

## PD-12. NERVE STIMULATORS AND SUBCLAVIAN PERIVASCULAR BLOCKS; TO DECREASE OR NOT TO DECREASE, THAT'S THE QUESTION.

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**Introduction:** The subclavian perivascular block introduced by Winnie and Collins (1) in 1964, is one of the many supraclavicular techniques used to block the brachial plexus. The plexus at this location is reduced to three trunks surrounded by a fascia. In our institution we are particularly experienced in this block (2), which is performed with only slight modifications from the original (3). The use of a nerve stimulator is essential. It is widely accepted that when using a nerve stimulator the operator must seek the lowest possible outputs (4,5). In our experience this does not seem to be the case. This is a preliminary report on 40 prospective cases where we set to test our impression.

**Method:** With IRB approval we have recruited up to now, 40 consecutive patients, ASA 1 and 2 who had surgery on the elbow or below it and consented to participate. All these adult patients received 1 or 2 mg of Midazolam plus 50 ug of Fentanyl prior to the block. Then they were randomly allocated to either one of two groups. Group one: after an accepted response in the hand is obtained (isolated flexion or extension of the fingers) with 0.9 mA, the nerve stimulator output is reduced to 0.5 mA. If a response is still visible 40 ml of local anesthetic solution is given with frequent aspirations. Group two: after adequate response in the hand is obtained at 0.9 mA the injection is performed without reducing the nerve stimulator output. The local anesthetic solution in both groups consisted of 40 ml of 1.5 % Mepivacaine, plus 0.2 % Tetracaine, plus 1:200,000 Epinephrine, plus sodium bicarbonate 4 ml total.

A person blind to the technique determined onset of clinical anesthesia by pinprick stimulation at median, radial and ulnar sites on the hand. Time to onset was considered to be the time when ALL three nerves have been blocked.

Results: see table

**Discussion:** These preliminary results confirm our clinical impression that IN THE CASE of the Subclavian Perivascular Block (and probably other supraclavicular techniques as well), the nerve stimulator output at which the injection is performed IS NOT as important as the TYPE OF RESPONSE obtained. This response we believe should be flexion or extension of all fingers which is isolated from other type of response and which is clear and strong. Most likely this is due to the particular anatomy of the brachial plexus in the supraclavicular region and DOES NOT apply to blocks performed in other regions of the body.

1. Winnie AP, Collins VJ. *The Subclavian Perivascular Technique of Brachial Plexus Anesthesia. Anesthesiology* 1964;25:353-363.

2. Franco CD, Vieira ZEG. *1,001 Subclavian Perivascular Brachial Plexus Blocks: Success With a Nerve Stimulator. Reg Anesth* 2000;25:41-46.

3. Franco CD. *The Subclavian Perivascular Block. Tech in Reg Anesth* 1999;3:212-216.

4. Brown DL. *Brachial Plexus Anesthesia: An Analysis of Options. Yale J Biol Med* 1993;66:415-431.

5. Yasuda I, Hirano T, Ojima T. *Supraclavicular Brachial Plexus Block Using a Nerve Stimulator and an Insulated Needle. Br J Anaesth* 1980;52:409-411.

RESULTS	Group 1 (0.5 mA)	Group 2 (0.9 mA)	Level of Significance
number	19	21	NS
age (mean)	33.8	33.6	NS
male/female ratio	14/5	16/5	NS
height (mean in cm)	172.47	172.67	NS
weight (mean in kg)	80.05	84.14	NS
minutes to onset (mean)	12.15	10.85	NS
successful blocks	19 (100%)	21 (100%)	NS