ABSTRACT

Background: Interscalene brachial plexus blocks (ISB) are commonly used as a perioperative pain strategy for shoulder arthroscopy. Though bupivacaine is the current standard of care for analgesia, adjuvant therapies including buprenorphine, clonidine, and dexamethasone have each demonstrated analgesic benefits. This randomized controlled trial evaluated whether combining these three adjuvants with bupivacaine prolongs analgesia and reduces opioid consumption compared with bupivacaine alone for single-shot ISB.

Methods: This single-blinded, randomized controlled trial, 127 adult patients undergoing shoulder arthroscopy at a single academic center received either Plain-BPV (n = 66) or BPV-BCD (n = 61). Visual analog scale (VAS) pain scores and opioid consumption, measured in morphine milligram equivalents (MME) were assessed at 2-, 24-, and 48-hours postoperatively.

Results: Demographics and operative characteristics were similar between groups. At 24 hours, BPV-BCD significantly reduced pain scores compared with Plain-BPV (3.2 vs 5.0 VAS; $p <$ .001). Opioid consumption was also lower with BPV-BCD (4.4 vs 7.8 MME; $p = .001$).

Conclusions: Combining buprenorphine, clonidine, and dexamethasone with bupivacaine for single-shot ISB significantly lowered 24-hour pain scores and opioid requirements. These findings highlight the potential efficacy of this combination to optimize pain management following shoulder arthroscopy.

