

How to Cite:

Puri, A., Rathaur, D. P., Nigam, R., & Kulshreshtha, S. (2022). To study the comparison of tramadol with lignocaine as a anaesthetic for minor surgical procedures. *International Journal of Health Sciences*, 6(S1), 5211–5220. <https://doi.org/10.53730/ijhs.v6nS1.6045>

To study the comparison of tramadol with lignocaine as a anaesthetic for minor surgical procedures

Dr Ashish Puri

MD Anesthesia, Assistant Professor, Autonomous State Medical College, Fatehpur. Ashishpuri.

Dr Devendra Pratap Rathaur

MD Anesthesia, Assistant professor, ASMC, Fatehpur

Dr Rashi Nigam

Associate professor, Department of Anatomy Ganesh Shankar Vidyarthi Memorial Medical College, Kanpur

Dr Saurabh Kulshreshtha

Professor Rama medical college hospital & research centre, Kanpur, U.P

Abstract---Introduction: for the first time, to induce local anesthesia on the corneal surface cocaine's were ability to induce psychological dependence and its stimulating characteristics when placed on the surface or on the periphery of nerves led to a survey to find a more suitable local anesthetic. Aim: The Main Aim Of The Study Is To Study The Comparison Of Tramadol With Lignocaine As A Anaesthetic For Minor Surgical Procedures. Material and methods: the study was open labeled, prospective study conducted 100 patient undergoing minor surgery. Patients under inclusion criteria were selected in the study and divided into two groups Group – 1: 1 ml of lignocaine 2% there were 50 patients and Group – 2: 1 ml of Tramadol 5% there were 50 patients. Written inform consent form was taken from the patients. Age, gender, burning pain and cold sensation was noted immediately after injection of drug and 2min after injection of the drugs. The patients pain sensation was noted as 0 = without any pain, 1 = with minor pain, 2 = moderate pain and 3 with severe pain was noted. Results: the present study was carried on 100 patients undergoing minor surgery. In the present study majority of the patients were male in both groups were in the age group of 41- 50 years. Comparing both groups burning sensation at the site of injection was higher in group 1 and pain sensation at the site of injection was higher in group -2. After pin prick in group 1 and 2 total sensation at the site of prick was

0 (no pain) 48 (48%), 1 (mild pain) 29 (29%), 2 (moderate pain) 21 (21%) 3 (severe pain) 06 (6%). group – 1 & 2 sensation immediately after injection of drugs sensation was present in both groups but after 2 min cold sensation was not present in all patients in group 2 but group – 1 cold sensation was present in all 48 patients. Conclusion: tramadol can be used as an LA alternative drug to lidocaine and it is also having ability to reduce pain after surgery tramadol can be a good choice in minor surgeries.

Keywords---Tramadol, Lignocaine, Anaesthetic, Minor Surgery.

Introduction

There are different classes of local anaesthetic drug used in minor surgery, shows its action by blocking voltage gated Na⁺ channels. Were as opioid analgesic like meperidine, fentanyl, sufentanyl, and tramadol also has local anaesthetic action. In some of the studies demonstrated that tramadol have LA action similar to that of lignocaine.^(1 - 3) . Tramadol a non-narcotic centrally acting analgesic drug used in the year 1977 ^[4]. The mechanism of action is to increase serotonergic neural conduction thereby its analgesic effects can be achieved by showing action as serotonin receptor antagonist. Tramadol shows its analgesic effect on spinal and supra spinal pathway and it can also be used as a chronic nerve pain.

Tramadol, as a non-narcotic central analgesic entered the market in 1977. Its main acting mechanism is the increase in serotonergic neural conduction; therefore, its analgesic effects can be averted by simultaneous administration of a serotonin-receptor antagonist. Also, tramadol inhibits the action of epinephrine carrier and is a weak agonist for μ receptor; its structure is a methyl-morphine resembling that of codeine and it will only be partially antagonized by naloxone. The analgesic effects of tramadol are mostly independent of its effects on μ receptor; for example, tramadol applies its analgesic effects via spinal and supra-spinal pathways⁴ and can be useful in subsiding atypical pains such as chronic nervous pains¹. But several studies have recently shown that tramadol also has peripheral local anesthetic effects,⁵⁻⁷. For example, its anesthetic characteristics have been demonstrated by directly administering tramadol onto the sciatic nerve of a rabbit. In similar studies, tramadol had effects similar to those of prilocaine after intra-dermal injections,⁸.

