

Efficacy of Bupivacaine 0.5% and Lignocaine 2% in Minor Oral Surgical Procedures (Orginal Research)

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Abstract

Objective: The objective of this study has been to compare clinical efficacy of bupivacaine with lignocaine which is most commonly used in oral surgery

Materials and methods:40 patients with age ranging from 18 to 50 years were randomly assigned to two groups .In group A lignocaine was used as local anesthetic and in group B bupivacaine was used as anesthetic.The time of onset,duration of anesthesia and pain experienced during and after the procedure was recorded

Results: The result showed time of onset was faster in 2% lignocaine whereas duration of action was more more in 0.5% bupivacaine

Conclusion: Lignocaine is still the gold standard of local anesthetic in oral surgery due to low cost,faster onset of action, however bupivacaine can be useful for prolonged surgeries.

Key words:Lignocaine,Bupivacaine ,Anesthesia

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I. Introduction

Pain is a horrifying experience which a person wants to avoid and it is pain associated with the procedure which makes a person very anxious about dental procedures¹.Dentistry has been made pleasant with the introduction of many local anesthetic drugs and painless dentistry is a rewarding experience for any operator.Lignocaine was introduced in 1948 and it is still considered the gold standard of the local anesthetics, bupivacaine was introduced in 1957².

There are various local anesthetics used for satisfying different procedures .Lignocaine is used widely because of its low cost and small time of onset after injection ,however there has been always a tendency to use a local anesthetic for extended procedures like 3rd molar surgeries which often last longer .Some authors suggest use of bupivacaine as local anesthetic because of its extended duration of action and less post operative requirement of analgesic post oeratively³.

Bupivacaine is used in various concentration as local anesthetic,because of its longer duration of action and lesser post operative requirement of analgesia, it's use is being salvaged in extended oral surgical procedures like impaction surgeries,cyst removal and other prolonged oral procedures⁴.There are not much comparative studies available as far as bupivacaine and the goal standard of local anesthesia i,e lignocaine. The study tries to compare bupicaine 0.5% and lignoncaine 2% in impaction removal surgeries

II. Materials and methods

40 patients were selected for the study who needed removal of impacted mandibular molar .Only class 1,position A and mesioagnular impacted teeth surgeries were included in study.The patients were randomly allocated to two groups.In one group lignocaine 2%with adrenaline 1:100,000 was used as local anesthetic and in Group B bupivacaine 0.5% with adrenaline was used as local anesthetic.The study was conducted at Dental implant and Faciomaxillary centre Bandipore.A proper informed consent was taken from the patients for the procedure.The patients were blind to the type of local anesthetic injected in them.A standard inferior alveolar nerve block was used for depositing the drug.

Medically compromised patients were excluded from the study.The patients were evualted for the duration of anesthesia,onset of anesthesia and need of an analgesic in the immediate post operative period. The data was entered into master sheet and SPSS software was used for the same.The data was subjected to stastical analysis and P test was calculated for the inference.

III. Results:

The results showed lignocaine had lesser duration of onset of action with mean of 1.75 minutes compared to bupivacaine with a mean of 6.03 minutes whereas bupivacaine had more duration of analgesia with a mean of 153.6 with a standard deviation of 46.2 minutes compared to lignocaine with 51.4 minutes duration of action with standard deviation of 6.4minutes which is statistically significant with p value of <0.001. There was not much difference in pain scores in two groups with 3 patients exhibiting a pain score of 1 in lignocaine group compared to bupivacaine group where 5 patients exhibited pain score of 1 (table2). About 03 patients needed additional analgesic in lignocaine group (table2)

Table 1

PATIENT GROUP	ONSET OF ANESTHESIA (minutes)	Duration of analgesia
Lignocaine	1.75(mean)	51.4 ± 6.4
Bupivacaine	6.03(mean)	153.6 ± 46.2

Table 2

Pt group	VAS SCORE	Reuirement of additional analgesic
Lignocaine	0(17 patients) 1(3patients)	03 patients
Bupivacaine	0(15 patients) 1(5 patients)	Null

IV. Discussion

The amide local anesthetics are preferred in oral surgical or other procedures due to less propensity of these drugs for allergic reactions. Lignocaine ever since its discovery is considered to be the gold standard of local anesthesia cause of its early time of onset⁵. Bupivacaine has higher pka value of 8.1 and gets bound to plasma proteins and its lipid solubility is responsible for its prolonged duration compared to lignocaine⁶. In our study lignocaine showed early duration of anesthesia from the time of injection about mean value of 1.75 minutes compared to bupivacaine which acted almost after 6.03 minutes on an average. The higher pka value, protein binding and lipid solubility makes the elimination of bupivacaine a bit longer compared to lignocaine⁷ which reflected in increased duration of anesthesia with bupivacaine (Table1), this is in almost in conformity with the studies of Costa et al⁸, Oliveria et al and others⁹. There are reports of increased numbness with bupivacaine compared to lignocaine as reported in the literature.

Our study didn't notice any significant difference in the pain scores in the two groups. We used same volumes of the anesthesia in the both the groups. The study showed a significant difference in the duration of anesthesia in the two groups with a p value of <0.001

V. Conclusion

Lignocaine is the gold standard of local anesthesia however in case of prolonged oral surgical procedures bupivacaine provides a prolonged period of surgery with greater period of analgesia

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