

Comparison of intraoperative intravenous Lidocaine Infusion and Transversus Abdominis Plane (TAP) block for post-operative analgesia following Laparoscopic Cholecystectomy: A Randomized Control Trial

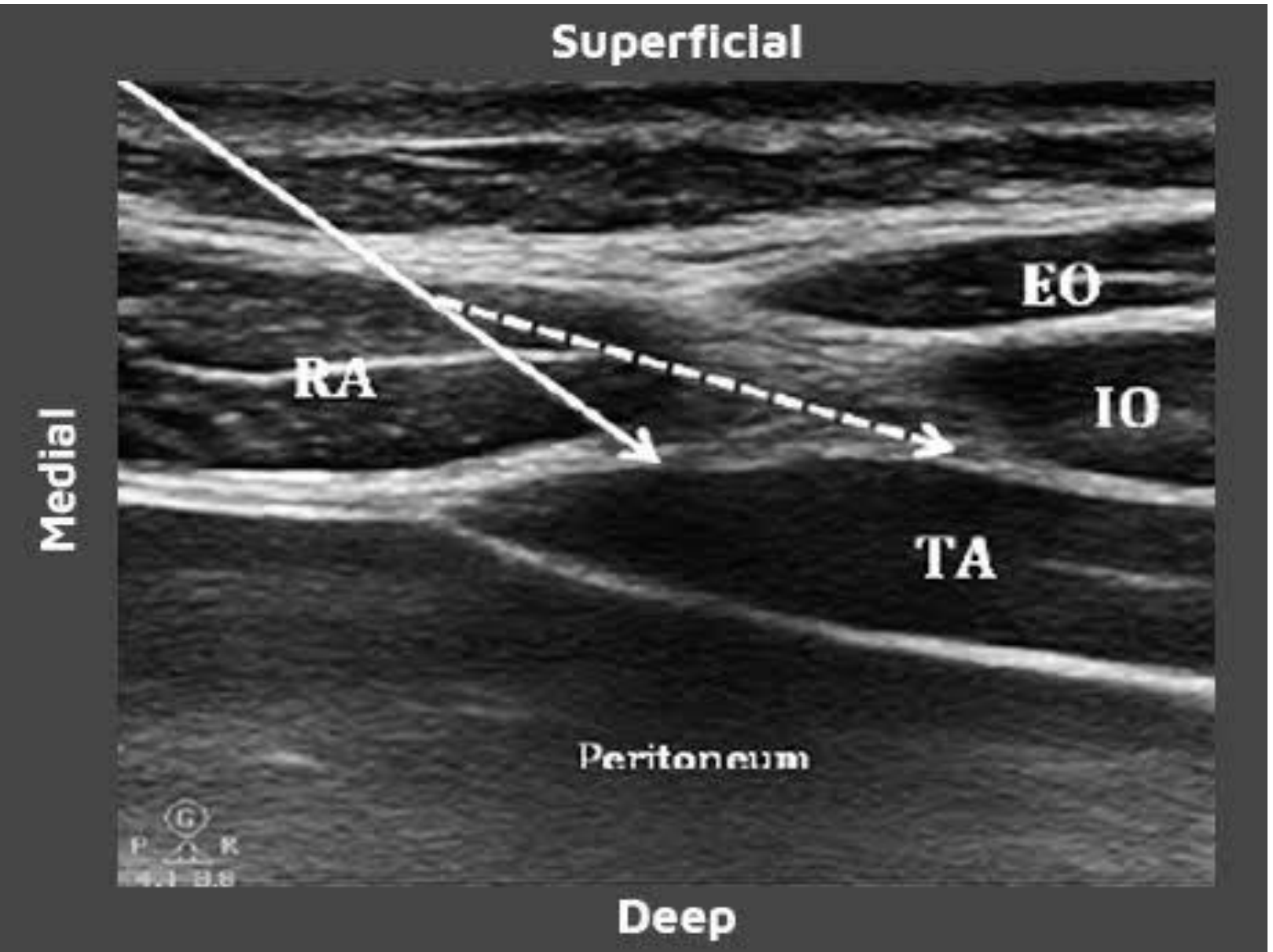
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Introduction

- Laparoscopic cholecystectomy is among the most common general surgical procedures. However, it has been associated with moderate to severe post-operative pain.
- According to current evidence, pain is most intense on the day of the procedure and decreases subsequently.
- The Transversus Abdominis Plane (TAP) block works by blocking the parietal and incisional components of pain in the anterior abdominal wall.
- Current evidence also reports that intravenous lidocaine is effective in reducing acute post-operative pain and decreases overall opioid requirement.
- Multiple recent meta-analyses showed that intravenous lidocaine substantially lowered post-operative pain scores, the demand for opioids, and associated adverse effects

