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ASA ABSTRACTS

V 73, No 3A, Sep 1990

TITLE: EFFECTS OF INTRAMUSCULAR OR LOCAL CLONIDINE ON PROLONATION OF BRACHIAL PLEXUS BLOCK WITH LIDOCAINE.


AFFILIATION: Department of Anesthesiology and Critical Care Medicine, Charlevoix-Hesieres General Hospital, 08011 France.

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

In order to determine the true role of clonidine in nerve blocks, we compared in a double blind fashion the effects of adding intra-sacral 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 and adults patients undergoing upper limb surgery were assigned to one of three groups of 30 patients each. 1.5 mg clonidine 3 ml with epinephrine 150 mcg was injected in the axillary sheath in all patients. In addition, group T received IM cloridrome saline 1 ml, group AC clonidine 150 mcg added to lidocaine in axillary sheath and IM cloridrome saline 1 ml, group NC clonidine 150 mcg IM.

Duration of analgesia was assessed by patients response to painful stimuli. Blood pressure was monitored before and at 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 (206 ± 85 min) compared to groups T (187 ± 28 min) and NC (217 ± 48 min), (p < 0.01). The difference between groups T and NC was not significant. Blood pressure was not significantly different in the three groups but in group NC, three patients suffered from mild hypotension, paleness and bradycardia. No serious adverse side effect was observed in group AC. A sensation was observed in most patients receiving clonidine.

DISCUSSION: Clonidine increases duration of lidocaine sensory brachial plexus block. Supra spinial 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:

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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 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 20 ml for C2, C3, C4 punctures (2). Continuous ECG and blood pressure monitoring were used. Adequacy of cerebral perfusion was done by neurologic assessment in an awake 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, 120 min. After peripheral venous concentration was assayed using gas chromatography with nitrogen specific detector (3). All results are expressed as mean ± SD in the following table:

<table>
<thead>
<tr>
<th>Time (min)</th>
<th>5</th>
<th>10</th>
<th>15</th>
<th>20</th>
<th>25</th>
<th>30</th>
<th>45</th>
<th>60</th>
<th>120</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ldigocaine</td>
<td>0.63</td>
<td>2.98</td>
<td>3.45</td>
<td>3.52</td>
<td>4.02</td>
<td>3.32</td>
<td>2.83</td>
<td>2.95</td>
<td>2.61</td>
</tr>
<tr>
<td>µg/ml</td>
<td>±0.3</td>
<td>±1.2</td>
<td>±1.54</td>
<td>±1.13</td>
<td>±2.33</td>
<td>±1.10</td>
<td>±1.21</td>
<td>±1.15</td>
<td>±1.22</td>
</tr>
<tr>
<td>Bupivacaine</td>
<td>0</td>
<td>0.53</td>
<td>0.59</td>
<td>0.68</td>
<td>0.68</td>
<td>0.58</td>
<td>0.58</td>
<td>0.55</td>
<td>±0.55</td>
</tr>
<tr>
<td>µg/ml</td>
<td>±0.34</td>
<td>±0.29</td>
<td>±0.34</td>
<td>±0.32</td>
<td>±0.28</td>
<td>±0.26</td>
<td>±0.31</td>
<td>±0.35</td>
<td>±0.23</td>
</tr>
</tbody>
</table>

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 ± 1.5 min. CMAX of L was 4.30 ± 1.16 µg/ml with a Tmax of 27.69 ± 12.84 min. CMAX of B was 0.91 µg/ml ± 0.32 µg/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 colloid. So the addition of plain 2% L to plain 0.5% B permits 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.