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**TITLE:** COMPARISON OF EPIDURAL CLONIDINE AND BUPIVACAINE FOR POSTOPERATIVE ANALGESIA.  
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**INTRODUCTION:** The alpha 2 adrenergic agonists, of which clonidine is the prototype, are of interest for their analgesic potential [1]. Epidural clonidine has been shown to produce analgesia [2], but of variable duration and intensity. This study compares the analgesic effect of epidural clonidine to that of a local anaesthetic agent, and a combination of the drugs.

**METHODS:** 90 healthy patients in the age range 30 to 75 years, and scheduled for total hip replacement under general anesthesia, were included in the study. An epidural catheter was sited preoperatively, and the general anesthetic standardised. Patients were randomly allocated to receive one of 3 epidural injections, 10 ml of bupivacaine 0.25 %, clonidine 150 mcg in 10 ml 0.9% saline or 9 ml of bupivacaine 0.25% with clonidine 150 mcg (1ml), 30 minutes prior to the end of surgery. The duration of analgesic effect of the test drug and postoperative requirements for morphine were recorded.

**RESULTS:** Demographic data and haemodynamic variables were similar in all three groups. Subjective and objective assessment in the 1st hour after surgery showed that patients in the combination group had better analgesia than the other two groups (P<0.05). The duration of analgesic effect was taken as the time from administration of the drug to the first request for analgesia, and was significantly longer in the combination group (257 ±25 minutes) compared to the clonidine (180 ±19) and bupivacaine (122 ±10) groups. Duration of analgesic effect was also significantly longer in the clonidine compared to the bupivacaine group. The total requirements for morphine were lower in both the clonidine groups compared to the bupivacaine group (P<0.05). In the first 12 hours postoperatively, blood pressure and heart rate were lowest in the combination group, although this was not significant on between group analysis.

**DISCUSSION:** The analgesic effects of clonidine have been thought to be too brief to be of clinical significance, however, this study has demonstrated that the analgesic effect of a single bolus dose is superior to that of 0.25% bupivacaine, and the combination of the two drugs produces a significant increase in the duration and quality of analgesia. Previous studies have noted marked decreases in heart rate and blood pressure following epidural clonidine. The cardiovascular changes in this study were not marked. The lower readings noted in the combination group may be attributable to the cardiovascular effects of the clonidine or may reflect the significantly better analgesia noted in these patients.

**REFERENCES.**

1. Journal of Clinical Anaesthesia 1988; 1: 146-157
2. Acta Anaesthesiologica Scandinavica 1983; 78:72

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**Title:** CLONIDINE ADDED TO MEPIVACAINE FOR BRACHIAL PLEXUS BLOCKADE: ITS MINIMAL EFFECTIVE DOSE PROLONGING THE DURATION OF BOTH ANESTHESIA AND ANALGESIA.

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In man, 150 mcg of clonidine (Cl) added to mepivacaine 1% with epinephrine 1/200000 (M) prolong the duration of both anesthesia and analgesia after brachial plexus blockade<sup>1</sup>. The aim of this study was to determine the minimal effective dose of Cl increasing both durations after brachial plexus anesthesia.

**Methods:** After informed consent and institutional approval, 80 patients scheduled for elective orthopedic surgery under brachial plexus anesthesia were included in this study. Axillary brachial plexus block was performed following Winnie's approach<sup>2</sup>. A peripheral nerve stimulator was used to locate the brachial plexus sheath. The patients were randomly divided into 8 groups of 10 and received 40 ml of M with no Cl in group A, 0.1 mcg/kg of Cl in group B, 0.2 mcg/kg of Cl in group C, 0.3 mcg/kg of Cl in group D, 0.4 mcg/kg of Cl in group E, 0.5 mcg/kg of Cl in group F, 1 mcg/kg of Cl in group G and 1.5 mcg/kg of Cl in group H into the plexus sheath. The duration of both anesthesia and analgesia (time between injection and, respectively, return of sensation and onset of pain) were assessed by anesthesiologists unaware of the solution used. Statistical analysis was done with ANOVA and Student t-test when appropriated. Results are expressed as means ± SEM.

**Results:** Adequate surgical anesthesia was obtained in all patients. Duration of both anesthesia and analgesia in each group are presented in table 1. As compared with group A, duration of anesthesia was increased only in groups F, G and H. Analgesia was prolonged in all groups with a significant increase only in groups F, G and H. No side effects were noted during the observation period.

**Table 1.**

Groups (n=10)	Clonidine (mcg/kg)	Duration of anesthesia (min)	Duration of analgesia (min)
A	0	227 ± 10	260 ± 13
B	0.1	239 ± 17	351 ± 39*
C	0.2	258 ± 18	355 ± 20*
D	0.3	264 ± 20	379 ± 33*
E	0.4	265 ± 12*	372 ± 25*
F	0.5	313 ± 19***	491 ± 76***
G	1	304 ± 21***	471 ± 57***
H	1.5	302 ± 8 ***	494 ± 63***

\* p < 0.05 (Student t-test) when compared with A.

\*\*\* p < 0.005 (ANOVA and Student t-test) when compared with group A.

**Conclusions:** This randomized, double-blind study shows that the minimal effective dose of Cl required to significantly prolong the duration of anesthesia and analgesia after brachial plexus blockade with M is 0.5 mcg/kg. When a smaller dose of Cl is added to the LA solution, only analgesia is moderately increased. When added to M, clonidine in the plexus sheath has a dose dependant analgesic and anesthetic effect.

**References:**

1. Anesthesiology 73: A797, 1990.
2. Anesthesiology 25: 353-363, 1964.