

ABSTRACT

ANATOMY AND BACKGROUND

DISCUSSION AND CONCLUSION

Basivertebral nerve ablation (BVNA) provides delayed relief for chronic axial low back pain, leaving patients vulnerable to significant perioperative pain. Erector spinae plane blocks (ESPBs) are effective in lumbar spine surgery and may benefit this population. We report three cases where bilateral L4 ESPBs with bupivacaine and liposomal bupivacaine were performed prior to BVNA. Pain scores and opioid use were monitored perioperatively and for 72 hours. All patients tolerated ESPBs well, demonstrated improved pain scores, and required minimal opioids. ESPBs appear to be a safe adjunct for postoperative analgesia in BVNA, meriting further study.

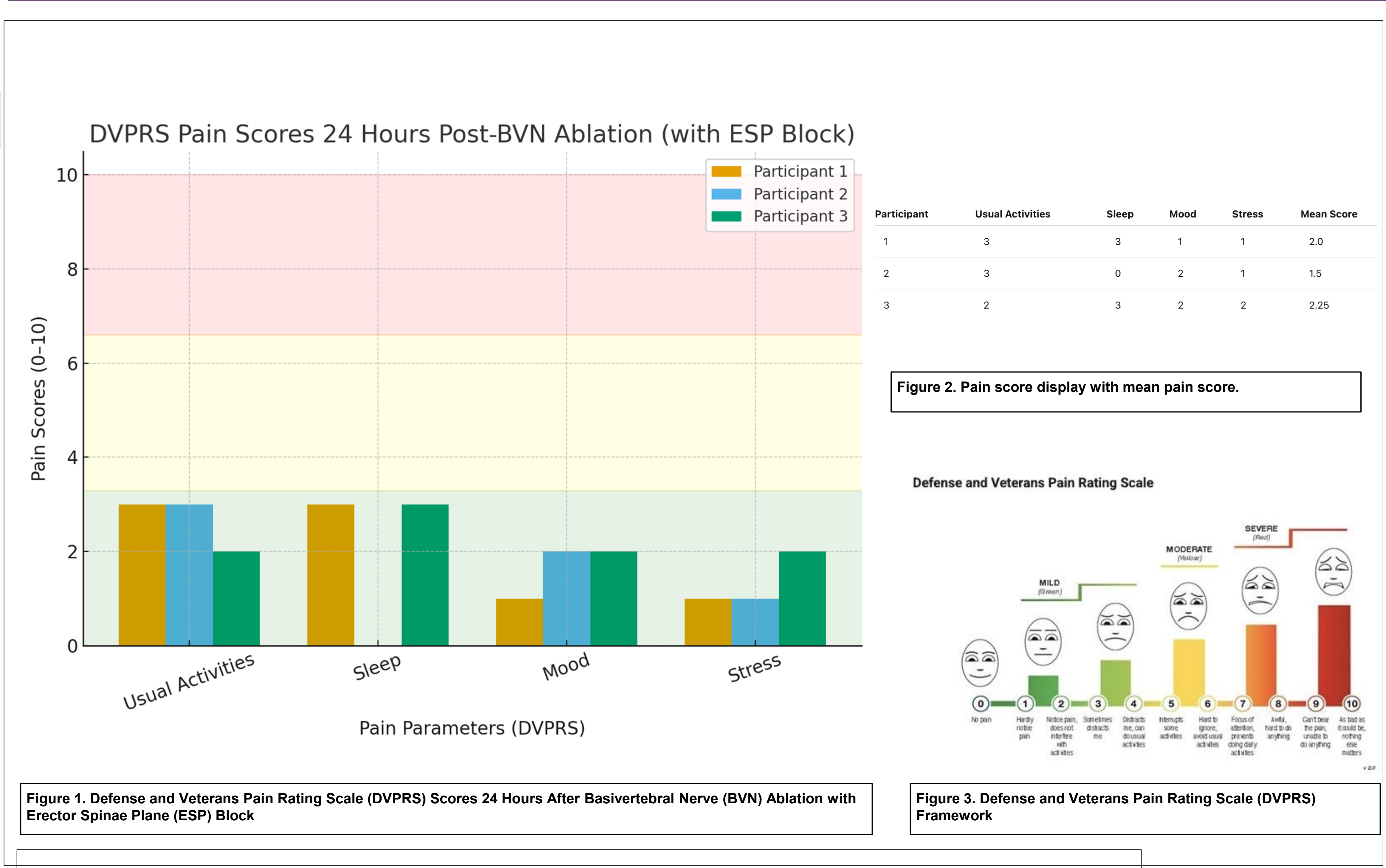
LITERATURE REVIEW

A comprehensive literature search was conducted focusing on two key topics: preoperative erector spinae plane (ESP) blocks and basivertebral nerve (BVN) ablation (Intrasept procedure). The search identified 2,738 citations related to ESP blocks and 321 citations on BVN ablation. When these concepts were combined, only one relevant citation was found. Expanding the search terms to include “nerve block” and “autonomic nerve block” yielded 34,012 citations for ESP-related studies and 86 citations for the combined concepts.

Despite this extensive review, no studies were identified that specifically examined the use of regional anesthesia for BVN ablation, underscoring a significant gap in the literature and emphasizing the novelty of this investigation.

Regional anesthesia techniques continue to expand in spine interventions, with erector spinae plane blocks (ESPBs) showing significant benefit in lumbar procedures.¹ At the same time, basivertebral nerve ablation (BVNA) has gained traction as a minimally invasive and effective treatment for chronic axial low back pain.^{2, 3} Despite its long-term efficacy, BVNA patients often experience substantial postoperative pain due to the cannula trajectory through soft tissue and vertebral bone, with opioids frequently required for analgesia. Because many BVNA candidates already represent a chronic pain population with elevated perioperative needs,⁴ we explored the use of ESPBs as a strategy to optimize postoperative pain control in this setting.

CASE PRESENTATION



Basivertebral nerve ablation has emerged as the most common definitive treatment for vertebrogenic pain. While a relatively new procedure, BVN ablation’s transpedicular approach mimics other similar neurosurgical and interventional techniques. Dorsal fascial plane blocks, such as the erector spinae plane block tends to be the preferred perioperative regional modality for postprocedural pain. This case series has demonstrated that ESP blocks can be safe and effective for patients undergoing BVN ablation. All patients reported a serial reduction of pain, temporally related to the duration of action of the local anesthetic utilized. The patients were also standardized to the best of our ability; we purposely excluded patients who did not undergo general endotracheal anesthesia, and those who received long-term analgesic modality in the perioperative setting (for example, intravenous hydromorphone). While these results are promising, this case series is very limited. The subjects were not blinded, nor did any subjects undergo a sham ESP block. The number of subjects (n=3) is small to be statistically meaningful. Also, control subjects, such as those who did not receive an ESP.

Further studies studies would be needed to demonstrate true causal efficacy of the ESP block for BVN ablation. Ideally, such studies would be randomized control trials, patient and physician-blinded (accomplished via sham injectate). Other outcome measures could include daily morphine-equivalent opioid use in the postoperative period. Still, the case series sets a framework for standardizing such studies and can potentially serve as a protocol foundation for BVN postoperative management and thus, better patient outcomes.

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