

PE-74. A NOVEL PERI-JUGULAR APPROACH TO THE BRACHIAL PLEXUS BLOCK FOR SHOULDER SURGERY: A REPORT OF 142 CASES

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Recently, the safety of the traditional transverse approach to the interscalene nerve block has come into question, especially when performed on an anesthetized patient.¹ This report will detail the day-of-surgery outcomes using an anatomic approach using only the external jugular vein (EJV) as the only anatomic landmark. The novel technique (peri-jugular) used involves inserting a nerve-stimulator needle just medial to the EJV, passing the needle at a 10-30 degree angle, initially directing the needle deep and lateral to the EJV (away from the epidural space and vertebral artery), then systematically fanning the needle from lateral to medial until the desired biceps twitch is elicited. Prior to the surgical procedure, routine monitors were placed and the skin was aseptically prepped and provided local subcutaneous anesthesia with 1% lidocaine. Sedation up to 4 mg of midazolam and up to 250 mcg fentanyl was provided to ensure a cooperative, responsive, and oxygen-saturating patient. 142 cases using the peri-jugular approach were compared with 245 cases using the traditional transverse approach performed during the same time interval (1997-1999) by one of 6 staff anesthesiologists who performed at least 25 interscalene blocks during the period of chart audit. Outcome parameters included postoperative pain requiring a nursing intervention (among all 387 patients), and estimated nerve block duration using 40 cc of mepivacaine 1%/bupivacaine 0.375% (among 90 patients). All blocks used epinephrine 3.3 \pm 5 mcg/cc. Of the peri-jugular cases, 3% were excluded because GA was required, while 5% of the cases using the transverse approach were excluded (P=NS). Patients requiring general anesthesia (GA) during surgery were excluded from this analysis, since a surgical request for GA could not be distinguished from conversion to GA for incomplete block. 4/142 patients (2.8%) required supplemental analgesia postoperatively after peri-jugular interscalene block, versus 13/245 (5.3%, P=NS) after the transverse interscalene block. Nerve block duration using the mepivacaine/bupivacaine mixture is listed in the table: perijugular block patients had 5 hours more analgesia than did transverse nerve block patients. One adverse effect (contralateral spread, shivering, stuttering, but no overt seizure activity) was seen in a 67-year-old, 60 kg patient using the peri-jugular approach with the mepivacaine/bupivacaine mixture; this patient did not require hospital admission after same-day surgery. No CNS or cardiac complications were noted otherwise with either approach. When compared with the traditional transverse approach, the peri-jugular approach to the interscalene nerve block appears to provide similar surgical conditions and have a low incidence of immediate postoperative analgesic requirements. In addition, the peri-jugular approach appears to provide a longer duration of postoperative analgesia. A randomized study of the two approaches is required to confirm these findings. A potential mechanism of prolonged analgesia in the peri-jugular approach may be related to the placement of the entire injected volume into the fascial envelope surrounding the brachial plexus bundle.

1. Benumof JL. Permanent loss of cervical spinal cord function associated with interscalene block performed under general anesthesia. *Anesthesiology* 93(6):1541-4, 2000.

Nerve Block Analgesic Duration Using 40 cc Mixture of 1% Mepivacaine / 0.375% Bupivacaine: Comparison of Perijugular and Transverse Interscalene Nerve Block Techniques			
Technique	Peri-jugular	Transverse	Significance
Mean (hr)	20	15	P=0.002
95% CI (hr)	18-23	13-17	
n	36	54	