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75. Opioid-free and awake TLIF surgery with a novel interfascial block

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BACKGROUND CONTEXT

Despite a significant rise in prescription opioid-related overdose deaths in the last decade and the US Department of Health declaring the opioid epidemic a national emergency in 2017, median opioid prescription duration remains the longest for spine surgery with 12.6 days, prompting a demand for alternatives to opioid medication in spine surgery-related analgesia. Thoraco-lumbar interfascial plane (TLIP) block [10, 11] is an ultrasound-guided interfascial block that has shown promising results in reducing opioid consumption in non-instrumented spine surgery procedures.

PURPOSE

The aim of this study was to evaluate the efficacy in reducing postoperative pain and opioid analgesia of a novel interdisciplinary strategy combining preoperative thoraco-lumbar interfascial plane (TLIP) block and instrumented percutaneous/endoscopic TLIF surgery. Secondary aims were to determine the time to first postoperative ambulation and hospital length of stay.

STUDY DESIGN/SETTING

This is a prospective study with a retrospective control cohort.

PATIENT SAMPLE

Forty-two patients who underwent elective single-level percutaneous/endoscopic TLIF surgery between 2015 and 2021. A TLIP group with 17 patients prospectively underwent TLIP block before surgery and non-TLIP (control) group with 25 patients obtained standard opioid analgesia. Both groups received the same postoperative analgesia with morphine as patient-controlled rescue medication.

OUTCOME MEASURES

Visual analogic scale (VAS) and Oswestry Disability Index (ODI) scores were evaluated. Statistical evaluation was performed with Student's t-test.

METHODS

For the TLIP group, ultrasound-guided bilateral TLIP was performed in prone position with bupivacaine 0.25% and dexamethasone 8mgrs (20 ml each side) by the anesthesia team. All patients were operated on under general anesthesia (protocol: propofol 2.0-3.0 mcg/ml (TCI) following BIS, ketamine 0.15 mg/Kg/h, rocuronium 0.4 mg/Kg). Percutaneous TLIF was performed by inserting an expandable interbody implant using the facet-sparing, trans-Kambin approach with an endoscopic cannula and complemented with a percutaneous posterior fixation consisting of transpedicular screws and rods. Postoperative analgesia included NSAIDs and acetaminophen. intravenous morphine was administered with a PCA pump consisting of a bolus of 20mcg/kg with interval lock-out of 15 minutes and a maximum of 3 bolus per hour. The use of the PCA pump was monitored.

RESULTS

In contrast to the non-TLIP group, the TLIP group's postoperative, mean VAS back scores as well as mean ODI significantly decreased from 6.6 to 3.3 ($P < 0.01$) and 32.8 to 23.6 ($P < 0.01$) at hospital discharge. No differences were found between both groups at one month. The overall mean follow-up was 29±18 (3–78) months. Non-TLIP group patients were administered a median postoperative 24-hour morphine dose equivalent (MDE) of 23 (range, 8-31) mgr, while TLIP group patients did not require opioid analgesia ($P < 0.01$). TLIP Group patients started postoperative ambulation at a median of 4.1 (range, 2.5–26) hours with a median hospital length-of-stay of 24 [range, 20–48] hours ($P=0.112$).

CONCLUSIONS

TLIP block significantly improves patient outcome at hospital discharge after TLIF surgery without postoperative administration of opioids. A prospective study is recommended to confirm our preliminary results.

FDA DEVICE/DRUG STATUS

Globus Rise (Approved for this indication), Bupivacaine (Approved for this indication)