ANALGESIC EFFECT OF ULTRASOUND GUIDED CAUDAL BLOCK VERSUS QUADRATUS LUMBORUM PLANE BLOCK IN LUMBAR SPINE SURGERY IN ADULT PATIENTS: A DOUBLE BLINDED PROSPECTIVE COMPARATIVE STUDY

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(M.B.B.Ch)

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Summary of the study

Postoperative pain is a common complication after lumbar spine surgery due to inherent tissue damage during surgical procedures.
Inadequate pain management leads to several complications, such as immobility, deep venous thrombosis, chronic pain, increased opioid use and longer hospital stays.

Many analgesic options have been explored. Opioid analgesics carry the risk of respiratory depression. Nonsteroidal anti-inflammatory drugs (NSAIDs) are popular and widely used as first-line treatment for acute pain following spinal surgery but can provide inadequate analgesia. High doses of NSAIDs have also been linked to non-unions in spinal fusion surgery.
Patient-controlled analgesia or epidural injection analgesia are usually used.

Ultrasound (US)-guided regional anesthesia methods have recently become popular in daily anesthesia practice, and they have great potential to support effective postoperative pain management.

One of US guided regional anesthesia methods is the ultrasound-guided caudal block that was first described by Klocke and colleagues in 2003.

One of the more recent techniques that has been described recently is quadratus lumborum plane block (QLB), that is posterior abdominal wall fascial plane block first described by Blanco in 2007. The effectiveness of postoperative analgesia of QLB has been confirmed in certain previous reports.

This study was performed in the in the FAYOUM University hospital after the local Institutional Ethics Committee and local institutional review board approval no, (M 696) from February 2024 to August 2024. The study design is double-blind randomized controlled study. A detailed informed consent was signed by the eligible patients before recruitment and randomization.

A total of one hundred and eleven patients who underwent spinal fixation surgery under general anesthesia were enrolled and randomized into 3 equal groups; group who received caudal block, group who received quadratus lumborum plane block and control group didn't receive any blocks.

Statistical analysis of current study showed that time to first rescue analgesia was significantly longer in QLB compared to caudal and controlled.

The total postoperative opioid consumption in the first 24 hours was significantly lower in both the block groups than in the control group. The intraoperative HR and MAP and opioids were significantly less in both the block groups than the control group. Among the block groups, the immediate postoperative pain relief was better in the CEB group, however, the QLB group had a longer duration of postoperative pain relief.

The strengths of current study were due to all clinical assessment, anesthetic interventions and assessment of study outcomes were done by the same team. every effort was made to ascertain that all follow-up data were documented, and only complete information was included in data analysis and the study was randomized and double-blinded.

The limitations of the study were dermatomal evaluation of the patients could not be performed after the procedure since the blocks were performed after the induction of anesthesia, our current study is the first statistical analysis comparing QL blocks with caudal block in adults patients and more studies are needed to evaluate the effectiveness of both blocks to include QL and caudal block in multimodal analgesia procedures in lumbar surgery, Pain scores were assessed during rest only, we need to assess dynamic pain, but in the future, larger studies are needed to corroborate our findings, we did not assess postoperative patient satisfaction scores or quality of recovery scores, both of which should unquestionably be included in future investigations

In conclusion, postoperative analgesia for patients undergoing lumbar spine surgeries can be safely and effectively achieved by QLB and CEB

however the duration of action was significantly longer in the QLB group and lesser total postoperative opioids consumption compared to the CEB group and controlled group. While intraoperative HR and additional analgesic requirements was lesser in caudal than QLB and controlled.