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Original Research Article

To evaluate and compare the side effects and complication associated with Bupivacaine alone and Bupivacaine + clonidine.

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Abstract:
Background & Method: The aim of this study is to evaluate and compare the side effects and complication associated with Bupivacaine alone and Bupivacaine + clonidine. All patients received injection rantidine 50mg IV and injection ondansetron 4mg IV and injection GPL 0.2mg IM half an hour before the procedure. After securing a suitable peripheral vein, all patients were administered 500ml of lactate ringers solution.
Result: Onset of sensory blockade was in the range of 121-180 seconds in majority of patients (n=36, 60%) in group I and (n=40, 66.67%) in group II. The difference in mean onset of analgesia among both the groups was statistically insignificant (P>0.05), indicating that addition of clonidine had not shortened the onset of sensory blockade. The difference in mean onset of motor blockade among both the groups was insignificant statistically (P>0.05) indicating that addition of clonidine had not shortened the onset of motor blockade.
Conclusion: Intrathecal clonidine with bupivacaine 0.5% heavy produces excellent surgical analgesia and an extended analgesia in postoperative period. Clonidine treated patients were sedated and comfortable throughout the surgical procedure, thus avoidance of any other medication.

Keywords: side effects, complication, bupivacaine & clonidine.

Study Designed: Prospective randomized double blinded study.

1. INTRODUCTION

Most of the local anaesthetics currently in use are tertiary amines. The general configuration of the local anaesthetic amines comprises two key structural components. One imparting lipid solubility (Lipophilic) and other water solubility (hydrophilic). The Lipophilic and hydrophilic portions are connected an intermediate hydrocarbon chain which is usually as ester or an amide linkage[1].
A local anaesthetic amine is poorly soluble in water and rather insoluble when exposed to air. This amine is a weak base and combines readily with acids to form salts. This salt is quite soluble in water and comparatively stable[2]. This is mainly based on the pH of the solution. The salt ionizes in solution and is usually stable. The non-ionized form (the base) is lipid soluble and can easily penetrate the tissue barrier.

The proportion of the two forms of the solution depends on the PKa and Ph of the solution. All local anaesthetics act by stabilizing the membrane. Alkalinization of local anaesthetic solution increases the speed of onset and increases the effectiveness of the block[3].
It is suggested that the local anaesthetic prevents the increase in permeability of cell membrane to sodium ion which is first event in depolarization of cell. Thus an action potential is not generated. This action affecting the process of depolarization of an impulse without affecting the resting potential is known as membrane stabilizing effect[4&5].

2. MATERIAL & METHOD

Present study was conducted on 120 ASA grade I & II patient in the age group of 20-50 yrs. in the department of Anesthesiology at Amaltas Institute of Medical Sciences, Dewas, M.P. from June 2020 to May 2021 schedule to undergo elective or emergency lower limb surgeries.
Informed consent was obtained from all patients followed by their pre anaesthetic checkup where detailed history was taken, patients were physically examined and relevant routine and special investigation were carried out.

Exclusion criteria:-
Infection at the site of injection.
Patient refusal.
Coagulopathy or other bleeding diathesis.
Severe hypovolemia.
Increased intracranial pressure.
Severe stenotic valvular heart disease or ventricular outflow obstruction.

3. RESULTS

Table-1: Duration of surgery

Duration	Group I	Group II
Mean, SD	75.88±62.49	76.81±73.40
Range	50-110	50-110

(t= 0.927 (P>0.05)
The difference in duration of surgery of both group were statistically insignificant.

Table-2: Onset of sensory blockade

On set seconds	Group I		Group II	
	No	%	No.	%
61-120	02	3.33%	06	10%
121-180	36	60.0%	40	66.67%
181-240	20	33.33%	12	20%
241-300	02	3.33%	02	3.33%
Mean	183.66±71.35		174.39±31.87	
Range	100-300		90-280	
T = 1.67 P> 0.05				

Onset of sensory blockade was in the range of 121-180 seconds in majority of patients (n=36, 60%) in group I and (n=40, 66.67%) in group II. The difference in mean onset of analgesia

among both the groups was statistically insignificant (P>0.05), indicating that addition of clonidine had not shortened the onset of sensory blockade.

Table -3: Onset of motor blockade

On set seconds	Group I		Group II	
	No	%	No.	%
121-180	04	6.67	04	6.67
181-240	02	3.33	08	13.33
241-300	34	56.67	34	56.67
301-360	10	16.67	10	16.67
361-420	10	16.67	04	6.66
Mean	301±57.97		291.3±53.84	
Range	180-420		180-400	
T = 0.87 P> 0.05				

The difference in mean onset of motor blockade among both the groups was insignificant statistically (P>0.05) indicating that addition of clonidine had not shortened the onset of motor blockade.

4. DISCUSSION

In this study, the onset of motor blockade was tested. The mean onset of motor blockade recorded in this study was 302.0±57.97 in group I and 288.3±53.84 in group II. The difference was found to be statistically insignificant indicating that clonidine has no influence when added to local anaesthetics in respect to onset of sensory and motor blockade[6].

Evaluated the analgesia effect of clonidine in man .They reported that IV injection of clonidine relieves postoperative pain. Clonidine acts by activation of alpha 2 adrenergic receptors located post synaptically in the dorsal horn of the spinal cord and substantia gelatinosa leading to analgesia by supraspinal effect[7].

Maximum level of sensory blockade achieved in both the groups was between T7and T9. Height of the individual patient might have influenced the cephalad spread[8]. The level of sensory blockade in group I and group II was statistically insignificant. There was no significant difference of maximum level of analgesia between two groups[9].

In both the groups all the patients had grade III motor blockade suggesting that clonidine does not have any effect on grade motor blockade.

Mean duration of motor blockade was 167.5±23.44 minutes in group I and 244±32.55 minutes in group II. The difference between both the groups was statistically significant (P<0.01). Prolonged motor blockade in the intrathecal clonidine group compared to control group(P<0.01).

5. CONCLUSION

Intrathecal clonidine with bupivacaine 0.5% heavy produces excellent surgical analgesia and an extended analgesia in postoperative period. Clonidine treated patients were sedated and comfortable throughout the surgical procedure, thus avoidance of any other medication.

6. REFERENCES

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