Aim

The main aim of the study is to compare tramadol with prilocaine as an anaesthetic for minor surgical procedures.

Material and Methods

The present study was a randomized controlled trail conducted on 100 patients undergone minor surgery. Patient's under inclusion criteria and ready to give inform consent form they were divided into two drugs

Group – 1: 1 ml of lignocaine 2% there were 50 patients

Group – 2: 1 ml of Tramadol 5% there were 50 patients.

Data collection

Written inform consent form was taken from the patients. Age, gender, burning pain and cold sensation was noted immediately after injection of drug and 2min after injection of the drugs. The patients pain sensation was noted as 0 = without any pain, 1 = with minor pain, 2 = moderate pain and 3 with severe pain was noted.

Inclusion criteria:

1. Patients of both sex
2. Patient ready to give written informed consent.

Exclusion criteria:

1. Patients with minor surgery
2. Patients not ready to give written informed consent.
3. Patients who are not able to answer the question.

Statistical analysis

The data were collected, entered and a master table was prepared using MS Excel software. The data were analyzed using appropriate statistical tools like percentage and average no was noted and results as follows.

Ethical clearance: The ethical clearance was taken from institutional ethical committee.

Results

Table 1
Tabular column represents the age of tramadol & lignocaine groups

S.No	Genders	Group -1	Group – 2	Total No of Gender
1	Males	38 (76 %)	32 (64%)	70 (70.00 %)
2	Females	12 (24%)	18 (36%)	30 (30.00 %)
Total No of patients		50	50	100 (100%)

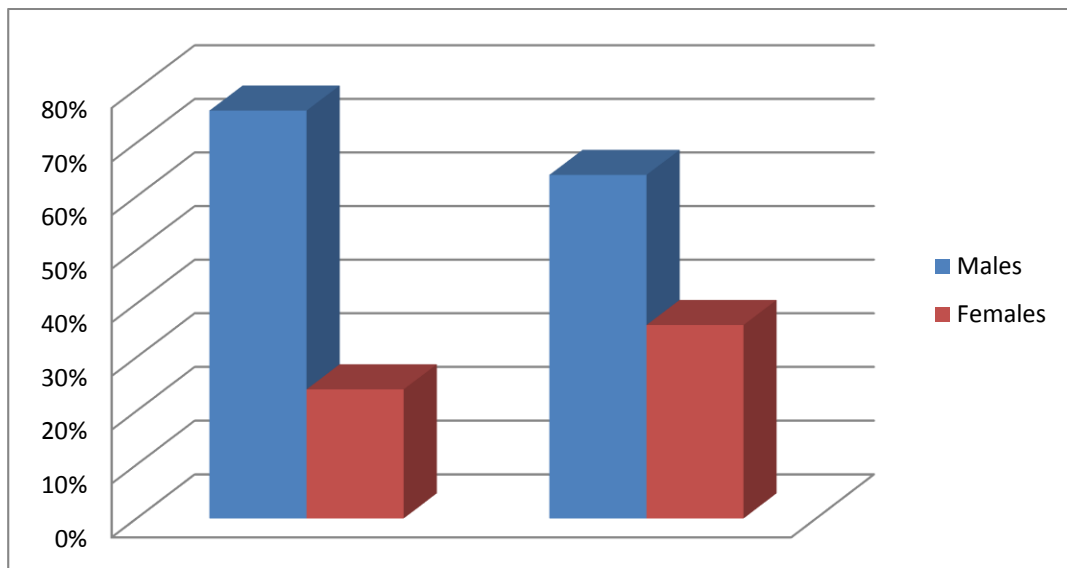


Figure 1. Graphical representation of age of tramadol & lignocaine groups

Table 2

Tabular column representation of age group in tramadol & lignocaine groups

S.No	Age group range	No. of patients in different in groups	% No .of patients in different in groups
1	30 – 40	16	16.00%
2	41- 50	62	62.00 %
3	51 - 60	22	22.00 %
Total No of Patients		100	100 %

