	5.47
2	VAS12	4.6	4.4
3	VAS24	2.1	2.3
4	VAS48	3.48	3.48
5	VAS60	3.64	3.43

VAS at 6h was 5.68 & 5.47, 12h was 4.6 & 4.4, 60h was 3.64 & 3.43, in the EA & RSB groups respectively & at 48h were 3.48 in both groups. The difference in scores in the EA & RSB groups however did not reach statistical significance.

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Table No. 3: PHH Pain Score

S. No.	Parameter	Epidural Group n=50	Rectus sheath group n=50
1	PHHPS12	2.2	2.4
2	PHHPS24	2.43	2.36
3	PHHPS48	2.71	2.68

Table No. 4: Functional recovery

S. No.	Parameter	Epidural Group n=50	Rectus sheath group n=50
1	Ambulation(h)	35.7	33.1
2	GI recovery (h)	63.4	53.7
3	Rescue opioid (h)	5.3	4.8
4	Total rescue (n)	36	22

36 patients in the EA group required rescue analgesia with an average time to rescue of 5.34h. 22 patients in the RSB group required rescue doses of opioids with average time to rescue of 4.8h.

Discussion

The effectiveness of epidural analgesia & rectus sheath block in post-operative pain control after midline laparotomy in gynecological oncosurgery was studied in this study. In terms of surgical & demographic factors, the two groups were similar. According to our findings, the rectus sheath block group experienced an earlier functional GI recovery, a lower pain score, an earlier commencement of pain relief, & a decreased requirement for rescue analgesia [8].

Before closure under direct eyesight, 30 ml of a combination of bupivacaine (2 ml/kg) & clonidine (1 μg/kg) with normal saline was injected into each sheath, according to Anwar et al. They found that individuals undergoing abdominoplasty who used this approach needed less postoperative analgesia [9–10].

Dutton et al. found that rectus sheath block was a useful substitute for thoracic epidural analgesia, but they also noted that both techniques had a comparable incidence of ileus. In our investigation, we found that RSB led to a quicker recovery of bowel function than EA [11].

Reduced requirement for systemic analgesia, longer duration of first analgesic request, & lower pain VAS scores during rest & activity were seen in the RSB group. after 1, 2, 4, 6, & 8 hours after surgery, RSB significantly reduced pain levels in patients undergoing emergency midline laparotomy as compared to the non-exposed group; however, after 10, 12, & 24 hours, no statistically significant changes in pain reduction were seen. The mean VAS score in their study, however, remained significant until six hours after surgery, which may indicate that the RSB was done prior to the incision. According to Smith et al., at 1, 6, & 10

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postoperative hours, the RSB group's VAS pain scores were noticeably lower than those of the control group [12–13].

When compared to the non-exposed group, RSB was able to lower the VAS score during the first eight postoperative hours in one trial. The local anesthetic agent was deposited with direct visualization, patient urgency differed, & interventions were present, which could explain the inconsistent decrease in VAS score after 8 hours [14].

Conclusion: One of the modalities for reducing postoperative discomfort following major gynecological surgery is rectus sheath block. With a rapid onset of action & a faster functional recovery in terms of ambulation & return of bowel function, we found it comparable to epidural analgesia in our trial when it came to postoperative pain scores.

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