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SOI: [1.1/TAS](#) DOI: [10.15863/TAS](#)

## International Scientific Journal Theoretical & Applied Science

p-ISSN: 2308-4944 (print) e-ISSN: 2409-0085 (online)

Year: 2018 Issue: 11 Volume: 67

Published: 30.11.2018 <http://T-Science.org>

QR – Issue



QR – Article



### SECTION 20. Medicine.

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## ANALGESIC EFFECT OF LIGNOCAIN MIXED WITH ADRENALIN; COMMERCIALY PREPARED VS FRESHLY PREPARED

**Abstract:** Objective: To compare effect of analgesia of freshly prepared lignocain before operation as compared to commercially available.

**Design and Duration:** It is a cross sectional study. This study was started in January 2018 and completed in august 2018 comprising on total duration of 8 months.

**Setting:** Study was conducted in a tertiary care hospital.

**Patients and methods:** There were 60 cases included in this study. Two groups were formed each consisted on 30 cases. One group was given freshly prepared lignocaine just before the operation and in second group commercially available lignocaine mixed with adrenalin was used. Effect of analgesia in both groups was compared. A performa was designed containing all relevant necessary questions. Data of patients was documented in performas properly. Consent was taken from all patients and also from ethical committee of the study institution for conducting study. Data was analyzed using SPSS software version 2017. Results were expressed in the form of graphs and tables.

**Results:** In this study both male and female cases were included. There were 60% male cases and 40% female. Age range of these cases was 25-55 years with mean age of  $40 \pm 15$  years. Mostly cases were below 40 years. Duration of procedure in each case was less than one hour. In which group freshly prepared lignocaine and adrenalin mixture was used 27(90%) cases showed good analgesic effect and 3(10%) cases showed poor quality analgesia. In other group where commercially prepared analgesia was used 20(66.7%) cases showed good analgesic effect and 10(33.3%) cases poor effect of analgesia.

**Conclusion:** Freshly prepared lignocaine and adrenalin mixture showed good analgesic effect than commercially prepared lignocaine.

**Key words:** Lignocaine, local analgesia, Adrenalin, good quality analgesia.

**Language:** English

**Citation:** Asifa, Khan, A., & Amin, J. (2018). Analgesic effect of lignocain mixed with adrenalin; commercially prepared vs freshly prepared. *ISJ Theoretical & Applied Science*, 11 (67), 301-303.

**Soi:** <http://s-o-i.org/1.1/TAS-11-67-48> **Doi:**  <https://dx.doi.org/10.15863/TAS.2018.11.67.48>

### Introduction

Local analgesia is widely used in many surgical procedures having short duration.<sup>1</sup> In general surgery many operations are done under local anesthesia and almost all dental procedures are done in local

analgesia. Benefits of local analgesia include less pain, early recovery from anesthesia, no need of prolong NPO before and after operation, less respiratory or cardiovascular risks and no need of extra investigations. Such patients have reduced

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morbidity and mortality due to anesthesia. There is shorter hospital stay and can be discharges on the same day.<sup>2</sup> There are many local anesthetics such as lidocaine, bupivacaine etc but lignocaine is most commonly used due to its less side effects. In modern worlds general anesthesia is not liked. Adrenalin enhances effect of lignocaine when mixed with it and prolongs its duration of action.<sup>3</sup> Benefits of local analgesia include less pain, early recovery from anesthesia, no need of prolong NPO before and after operation, less respiratory or cardiovascular risks and no need of extra investigations. Such patients have reduced morbidity and mortality due to anesthesia.<sup>4</sup> There is shorter hospital stay and can be discharges on the same day. There are many local anesthetics such as lidocaine, bupivacaine etc but lignocaine is most commonly used due to its less side effects. Commercially prepared mixture of lignocaine and adrenalin has poor analgesic effect due to low Ph of mixture as adrenalin is stable at low Ph.<sup>5</sup> While freshly prepared mixture has good analgesic effect due to its higher PH. In European countries local anesthesia is most commonly used. In dental procedures like tooth extraction local analgesia is best choice.

