TITLE: Ultrasound Versus Nerve Stimulator Guided Axillary Brachial Plexus Block

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INTRODUCTION: Ultrasound (US) guided nerve block is a new concept but whether it can improve success and safety is unknown. This study aims to compare US guided axillary block with conventional peripheral nerve stimulator (PNS) technique.

METHODS: Following IRB approval and informed consent, 126 patients undergoing elective hand surgery were recruited and randomized into 3 groups: 1) PNS, 2) US and 3) US + PNS. For group PNS, a nerve stimulator was used for nerve localization and a motor response at ≤ 0.5 mA was considered acceptable. For group US, a 12 MHz probe (Philips HDI 5000 unit) was used for nerve imaging and localization. In group US + PNS, nerve was localized by US and then confirmed by PNS. In all cases, the median, ulnar and radial nerves were individually localized and blocked with 14 mL of 2% lidocaine + 0.5% bupivacaine in 1:200000 epinephrine (total 42 mL) through a 22G insulated needle (Stimuplex, Braun). The investigator performing post block assessment was blinded to the nature of the block procedure. Time to perform the block, progression of sensory (pinprick) and motor block within 30 min, the need for anesthetic supplementation and complications were recorded. Data were analyzed using Student's t-test, and the Mann Whitney ANOVA. $P < 0.05$ was considered significant.

RESULTS: Anesthetic failure was most commonly noted in the radial nerve and supplementation with general anesthesia was required in 4% of the patients only. The time required to perform PNS+US was longer than the other two groups.

	PNS (n = 40)	US (n = 42)	PNS+US (n = 44)	P value
Block time (min)	10.5 $\pm$ 3.6*	9.4 $\pm$ 3.9	13.2 $\pm$ 4.5*	0.0034
Sensory block in 3 nerves				
10 min	9 (22.5%)	11 (26.8%)	11 (26.8%)	0.24
20 min	24 (60.0%)	24 (57.1%)	27 (61.4%)	0.89
30 min	26 (65.0%)	33 (78.6%)	36 (81.8%)	0.08
Persistent paresthesia (≥ 7 d)	2	2	0	

DISCUSSION: Our preliminary data show a trend in favor of the US groups in block completeness at 30 min.

REFERENCES

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