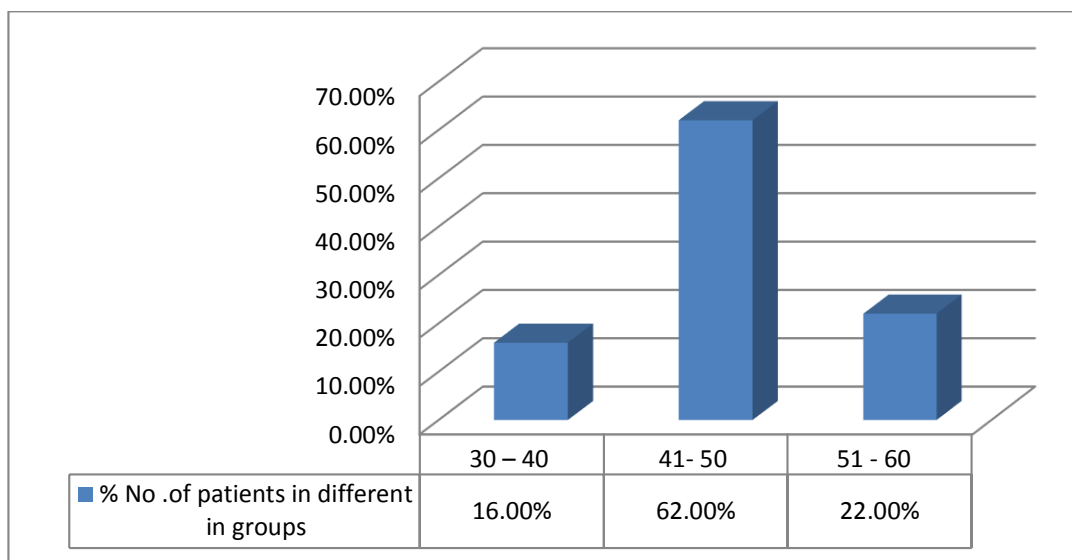


Figure 2. Graphical representation of age group in tramadol & prilocaine groups

Table 3

Tabular column representation of the burning sensation & pain at the site of injection in group 1 and group 2

S.No	Sensation after inj of drugs	Group 1 (50)			Total no of patients	Group 2 (50)			Total no of patients
	Time after injection	0 min	1min	2min		0 min	1 min	2 min	
1	Burning sensation at the site of injection	8	12	4	24 (66.6%)	10	4	0	14 (33.3%)
2	Pain sensation at the site of injection	12	4	0	16 (44.4%)	10	14	4	28 (66.6%)
Total no of patients		20 (50%)	16 (40%)	4 (10%)	40 (80%)	20 (50%)	18 (42.8%)	4 (10%)	42 (84%)

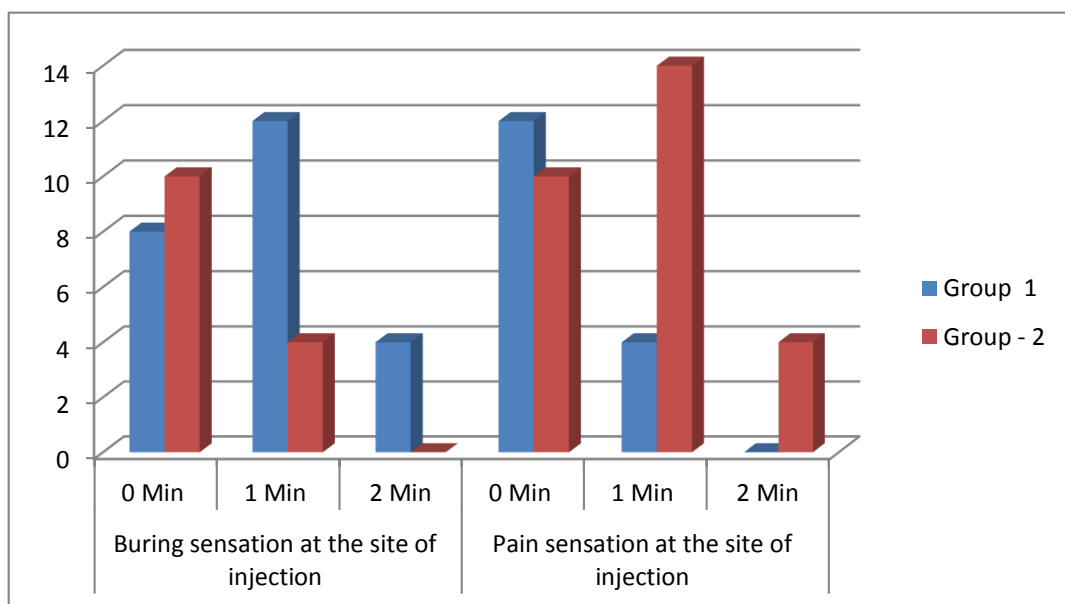


Figure 3. Graphical representations of burning sensation & pain at the site of injection in group 1 and group 2