Methodology & Objectives

- Ninety (90) patients undergoing elective laparoscopic cholecystectomy were recruited out of which thirty (30) each were randomized to either control group, lidocaine group or TAP block group.
- Intravenous lidocaine infusion at 1.5 mg/kg/hour was used intraoperatively after a 2mg/kg lidocaine bolus in the lidocaine arm while bilateral subcostal TAP block was placed using 0.375% ropivacaine in the TAP block arm as intervention. No intervention was planned in the control group.
- Data including pain scores, rescue analgesic consumption and patient satisfaction was collected till 24 hours postoperatively.
- Primary Objective:** Comparison of intraoperative intravenous lidocaine infusion and bilateral subcostal Transversus Abdominis Plane (TAP) block for post-operative analgesia following laparoscopic cholecystectomy.
- Secondary Objectives:** Total rescue analgesic consumption, pain-free interval, post-operative nausea and vomiting, length of hospital stay and patient satisfaction.



Results

- No significant differences were observed in the three groups with respect to demographics.
- Upon intergroup pairwise comparison, pain scores on VAS were found to be significantly lower in the lidocaine group as compared to control group at all time intervals (p<0.05).
- Upon comparison of pain scores in lidocaine group and TAP group, it was observed that VAS scores were significantly lower in the lidocaine group upon Arrival at PACU (0 hours), 2 hours, 4 hours and 6 hours (p<0.05).
- Compared to the TAP block and control groups, patients in the lidocaine group had significantly reduced postoperative nausea and vomiting at 2 and 4 hours. However, the incidence of PONV was comparable across all other time intervals.
- Length of stay in hospital was significantly reduced in lidocaine group as compared to control group (p<0.05), however no significant difference was observed between lidocaine group and TAP block group.

TIME	GROUPS	MEAN ± SD	P-VALUE
Arrival in PACU	Control vs Lidocaine	[3.83 ± 1.60] vs [0.179 ± 0.612]	< 0.05
	Control vs TAP Block	[3.83 ± 1.60] vs [1.47 ± 1.74]	< 0.05
	Lidocaine vs TAP Block	[0.179 ± 0.612] vs [1.47 ± 1.74]	< 0.05
2 hours	Control vs Lidocaine	[3.77 ± 1.01] vs [0.286 ± 0.713]	< 0.05
	Control vs TAP Block	[3.77± 1.01] vs [1.47 ± 1.43]	< 0.05
	Lidocaine vs TAP Block	[0.286 ± 0.713] vs [1.47 ± 1.43]	< 0.05
4 hours	Control vs Lidocaine	[3.33 ± 1.03] vs [0.250 ± 0.518]	< 0.05
	Control vs TAP Block	[3.33± 1.03] vs [1.83 ± 1.66]	< 0.05
	Lidocaine vs TAP Block	[0.250 ± 0.518] vs [1.83 ± 1.66]	< 0.05
6 hours	Control vs Lidocaine	[2.63 ± 1.45] vs [0.536 ± 0.744]	< 0.05
	Control vs TAP Block	[2.63 ± 1.45] vs [2.10± 1.49]	NS
	Lidocaine vs TAP Block	[0.536 ± 0.744] vs [2.10 ± 1.49]	< 0.05
12 hours	Control vs Lidocaine	[1.90 ± 1.52] vs [0.429 ± 0.634]	< 0.05
	Control vs TAP Block	[1.90 ± 1.52] vs [1.07 ± 1.31]	NS
	Lidocaine vs TAP Block	[0.429 ± 0.634] vs [1.07 ± 1.31]	NS
24 hours	Control vs Lidocaine	[1.33 ± 1.40] vs [0.286 ± 0.600]	< 0.05
	Control vs TAP Block	[1.33 ± 1.40] vs [0.900 ± 1.32]	NS
	Lidocaine vs TAP Block	[0.286 ± 0.600] vs [0.900 ± 1.32]	NS

- Pain-free interval in the lidocaine group was up to 24 hours (based on the time they consumed their first rescue analgesic); by comparison, 56.7% of patients in the control group and 20% of patients in the TAP block group required rescue analgesic at the time of their arrival in the PACU (0 hours).
- No rescue analgesic bolus was administered to any of the patients in the lidocaine group. On the other hand, 56.7% of patients in the TAP group and 93.4% of patients in the control group required a single rescue analgesic bolus, whereas, 46.7% and 6.7% of patients required a second bolus.
- Around 92.9% patients in the lidocaine group either agreed or strongly agreed when asked about satisfaction regarding their pain relief modality and whether they were willing to recommend the same pain relief method to their friends and family.

