Randomized comparison between interscalene and costoclavicular blocks for arthroscopic shoulder surgery

Aliste, Julián

Bravo, Daniela

Layera, Sebastián

Fernández, Diego

Jara, Álvaro

Maccioni, Cristóbal

Infante, Carlos

Finlayson, Roderick J.

Tran, De Q.

Background This randomized trial compared ultrasound-guided interscalene block (ISB) and costoclavicular brachial plexus block (CCB) for arthroscopic shoulder surgery. We hypothesized that CCB would provide equivalent analgesia to ISB 30 min after surgery without the risk of hemidiaphragmatic paralysis. Methods All 44 patients received an ultrasound-guided block of the intermediate cervical plexus. Subsequently, they were randomized to ISB or CCB. The local anesthetic agent (20 mL of levobupivacaine 0.5% and epinephrine 5 ?g/mL) and pharmacological block adjunct (4 mg of intravenous dexamethasone) were identical for all study participants. After the block performance, a blinded investigator assessed ISBs and CCBs every 5 min until 30 min using a composite scale that encompassed the sensory function of the supraclavicular nerves, the sensorimotor function of the axillary nerve and the motor function of the suprascapular nerve. A complete block was defined as one displaying a minimal score of six points (out of a maximum of eight points) at 30 min. Onset time was defined as the time required to reach the six-point minimal composite score. The blinded investigator also assessed the presence of hemidiaphragmatic paralysis at 30 min with ultrasonography. Subsequently, all patients underwent general anesthesia. Postoperatively, a blinded investigator recorded pain scores at rest at 0.5, 1, 2, 3, 6, 12, and 24

hours. Patient satisfaction at 24 hours, consumption of intraoperative and postoperative narcotics, and opioid-related side effects (eg, nausea/vomiting, pruritus) were also tabulated. Results Both groups displayed equivalent postoperative pain scores at 0.5, 1, 2, 3, 6, 12, and 24 hours. ISB resulted in a higher incidence of hemidiaphragmatic paralysis (100% vs 0%; P < 0.001) as well as a shorter onset time (14.0 (5.0) vs 21.6 (6.4) minutes; p<0.001). However, no intergroup differences were found in terms of proportion of patients with minimal composite scores of 6 points at 30 min, intraoperative/postoperative opioid consumption, side effects, and patient satisfaction at 24 hours. Conclusion Compared to ISB, CCB results in equivalent postoperative analgesia while circumventing the risk of hemidiaphragmatic paralysis. Further confirmatory trials are required. Future studies should also investigate if CCB can provide surgical anesthesia for arthroscopic shoulder surgery. Clinical Trials Registration NCT03411343.