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Dexmedetomidine added to ropivacaine extends the duration of interscalene brachial plexus blocks for elective shoulder surgery when compared with ropivacaine alone: a single-center, prospective, triple-blind, randomized controlled trial.

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Abstract

BACKGROUND AND OBJECTIVES: Research suggests that the addition of **dexmedetomidine** to local anesthetics can prolong peripheral nerve **blocks**; however, clinical safety data are limited, and **interscalene blocks** have not been studied. The present study was designed to test the hypothesis that **dexmedetomidine added** to **ropivacaine** would safely enhance the **duration** of analgesia without adverse effects when **compared** with **ropivacaine alone**.

METHODS: We conducted a **single-center**, **prospective**, **randomized**, **triple-blind**, **controlled trial** of 62 patients undergoing **elective shoulder surgery** under general anesthesia with an **interscalene** block. Patients underwent ultrasound-guided **interscalene blocks** using either 12 mL of 0.5% **ropivacaine** or 0.5% **ropivacaine** plus 150-μg **dexmedetomidine**. The primary outcomes were self-reported **duration** of the nerve block and safety assessment (adverse effects and neurological sequelae). Data were analyzed in a blinded fashion.

RESULTS: The median **duration** of the nerve block was 18 hours (95% confidence interval, 18-20) in the **dexmedetomidine** group and 14 hours (95% confidence interval, 14-16) in the **ropivacaine** group (P = 0.0001). **Dexmedetomidine** also lowered pain scores for the first 14 hours postoperatively and significantly hastened the time to sensory (P = 0.04) and motor (P = 0.002) block onset. **Dexmedetomidine** lowered heart rate but blood pressures were stable. Plasma levels of **ropivacaine** were not different between groups, and plasma **dexmedetomidine** levels were relatively low. There were no adverse events or neurological sequelae.

CONCLUSIONS: Dexmedetomidine added to **ropivacaine** for **interscalene blocks** increased the **duration** of the nerve block and improved postoperative pain. These additional efficacy and safety data should encourage further study of peripheral perineural **dexmedetomidine** in humans.

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