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COMPARE THE EFFECTS OF PLAIN LEVOBUPIVACAINE (0.5%) IN BRACHIAL PLEXUS BLOCK FOR UPPER LIMB ORTHOPAEDIC SURGERIES.

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Abstract

Background & Method: This study was conducted on 60 patients undergoing upper limb surgeries aged between 20 to 50 years under supraclavicular block at Index Medical College Hospital & Research Centre, Indore with an aim to compare the effects of plain levobupivacaine (0.5%) in brachial plexus block for upper limb orthopaedic surgeries. 60 patients posted for upper limb surgeries under supraclavicular block would be assigned to 3 groups, each containing 20 patients. All the patients will receive injection Midazolam 0.05mg/kg before the procedure.

Result: The minimum age of the patient was 20 years and the maximum age was 50 years. The mean age of the patients in group L was 32.50 ± 10.440, in group L+C was 32.50 ± 7.214 years and in group L+D was 35.10 ±8.854. Age incidences between three groups were comparable. The mean time for onset of sensory block in group L was 13.50 ± 0.607 min, in group L+C was 10.55 ± 1.317 min and L+D 6.85±0.745. The statistical analysis by ANOVA test showed that, the time for onset of sensory block in group L+D was significantly faster when compared to group L+C and L (P< 0.001).

Conclusion: Onset of sensory block was faster in dexmeditomedine group than clonidine group. The mean onset of sensory block (group L, 13.50 ± 0.607 min, group L+C, 10.55 ± 1.317 min and group L+D 6.85 ± 0.745) and motor block (group L, 16.55 ± 0.605 min; group L+C, 15.00 ± 0.973 min, and group L+D 13.25 ± 0.550 min) was significantly faster in group L+D than in group L and L+C (P < 0.001). The duration of analgesia (group L, 11.10 ± 1.373 hrs, group L+C, 13.75 ± 1.118 hrs, group L+D 15.55 ± 0.605 hrs) was also longer in group L+D than in group L+C and L. The duration of motor block (group L+D 13.85 ± 0.366 hrs, group L+C, 11.70 ± 0.657 hrs and group L 9.10 ± 1.373 hrs) was also longer in group L+D than in group L+C and L. All three groups shows statistically significant difference (P < 0.05).

Keywords: plain levobupivacaine, brachial plexus, upper limb & orthopaedic surgeries.

Introduction

Information on development of brachial plexus and its definitive cutaneous and solid appropriation is significant to the shrewd and successful utilization of brachial plexus sedation for upper appendage surgeries[1]. Close knowledge of the vascular, solid and fascial connections of the plexus is similarly fundamental for the authority of different strategies, for it is these perineural structures which fill in as the milestone by which needle may precisely find the plexus percutaneously.

In its course from intervertebral foramina to the upper arm, the strands are made successively out of roots, trunks, divisions, strings and terminal nerves. Brachial plexus is framed by the association of ventral rami of lower four cervical nerves (C5, 6, 7, 8) and first thoracic nerve (Tl) with successive commitments from C4 or T2 [2].

At the point when commitment from C4 is huge and from T2 is inadequate with regards to, the plexus seems to have a more cephaloid position and is named "Prefixed"[3]. At the point when commitment from T2 is enormous and from C4 is deficient with regards to, the plexus seems to have a caudal position and is named "postfixed". Normally prefixed or postfixed positions are related with the presence both of a cervical rib and of a bizarre first rib.

A planned randomized twofold visually impaired fake treatment controlled investigation of supraclavicular brachial plexus bar was acted in 80 patients utilizing 35 ml ropivacaine (0.5 %). Gathering A (n=40) had 150 µg clonidine and in Group B (n=40) 1ml typical saline added to ropivacaine. Tactile and engine bar was surveyed each 5 min till 30 min and at 15 min span from that point. Mean tangible beginning time in bunch A was 10.44 ± 5.7 min and in bunch B was 15.85 ± 6.55 min, which was measurably significant [4]. Patients of gathering A had a mean engine beginning time 14.35 ± 7.8 min and patients of gathering B had a mean engine beginning time 18.55 ± 7.64 min, the distinction being measurably critical. Mean term of tactile square in bunch A was 484.15 ± 63.4 min and in bunch B was 390.85 ± 72.65 min, which was genuinely huge. Patients in bunch A had a mean term of engine block 550 +60.3 min and patients in bunch B had a mean length of engine block 430.45+68.7 min, which was genuinely significant [5]. They inferred that the expansion of clonidine to ropivacaine for brachial plexus

bar expands the beginning and term of engine and Tangible Square.

