Intraperitoneal Instillation of Local Anesthetic Does Not Provide Additional Analgesia When Combined with Transversus Abdominis Plane (TAP) Block

Jennifer Pan, MD[1] , Leo Amodu, MD[1] , Haarika Chalasani, MD[1] , Maria Bower, BS[1] , Armin Mahabadi, BS[1] , Kimberly Ho, BS[1] , Sabrina Daoui, MD[1] , Meredith Akerman, MS[2] , Jun Levine, MD[1]

[1]New York University Long Island School of Medicine, Department Of Surgery, Mineola, NY, USA, [2]New York University Long Island School of Medicine, Biostatistics Core, Mineola, NY, USA

Background

- Intraperitoneal instillation of local anesthetic agents (IPLA) has been shown to decrease postoperative pain after laparoscopic surgery
- Can be used in conjunction with other intraoperative adjuncts such as transverse abdominus plane (TAP) block and incisional local anesthesia
- This study investigates whether patients undergoing minimally invasive bariatric surgery receiving IPLA in addition to TAP block have less postoperative pain versus those receiving TAP block alone

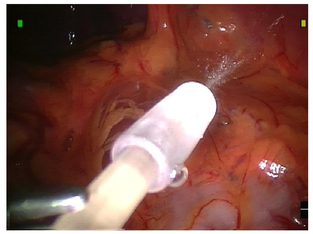


Fig 1. Intraperitoneal administration of aerosolized bupivicaine[1]

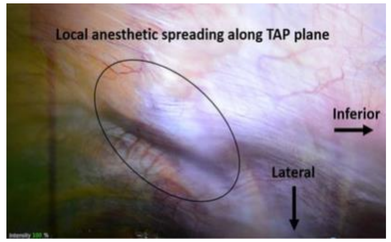


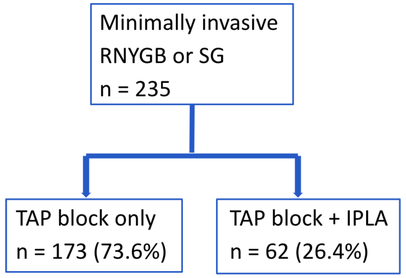
Fig 2. Intra-abdominal view of TAP block administration[2]

Hypothesis

In patients undergoing minimally invasive bariatric surgery, receiving IPLA in addition to TAP block will decrease postoperative pain scores and opioid analgesic use more effectively than receiving TAP block alone

Study design

- Retrospective chart review of 235 patients who underwent laparoscopic or robotic-assisted primary bariatric surgery with intraoperative TAP block only or with TAP block + IPLA
- Database created from caselogs of 4 MIS/bariatric surgeons at NYU Long Island Hospital during 2021
- Excluded patients <18 y/o or undergoing additional procedures at time of surgery



Variable	TAP only	TAP + IPLA	*p*
Average pain score (of all recorded since admission)	3.60	3.54	0.814
Mean pain score (1-10) during 1st hour post-op	4.61	3.84	0.123
Mean pain score 6 hours post-op	4.95	5.02	0.883
Mean pain score 12 hours post-op	3.70	4.28	0.215
Mean pain score 24 hours post-op	3.79	4.12	0.550
Mean pain score 48 hours post-op	3.62	5.08	0.221
IV morphine equivalents (mg) given in 6 hrs post-op	6.57	5.92	0.467
IV morphine equivalents (mg) given in 12 hrs post-op	5.74	6.46	0.470
IV morphine equivalents (mg) given in 24 hrs post-op	6.46	6.80	0.793
IV morphine equivalents (mg) given in 48 hrs post-op	6.69	8.19	0.400
Length of hospital stay (days)	1.47	1.48	0.951

Results

- 235 patients underwent primary bariatric surgery: 173 (73.6%) received TAP blocks only, while 62 (26.4%) received TAP blocks + IPLA (mix of 0.25% bupivacaine + 1% lidocaine)
  - Fewer females in TAP only group (80.9%) compared to TAP + IPLA (91.9%)
  - Fewer patients underwent gastric bypass (vs. sleeve) in the TAP only group (57.2%) compared to TAP + IPLA (80.6%)
  - No difference in mean age, BMI, medical comorbidities, or preoperative opioid use
- **No significant difference in average pain scores** during admission (TAP: **3.6** [2.3-4.9] vs. TAP + IPLA: **3.5** [2.3-4.5])
- **No significant difference in median opioid requirements** in IV morphine equivalents (mg) at 6 hours, 12 hours, or 24 hours
- No difference in LOS or outcomes

Conclusion

Intraperitoneal instillation of local anesthetics confer no additional analgesic benefits and do not lead to decreased postoperative opioid requirements when combined with TAP blocks in patients undergoing primary bariatric surgical procedures

1. Freilich, D. A., Houck, C. S., Meier, P. M., Passerotti, C. C., Retik, A. B., & Nguyen, H. T. (2008). The effectiveness of aerosolized intraperitoneal bupivacaine in reducing postoperative pain in children undergoing robotic-assisted laparoscopic pyeloplasty. Journal of Pediatric Urology, 4(5), 337–340.
2. Wong, D.J., Curran, T., Poylin, V.Y. et al. Surgeon-delivered laparoscopic transversus abdominis plane blocks are non-inferior to anesthesia-delivered ultrasound-guided transversus abdominis plane blocks: a blinded, randomized non-inferiority trial. Surg Endosc 34, 3011–3019 (2020).