Ultrasound-guided, Pre-operative, Bilateral, Single-level Paravertebral Block for Laparoscopic Cholecystectomy: A Case Series

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BACKGROUND AND AIMS

- Post-operative pain in laparoscopic cholecystectomy is variable, multifactorial, and unpredictable
- Ultrasound-guided (USG) paravertebral nerve block (PVB) as part of multi-modal pain management

METHODOLOGY

- Compared 2 groups of 6 patients for elective laparoscopic cholecystectomy under GA ET sevoflurane
- Pre-operative USG PVB single shot at T5T6 paravertebral space (PVBS), bilateral was done
- Intraoperative hemodynamic parameters, post-operative pain scores, time to first rescue dose, and post-operative consumption of opioids were measured

RESULTS

- Preoperative MAP is comparable in both groups
- MAP and HR during insufflation were elevated in Group 2 and in one patient in Group 1
- MAC was lower in Group 1
- Postoperative NRS (mean) was lower in Group 1
- Time to first opioid rescue was longer in Group 1
- Cumulative post-operative opioid use was less in Group 1
- No complications or adverse events were incurred

CONCLUSIONS

- Ultrasound-guided, pre-operative, bilateral, single level paravertebral block at T5T6 PVBS provides for stable hemodynamic control during incision in laparoscopic cholecystectomy
- 0.25% Levobupivacaine confers a more effective analgesia than 0.5% Levobupivacaine 0.3ml/kg

Measured

- Intraoperative hemodynamic parameters – MAP, heart rate, and MAC
- Time to first rescue dose – post-operatively
- Post-operative pain scores – mean NRS at PACU and 24hours after
- Total post-operative opioid consumption

Ultrasound-guided, pre-operative, bilateral, single-level PVB at T5T6 PVBS with 0.25% Levobupivacaine 20ml

- ✓ Decreased anesthetic requirement
- ✓ Decreased post-operative pain scores
- ✓ Prolonged time to first analgesic rescue
- ✓ Decreased post-operative opioid consumption

Technique

- Position:** Lateral decubitus
- Transducer:** Linear, parasagittal oblique
- Insertion:** In-plane, caudad-to-cephalad, T5T6 PVBS bilateral
- Compare**
 - Group 1 (n = 3)
 - 0.25% Levobupivacaine 20ml
 - Group 2 (n = 3)
 - 0.5% Levobupivacaine at 0.3ml/kg
- Test dose:** 3mL Lidocaine 1% + Epinephrine 1:200,000

Table 1. Sociodemographic variables

	Group 1	Group 2
Age (yrs)	42.0	28.0
Range	41-51	22-31
Sex		
Male	1 (33.33)	1 (33.33)
Female	2 (66.66)	2 (66.66)
Height (cm)	155	150
Weight (kg)	61.5	65.7
BMI (kg/m²)	25.0	28.2
Note: Data presented as median, or n(%)		

Table 2. Intra-op and Post-op Parameters

	Group 1			Group 2		
	A	B	C	A	B	C
INTRA-OPERATIVE						
MAP (mmHg)						
Preop	85	108	126	124	85	114
Post block	75	88	89	113	96	101
Incision	68	74	80	87	67	86
Insufflate	49	117	80	122	79	94
HR (bpm)						
Preop	48	77	86	98	81	68
Post block	58	86	76	80	75	59
Incision	70	54	95	82	92	65
Insufflate	65	92	95	95	101	68
MAC	1.08	1.00	1.04	1.26	0.99	1.11
POST-OPERATIVE						
Mean NRS						
PACU	0	0	3.5	6.5	4	0
1st day	3	0	0	0	2	0
Time to first analgesic request (hr:min)						
	5:28	0:00	4:15	1:59	3:08	0:00
Total Opioid given						
PACU	0	0	2.5	5	2.5	0
Ward	3.75	0	0	0	0	0
Note: Data presented as median, or n(%)						