Material & Method

This study was conducted on 60 patients undergoing upper limb surgeries aged between 20 to 50 years under supraclavicular block at Index Medical College Hospital & Research Centre, Indore from May 2017 to April 2018.

Informed written consent was obtained. Result values were recorded using a preset proforma. A prospective, randomized, single blinded study would be undertaken. 60 patients posted for upper limb surgeries under supraclavicular block would be assigned to 3 groups, each containing 20 patients. All the patients will receive injection Midazolam 0.05mg/kg before the procedure.

Inclusion Criteria:

1. ASA Class I & II
2. Age between 20 to 50 years.
3. SBP: 100- 139mm of Hg.
4. DBP: 60-89mm of Hg.
5. Both male and female patients.

Exclusion Criteria:

1. Patients refusing to give consent.
2. Patients with history of bleeding disorders.
3. ASA grade III and IV patients.
4. Patients with heart block.
5. All patients more than 90 k.g.

Results

Table 1: Age distribution of Study Goups

Groups	Mean± SD (Standard Deviation)	P value
L	32.5±10.440	
L+C	32.5±7.214	
L+D	35.1±8.854	0.572

The minimum age of the patient was 20 years and the maximum age was 50 years. The mean age of the patients in group L was 32.50 ± 10.440, in group L+C was 32.50 ± 7.214 years and in group L+D was 35.10 ±8.854. Age incidences between three groups were comparable.

Table 2: Showing the onset of sensory block in different groups (n=20)

Groups	Mean	Std. Deviation	Std. Error	ANOVA	
				F value	P value *
L	13.50	.607	.136	250.631	<0.001
L+C	10.55	1.317	.294		
L+D	6.85	.745	.167		
Total	10.30	2.895	.374		

Table 3: Post Hoc Tests (bonferroni)

Groups		Mean Difference	P value*
L	L+C	2.950*	< .001
	L+D	6.650*	
L+C	L+D	3.700*	

The mean time for onset of sensory block in group L was 13.50 ± 0.607 min, in group L+C was 10.55 ± 1.317 min and L+D 6.85±0.745. The statistical analysis by ANOVA test showed that, the time for onset of sensory block in group L+D was significantly faster when compared to group L+C and L (P< 0.001).

Discussion

Our study of dexmedetomidine is also comparable with Aliye Esmaoglu[6] whose observation shows that dexmedetomidine added to levobupivacaine for axillary brachial plexus block shortens the onset time and prolongs the duration of the block and the duration of postoperative analgesia. Similarly study of Kenan Kaygusuz,Iclal Ozdemir Kal, Cevdet Duger et al[7] shows that adding dexmedetomidine to axillary brachial plexus block shortens sensory block onset time, increases the sensory and motor block duration and time to first analgesic use, and decreases total analgesic use with no side effects. And also the study of Amany S Ammar, Khaled M Mahmoud[8] shows that on adding dexmedetomidine to bupivacaine during the placement of an infra-clavicular block provides. (1) enhancement of onset of sensory and motor blockade, (2) prolonged duration of analgesia, (3) increases duration of sensory and motor block, (4) yields lower VAS pain scores, and (5) reduces supplemental opioid requirements.

We also performed our study on clonidine with levobupivacaine to levobupivacaine alone. In our study, the combination of clonidine with levobupivacaine shows enhancement of onset of sensory and motor blockade,

prolonged duration of analgesia, increases duration of sensory and motor block, as compared to levobupivacaine alone which is comparable with the study of Dr. Sidharth Sraban Routray et al [9] who concluded that the addition of clonidine to ropivacaine for brachial plexus blockade, increases the onset and duration of motor and sensory block.

Conclusion

Onset of sensory block was faster in dexmeditomedine group than clonidine group. The mean onset of sensory block (group L, 13.50 ± 0.607 min, group L+C, 10.55 ± 1.317 min and group L+D 6.85 ± 0.745) and motor block (group L, 16.55 ± 0.605 min; group L+C, 15.00 ± 0.973 min, and group L+D 13.25 ± 0.550 min) was significantly faster in group L+D than in group L and L+C ($P < 0.001$). The duration of analgesia (group L, 11.10 ± 1.373 hrs, group L+C, 13.75 ± 1.118 hrs, group L+D 15.55 ± 0.605 hrs) was also longer in group L+D than in group L+C and L. The duration of motor block (group L+D 13.85 ± 0.366 hrs, group L+C, 11.70 ± 0.657 hrs and group L 9.10 ± 1.373 hrs) was also longer in group L+D than in group L+C and L. All three groups show statistically significant difference ($P < 0.05$).

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