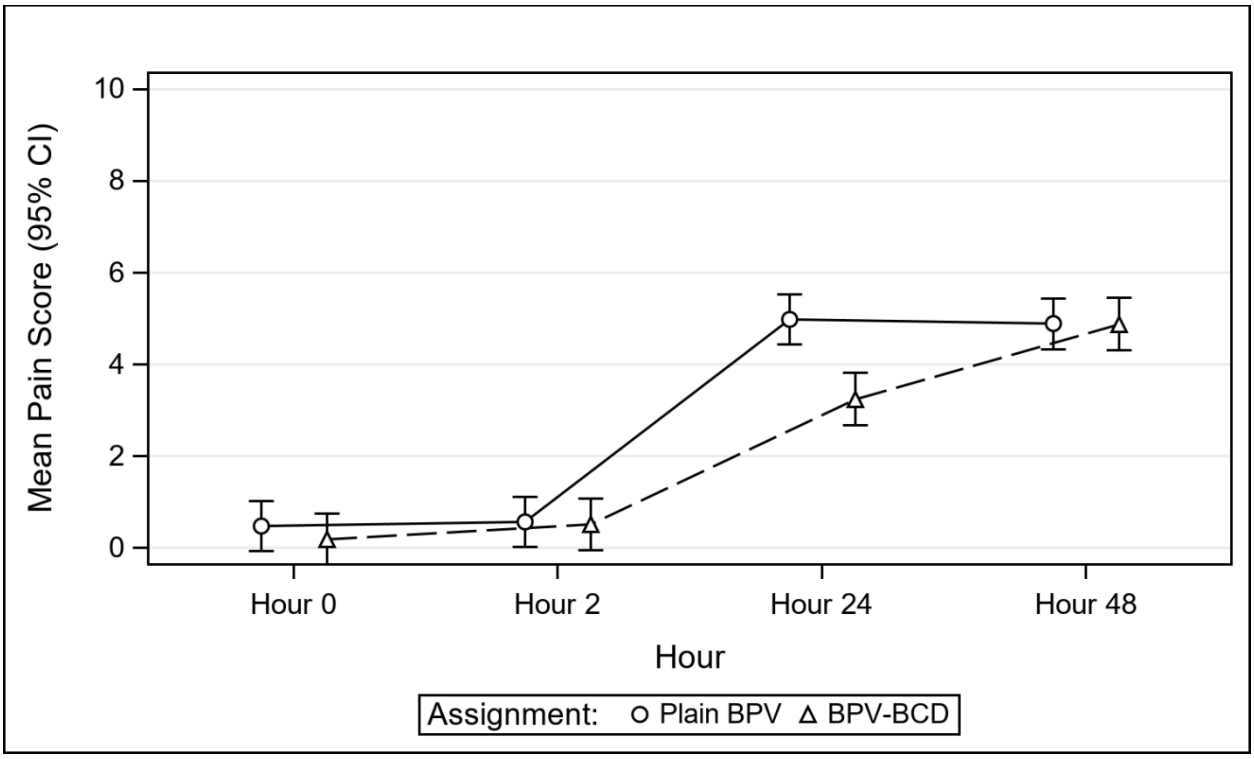

Figure 1. Pain scores by hour and treatment assignment

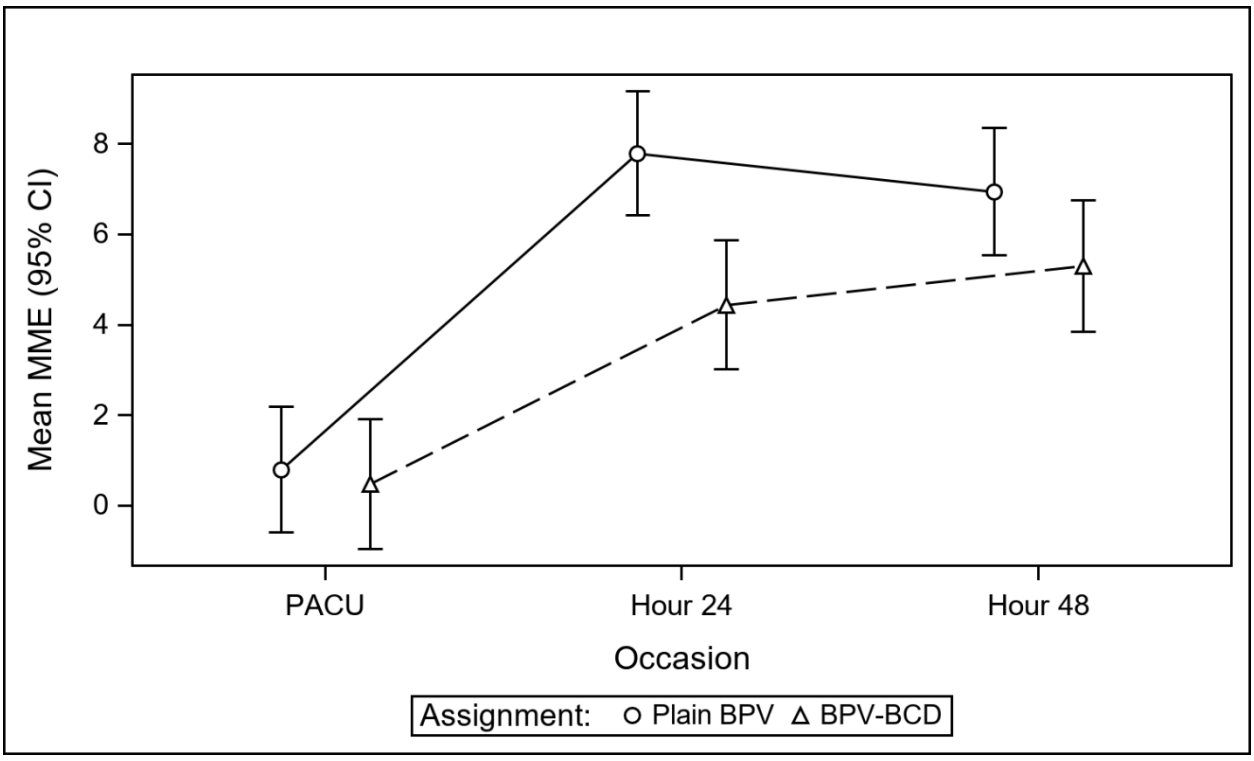

Figure 2. MME responses by occasion and treatment assignment