Table 4

Tabular column representation of pinprick immediately after injection of tramadol and lignocaine

S.No	Drugs	0 (no pain)	1 (mild pain)	2 (Moderate pain)	3 (Severe pain)
1	Tramadol (50)	26 (52%)	13 (26%)	09 (18%)	02 (4%)
2	Lignocaine (50)	22 (44%)	16 (32%)	12 (24%)	04 (8%)
Total		48 (48%)	29 (29%)	21 (21%)	06 (6%)

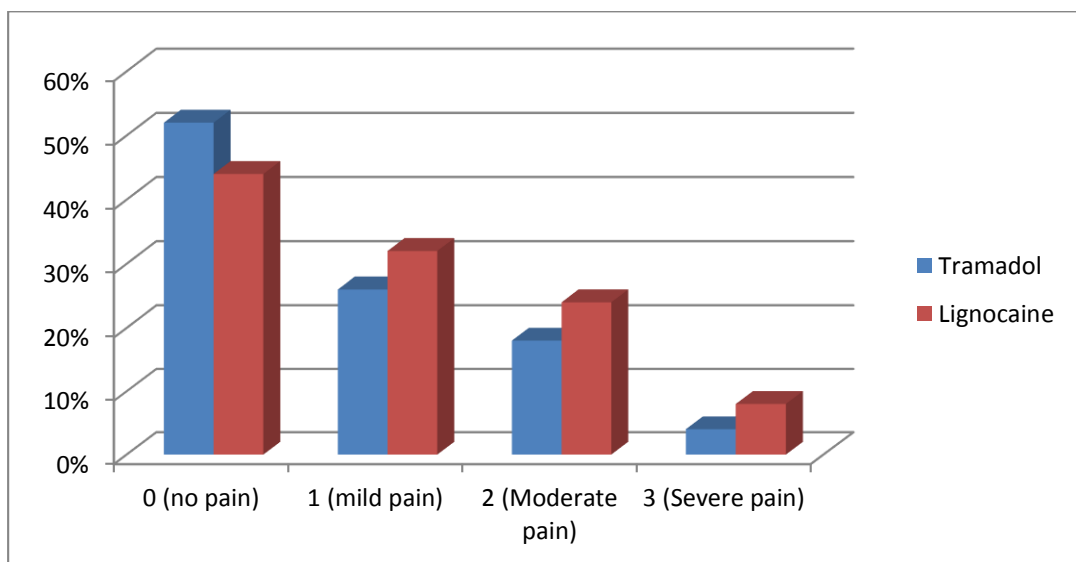


Figure 4. Graphical representation of pinprick immediately after injection of tramadol and lignocaine

Table 5

Tabular column representation of pinprick 2 min after injection of tramadol and lignocaine

S.No	Drugs	0 (no pain)	1 (mild pain)	2 (Moderate pain)	3 (Severe pain)
1	Tramadol (50)	35 (70 %)	10 (20%)	5 (10%)	0
2	Lignocaine (50)	28 (56%)	12 (24%)	8 (16%)	2(4%)
Total		63 (63%)	22 (22%)	13 (13%)	2 (2%)