### Patients and methods

This is a cross sectional study conducted in a tertiary care hospital. Duation of study was eight months and was carried out in a period of January o August. There were 60 cases included in this study. Two groups were formed each consisted on 30 cases. One group was given freshly prepared lignocaine just before the operation and in second group

commercially available lignocaine mixed with adrenalin was used. Effect of analgesia in both groups was compared. All cases in this study underwent surgical procedures shorter than one hour duration. Both groups were consisted on equal number of 30 cases belonging to both male and female genders. A performa was designed containing all relevant necessary questions. Data of patients was documented in performas properly. Consent was taken from all patients and also from ethical committee of the study institution for conducting study. Data was analyzed using SPSS software version 2017. Results were expressed in the form of graphs and tables. Frequencies and percentage were calculated from obtained data. Commercially prepared mixture was containing 2% lignocaine 1.8 ml diluted with 10,000 units. Commercial prepared mixture has ph 4-5 while freshly prepared mixture has ph 6.7.

### Results

In this study both male and female cases were included. There were 60% male cases and 40% female. Age range of these cases was 25-55 years with mean age of 40±15 years. Mostly cases were below 40 years. Duration of procedure in each case was less than one hour. In which group freshly prepared lignocaine and adrenaline mixture was used 27(90%) cases showed good analgesic effect and 3(10%) cases showed poor quality analgesia. In other group where commercially prepared analgesia was used 20(66.7%) cases showed good analgesic effect and 10(33.3%) cases poor effect of analgesia.

Table 1.

Age of patients (years)	Number of patients (n)	%
25-35	15	25
36-45	22	36.7
46-55	23	38.3
<b>Total</b>	<b>60</b>	<b>100</b>

Table 2.

Type of lignocain	Patients with good analgesic effect		Patients with poor analgesic effect	
	N	%	N	%
Freshly prepared mixture of lignocain with adrenalin	27	90	3	10
Commercially available mixture of lignocaine with adrenalin	20	66.7	10	33.3
<b>Total</b>	<b>47</b>	<b>78.3</b>	<b>13</b>	<b>21.7</b>

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### Discussion

Effect of local anesthesia is determined by few factors such as pH of solution and degree of ionization in local anesthesia. Lower pH reduces its effect and less analgesia.<sup>6-8</sup> Local analgesia is widely used in many surgical procedures having short duration. In general surgery many operations are done under local anesthesia and almost all dental procedures are done in local analgesia. Benefits of local analgesia include less pain, early recovery from anesthesia, no need of prolong NPO before and after operation, less respiratory or cardiovascular risks and no need of extra investigations. Such patients have reduced morbidity and mortality due to anesthesia.<sup>9,10</sup> There is shorter hospital stay and can be discharged on the same day. This is a cross sectional study conducted in a tertiary care hospital. Duration of study was eight months and was carried out in a period of January to August. There were 60 cases included in this study. Two groups were formed each consisted of 30 cases. One group was given freshly prepared lignocaine just before the operation and in

second group commercially available lignocaine mixed with adrenalin was used. Effect of analgesia in both groups was compared.<sup>11</sup> All cases in this study underwent surgical procedures shorter than one hour duration. Both groups were consisted of equal number of 30 cases belonging to both male and female genders. There are many local anesthetics such as lidocaine, bupivacaine etc but lignocaine is most commonly used due to its less side effects.<sup>12</sup> In modern world general anesthesia is not liked. Adrenalin enhances effect of lignocaine when mixed with it and prolongs its duration of action. Benefits of local analgesia include less pain, early recovery from anesthesia, no need of prolong NPO before and after operation, less respiratory or cardiovascular risks and no need of extra investigations.<sup>13</sup> Such patients have reduced morbidity and mortality due to anesthesia. There is shorter hospital stay and can be discharged on the same day.<sup>14-15</sup> There are many local anesthetics such as lidocaine, bupivacaine etc but lignocaine is most commonly used due to its less side effects.

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