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A COMPARATIVE STUDY BETWEEN 0.5% LVOBUPIVACAINE WITH DEXAMETHASONE 4MG AND 0.5% LVOBUPIVACAINE WITH DEXAMETHASONE 8MG IN BRACHIAL PLEXUS BLOCK BY SUPRACLAVICULAR APPROACH;A PROSPECTIVE RANDOMIZED DOUBLE BLINDED COMPARATIVE STUDY.



Anesthesiology

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ABSTRACT

INTRODUCTION- The use of peripheral nerve blocks for anaesthesia and post-operative analgesia has increased significantly recent years. Various adjuvants (Opioids, α -2 Agonist, Magnesium, Neostigmine) frequently added to local anaesthetics to prolong analgesia following peripheral nerve blockade. Due to adverse effects of these adjuvants, we have conducted our study on Dexamethasone. Our study aimed to find out analgesic efficacy of different doses of Dexamethasone as adjuvant to Levobupivacaine.

MATERIAL & METHODS- PNS guided brachial plexus block was given to sixty patients, randomly assigned into two groups. Group-D4: received 4mg of Dexamethasone (diluted to 2ml) with 23ml of 0.5% Levobupivacaine. Group-D8: received 8mg of Dexamethasone (2ml) with 23ml of 0.5% Levobupivacaine. Onset & duration of sensory & motor blockade, time for first rescue analgesia and complications are assessed during intra-operative & post-operative period.

RESULTS- The onset of sensory & motor block was faster in Group-D8 when compared to Group-D4. Time for request for first rescue analgesia appeared earlier in Group-D4 when compared to Group-D8.

CONCLUSION- Addition of 8mg Dexamethasone to Levobupivacaine in supraclavicular brachial plexus blockade had earlier onset of sensory & motor block, prolonged the duration and time for first rescue analgesia.

KEYWORDS

Dexamethasone, Levobupivacaine, Supraclavicular brachial plexus block.

I.INTRODUCTION

The use of peripheral nerve blocks for anaesthesia and post operative analgesia has increased significantly in recent years. Various adjuvants (Opioids, α -2 Agonist, Magnesium, Neostigmine) frequently added to local anaesthetics to prolong analgesia following peripheral nerve blockade. Due to adverse effects of these adjuvants, we have conducted our study on Dexamethasone.

AIM- To find out analgesic efficacy of different doses of dexamethasone as adjuvant to levobupivacaine.

II.MATERIALS AND METHODS

After taking approval from institutional ethics committee, written informed consent from the patients, the study was conducted at tertiary care hospital during may2017-october2017. 60patients of American Society of Anaesthesiologists(ASA)physical status 1-2 aged between 18-60 years of either sex undergoing upper limb surgeries were included in the study. **Exclusion criteria** 1.patients having neuropathy, peripheral nerve injury.2.geriatric,paediatric, pregnancy patients.3.patients refusal.

PNS guided brachial plexus block was given to 60 patients randomly assigned into two groups by computer generated randomization, patients were divided into two groups of 30 patients each group -D4 received 4mg of dexamethasone (diluted to 2ml) with 23 ml of 0.5% levobupivacaine. Group D8: received 8mg of dexamethasone (2ml) with 23ml of 0.5% levobupivacaine. The mean onset time and duration of sensory and motor block, time for first rescue analgesic, all haemodynamic parameters and any other complications & post operative analgesia were monitored by an anaesthesiologist who was neither aware of group allocation nor involved in the drug. Statistical analysis was done by unpaired t-test. A P value<0.05 was considered as statistically significant.

III.RESULTS

Demographic data was comparable in both the groups. The request for first rescue analgesic was significantly earlier in group D4 than group D8. In this study the onset of sensory and motor block in group D4 was delayed.

TABLE 1 : BLOCK CHARACTERISTICS

variables	Group D4(n=30)	GROUP D8(n=30)	p
Sensory block-onset(min)	8.36+/-1.35	4.27+/-1.24	<0.001
Motor block -onset(min)	8.96+/-1.73	6.43+/-1.06	<0.001

Sensory block duration(min)	310.83+/-70.24	486.83+/-84.82	<0.001
Motor block-duration(min)	254.64+/-64.52	380.67+/-72.42	<0.001
Time to request for first rescue analgesia(min)	560.45+/-126.76	810.80+/-110.46	<0.001

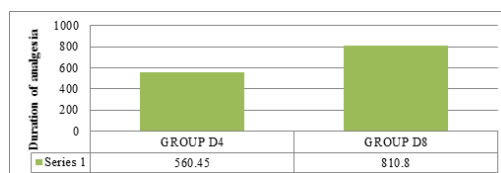


TABLE 2: COMPARISON OF DURATION OF ANALGESIA BETWEEN TWO GROUPS

Duration of blockade in group D8 was prolonged. Intra and post operative haemodynamic parameters were comparable between two groups.

IV.DISCUSSION

Brachial plexus block is an easy and relatively safe procedures for upper limb surgeries. A levobupivacaine alone provided good operating conditions but the duration of analgesia is rarely maintained for more than 3-4 hours. Dexamethasone, a synthetic adrenocorticosteroid with the properties of anti-inflammatory and analgesic effect is known to be useful as an adjuvant to local anaesthetic for prolongation of analgesia. Many studies have successfully proved the usefulness of dexamethasone as an effective analgesic. In a study by Shrestha et al¹, mean duration of post operative analgesia in the dexamethasone group was 1028minutes, where as in this study post operative duration of analgesia in group D4 was 560.45+/-126.76 minutes and 810.80+/-110.46 minutes in group D8.

The duration of analgesia is significantly higher in group D8 than the group D4 which is statistically significant.

In our study we observed that the onset and duration of sensory block was significantly faster in group D8(4.27+/-1.24 and 486.83+/-84.82) compared to group D4(8.36+/-1.35 and 310.83+/-70.24). The onset and duration of motor block was significantly faster in group D8 (6.43+/-1.06 and 380.67+/-72.42) compared to group D4 (8.96+/-1.73 and 254+/-64.52). There were no complications observed.

Observations of the study were also comparable with the studies conducted by Golwala MP et al², Biradar PA et al³, and Tripathi A et al⁴.

LIMITATIONS: The result might be much better if we used ultrasound guided block & long term follow up was not performed. Therefore late onset neuropathy, could not be detected.

V.CONCLUSION

Addition of 8mg of dexamethasone to levobupivacaine in supraclavicular brachial plexus blockade had earlier onset of sensory and motor block, prolonged the duration of sensory and motor block and time for first rescue analgesia was delayed compared to 4mg of dexamethasone.

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