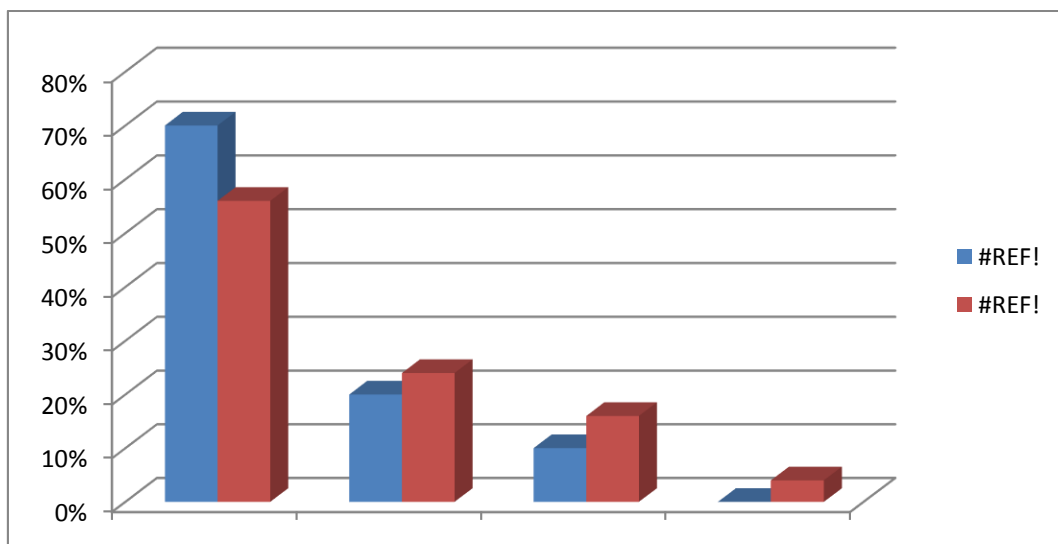


Figure 5. Graphical representation of pinprick 2 min after injection of tramadol and lignocaine

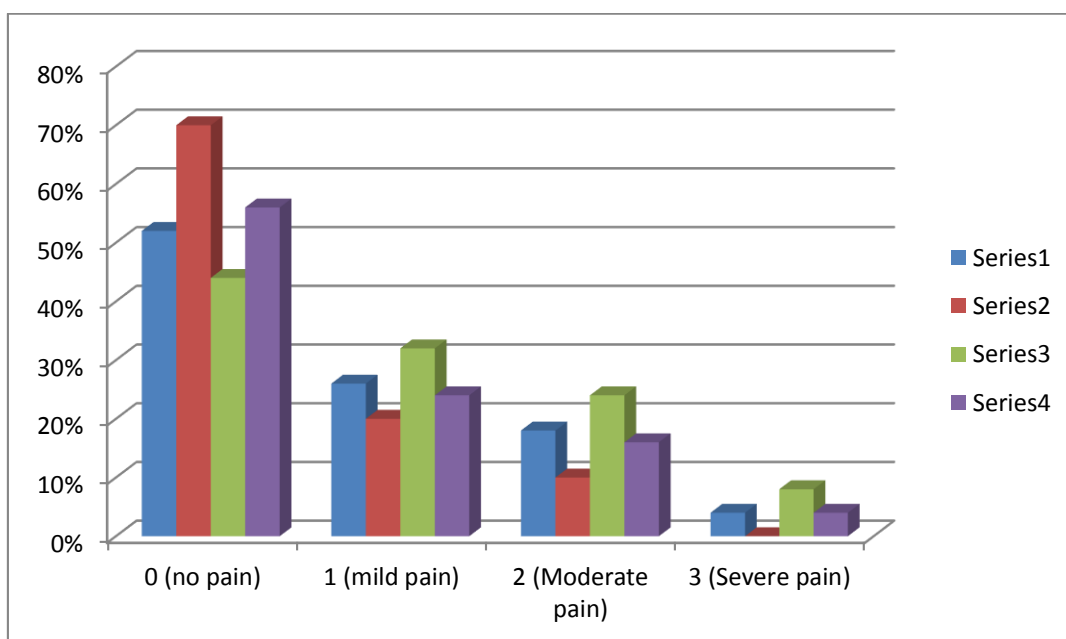


Figure 6. Graphical representation of pinprick immediately after injection of drugs & after 2 min after injection of tramadol and lignocaine

Table 6
Tabular column representation of Cold after injection of tramadol and lignocaine

Group – 1 (50)				Group – 2 (50)			
Cold sensation immediately after injection of drugs		Cold sensation 2 min after injection of drugs		Cold sensation immediately after injection of drugs		Cold sensation 2 min after injection of drugs	
Sensation present	Sensation absent	Sensation present	Sensation absent	Sensation present	Sensation absent	Sensation present	Sensation absent
46	4	48	2	46	4	0	50

