

TITLE EFFECTS OF INTRAMUSCULAR OR LOCAL CLONIDINE FOR PROLONGATION OF BRACHIAL PLEXUS BLOCK WITH LIDOCAINE.

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INTRODUCTION: Previous studies have shown that adding clonidine to the anesthetics solutions increase the duration of both spinal and epidural blocks(1). Clonidine may also potentiate the duration of analgesia after peripheral nerves blocks such as femoral nerve block (2) but the respective effects of supraspinal antinociceptive and local activities with this technique have not been fully defined.

In order to determine the true role of clonidine in nerves blocks, we compared in a double blind fashion the effects of adding intra-muscular or axillary sheath clonidine to lidocaine on the duration of analgesia after axillary block of the brachial plexus.

METHODS: After informed consent and institutional approval, 90 ASA I adults patients undergoing upper limb surgery were assigned to one of three groups of 30 patients each. 1.5% lidocaine 30 ml with epinephrine 150 mcg was

injected in the axillary sheath in all patients. In addition, group T received IM chloride saline 1 ml, group AC clonidine 150 mcg added to lidocaine in axillary sheath and IM chloride saline 1 ml, group MC clonidine 150 mcg IM. Duration of analgesia was assessed by patients response to painful stimuli. Blood pressure was monitored before and 1, 2, 3 and 4 hours after injection. Statistical analysis was done with analysis of variance.

RESULTS: Analgesia was achieved as early as the 15th min in the three groups. Analgesia was significantly prolonged in group AC (266 ± 65 min) compared to groups T (187 ± 28 min) and MC (217 ± 48 min), ($p < 0.01$). The difference between groups T and MC was not significant. Blood pressure was not significantly different in the three groups but in group MC, three patients suffered from mild hypotension, paleness and bradycardia. No serious adverse side effect was observed in group AC. A sedation was observed in most patients receiving clonidine.

DISCUSSION: Clonidine increases duration of lidocaine sensory brachial plexus block. Supra spinal activity alone does not explain these results. Augmentation of duration of block by clonidine may be due either direct neural action or enhancement of lidocaine activity. Local clonidine is a safe and easy way to prolong lidocaine brachial plexus block.

REFERENCES:

1. Anesthesiology 54: 451-467, 1981.
2. Anesthesiology 71: A643, 1989.

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TITLE: LIDOCAINE (L) AND BUPIVACAINE (B) DOSAGES IN CERVICAL BLOCK FOR CAROTID ENDARTERECTOMY.

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Cervical block anesthesia allows direct monitoring of cerebral function in carotid endarterectomy. The advantages of shortening the latency of long acting local anesthetic agent as bupivacaine by adding carbonated lidocaine has been demonstrated for brachial plexus block (1). Furthermore the high degree of motor blockade with lidocaine may facilitate exposure of distal internal carotid artery lesions. In addition longer analgesic property of bupivacaine provides post operative analgesia. However, the principle of mixing local anesthetic drugs may be questionable with regard to the potentially additive toxicity of the two drugs. Thus we studied plasma levels of these two drugs in cervical blocks performed for carotid endarterectomy.

After obtaining institutional approval and informed consent 13 patients ASA class II or III (47 to 85 years), scheduled for carotid endarterectomy were studied. No premedication was used. Cervical block was performed using a mixture of 0.5 B. 20 ml and 2% L. 20ml for C2, C3, C4 punctures (2). Continuous ECG and blood arterial pressure monitoring were used. Adequacy of cerebral perfusion was done by neurologic assessment in an awaked patient and with conventional 12 channels EEG recording. Venous blood samples were drawn for B. and L. at 0, 5, 10, 15, 20, 25, 30, 45, 60, 90, 120 min. after injection. Plasma concentration was assayed using gas chromatography with nitrogen specific detector (3). All results are expressed as mean \pm SD in the following table:

Time (min.)	5	10	15	20	25	30	45	60	90	120
Lidocaine μ g/ml	0.63 \pm 0.3	2.98 \pm 1.2	3.45 \pm 1.54	3.52 \pm 1.13	4.02 \pm 2.3	3.32 \pm 1.01	2.63 \pm 1.21	2.95 \pm 1.19	2.61 \pm 1.11	2.33 \pm 1.22
Bupivacaine μ g/ml	0	0.63 \pm 0.34	0.61 \pm 0.29	0.69 \pm 0.34	0.66 \pm 0.32	0.69 \pm 0.28	0.58 \pm 0.26	0.65 \pm 0.31	0.55 \pm 0.35	0.34 \pm 0.23

Venous plasma levels of lidocaine 2% and bupivacaine 0.5% after cervical block

Onset of regional analgesia was determined by pin prick and the mean latency was 5.4 ± 1.8 min. CMAX of L. was 4.30 ± 1.16 μ g/ml with a TMAX of 27.69 ± 12.84 min. CMAX of B. was 0.91 μ g/ml \pm 0.32 μ g/ml with a TMAX of 25.38 ± 16.13 min. Duration of the procedures was 101.7 ± 27.9 min. Correct analgesia was obtained for all patients and lasted more than 300 min.

No clinical or EEG neurologic toxicity was observed. For all the patients we noted a decrease in blood pressure between 20 and 25 min. reversible with a loading infusion of colloids.

So the addition of plain 2% L. to plain 0.5% B. permits an anesthesia with a short onset of action and provides a satisfactory pain relief while the serum concentrations observed were below toxic levels.

References:

1. Anesthesiology 1972, 479-487.
2. Am. J. Surgery 1985, 159-165.
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