Discussion

The present was carried out on 100 minor surgery patients 50 patients injected with lignocaine and 50 patients injected with tramadol as anesthetics. In group – 1 (Tramadol injected) there were 76% males and 24% females were as in group – 2 (lignocaine injected) 64% were male and 36% female. As per the age group majority of the patients were in the age group of 41-50 (62 %). In both groups after injecting drugs patient's sensations were monitored at 0, 1 & 2 min. In group – 1 after injecting with tramadol burning sensations were noted, 12 patients having burning sensation 1 minute after injection of drugs were as total of 24 (66.6%) patients having burning sensation. In group 2 total of 14 (33.3%) patients having burning sensation. After monitoring pain sensation at the site of injection in group 1 16 (44.4%) and in group 2 28 (66.6%). After comparing both groups burning sensation at the site of injection was higher in group 1 and pain sensation at the site of injection was higher in group -2. Pain sensation was monitored immediately after injection with lignocaine and tramadol by pinprick, in group 1 0 (no pain) 26 (52%), 1 (mild pain) 13 (26%), 2 (moderate pain) 09 (18%) 3 (severe pain) 02 (4%) and in group 2 0 (no pain) 22 (44%), 1 (mild pain) 16 (32%), 2 (moderate pain) 12 (24%) & 3 (Severe pain) 04 (8%). After comparing group 1 and 2 total sensation at the site of prick was 0 (no pain) 48 (48%), 1 (mild pain) 29 (29%), 2 (moderate pain) 21 (21%) 3 (severe pain) 06 (6%). In group 1 & 2 patient's cold sensation was monitored immediately and after 2 min after injection of drugs as monitored, in group – 1 46 sensation was present and 4 were sensation was absent but after 2 min after injection of drugs 48 sensation were present and 2 were absent but in group 2 sensation present in 48 and absent in 4 patients after 2 min no sensation was present absent in all 50 patients. After comparing group – 1 & 2 sensation immediately after injection of drugs sensation was present in both groups but after 2 min cold sensation was not present in all patients in group 2 but group – 1 cold sensation was present in all 48 patients. Our study coincides with the study of S. Vahabi et al (2011) ⁹ he concluded in his study that tramadol after the operation and concluded that tramadol can be a good choice in minor surgeries.

Conclusion

Tramadol is has local anesthetic and post-operative analgesic activity similar to lignocaine can be used in minor surgeries. Finally we concluded that tramadol

can be used as an LA alternative drug to lidocaine and it is also having ability to reduce pain after surgery.

References

1. Vahabi S., Heidari M., Ahmedinejad M., Akhlaghi J., Birjandi M. Comparison of local anesthetic effects of tramadol and lidocaine used subcutaneously in minor surgeries with local anesthesia. *Middle East J Anesthesiol.* 2011;21(1):9-14.
2. Kargi E., Isikdemir A., Tokgoz H. Comparison of local anesthetic effects of tramadol with prilocaine during circumcision procedure. *Urology.* 2010;75(3):672-675.
3. Kargi E., Babuccu O., Altunkaya H. Tramadol as a local anaesthetic in tendon repair surgery of the hand. *J Int Med Res.* 2008; 36(5):971-978.
4. Langois G, Estebe JP, Gentili ME, et al: The addition of tramadol to lidocaine does not reduce tourniquet and postoperative pain during IV regional anesthesia. *Can J Anaesthesia*; 2002, 49:165-8.
5. Acalovschi I, Cristea T, Margarits S, Gavrus R: Tramadol added to lidocaine for intravenous regional anesthesia. *Anesth Analg*; 2001, 92:209-14.
6. Pang WW, Huang PY, Chang DP, Huang MH: The peripheral analgesic effect of tramadol in reducing propofol injection pain: a comparison with lidocaine. *Reg Anesth Pain Med*; 1999, 24:246-9.
7. Altunkaya H, Ozer Y, Karhi E, Babuceu O: Comparison of local anaesthetic effects of Tramadol with prilocaine for minor surgical procedures. *Br J Anaesth*; 2003, 90:320-2.
8. Altunkaya H: The postoperative Analgesic effect of tramkadd when used as subcutaneous local anesthetic. *Anesth Analg*; 2004, 99:1461-4.
9. M.E.J. *Anesth* comparison of local anesthetic effects of tramadol and lidocaine used subcutaneously in minor surgeries with local anesthesia.