

# Comparison of Transverses Abdominis Plane (Tap) Block with Ilioinguinal and Iliohypogastric Nerve Block As A Part of Multimodal Analgesia During Inguinal Hernia Repair

TAHIR MAHMOOD CHAUDHRY, LEENA AZIZ , UMAR FAROOQ, MUHAMMAD ARSHAD, WAQAR AZEEM, ALI REHMAN, WASEEM YOUNIS

*Department of Anesthesia FJMU/SGRH Lahore*

*Correspondence to: Dr. Tahir Mahmood Chaudhary, Assistant Professor, Email: tahirch59@hotmail.com, tahirchfjmc2011@gmail.com*

## ABSTRACT

The objective of the study is to compare the efficacy of two nerve blocks during general anaesthesia in patients undergoing elective inguinal hernia repair.

**Methods:** In this experimental study 120 patient of ASA P1 and P2 status aged 18-60 years of both sex, undergoing elective inguinal hernia repair were selected and divided in two groups of 60 each. The nerve blocks were given after general anaesthesia. Surgery was started after the block and changes in heart rate and blood pressure were noted. At recovery the pain was assessed by VAS scale.

**Conclusion:** Both blocks were found effective in relieving the pain in inguinal hernia repair and no statistically significant difference was noted.

**Keywords :** Analgesia , TAP block, Inguinal hernia, Pain, Inguinal block,

## INTRODUCTION

Inguinal hernia repair is one of the most commonly performed surgery in the world accounting for 75% of all abdominal wall hernias and with a life time risk of 27% in men and 3% in women. Both general and spinal anaesthesia are used for inguinal hernia repair. As a part of multimodal anaesthesia nerve blocks have been used in patients undergoing general anaesthesia. The study was designed to compare ilioinguinal and iliohypogastric nerve block with TAP block.

## MATERIAL AND METHODS

The study was randomized controlled. The patients were divided in two groups of 60 each, ASA P1 and P2 Status with age between 18 and 60 of both sex.

Each patient was premeditated with 2 mg I/v midazolam. Baseline heart rate and Blood pressure were noted. General anaesthesia was induced with propofol (2mg per kg) and LMA was inserted. GA was maintained with 1% sevoflurane in 50%  $n_2O$  in oxygen. TAP block was given to group A Patients, total 20ml was given. Bupivacaine 0.5% and plain xylocaine 2% were used. In group B patients ilioinguinal and iliohypogastric nerve were blocked by Bupivacaine 0.5% and plain xylocaine 2%. Total 15ml of LA was given at three different places to block the two nerves.

The intraoperative pain was assessed by change in heart rate and blood pressure 20% rise in base line was noted significant and need to augment analgesia. It was augmented by 0.2 mg/per kg Nalbuphine. Analgesia was assessed at post incision period of 10, 20 and 30 minutes by changes in heart rate and blood pressure and at recovery by VAS scale.

## DATA ANALYSIS PROCEDURE

The collected information were entered and analyzed using SPSS version 12.0. The age of patient, total analgesia dose in both groups, BMI and duration of surgery was presented by calculating mean and standard deviation. Groups were compared using student t test post stratification student t test was applied p value  $\leq 0.05$  was considered significant.

## RESULTS

The mean age of patients was  $42.51 \pm 10.91$  years with minimum and maximum values of 26 and 60 respectively. The mean value of BMI of patients was  $23.49 \pm 3.304 \text{ kg/m}^2$  with minimum and maximum value of 18.5 and 30 kg per  $\text{m}^2$ . The mean duration of surgery of the patient was  $42.23 \pm 46.2$  minutes with minimum and maximum value of 35 and 50 minutes.

## ORIGINAL ARTICLE

Comparison of heart rate at different time intervals in the study groups

Study groups	(n)	Mean	Std.Deviation	Student t test
At induction				
Group A	60	75.80	8.711	t value 1.046 p value 0.30
Group B	60	74.20	6.414	
At incision				
Group A	60	70.46	8.242	t value 0.971 p value 0.35
Group B	60	68.90	7.840	
10 minutes				
Group A	60	78.18	8.230	t value 1.330 p value 0.21
Group B	60	76.16	7.984	
20 minutes				
Group A	60	80.84	8.424	t value 1.220 p value 0.23
Group B	60	81.68	6.042	
30 minutes				
Group A	60	80.73	8.571	t value 1.110 p value 0.21
Group B	60	78.58	8.321	
At recovery				
Group A	60	90.12	10.317	t value 1.480 p value 0.26
Group B	60	88.32	6.070	

Comparison of mean blood pressure at different time intervals in the study groups

Study groups	(n)	Mean	Std.Deviation	Student t test
At induction				
Group A	60	83.41	8.861	t value 1.118 p value 0.21
Group B	60	81.70	6.021	
At incision				
Group A	60	81.68	7.891	t value 1.012 p value 0.19
Group B	60	79.90	7.697	
10 minutes				
Group A	60	85.68	6.321	t value 1.010 p value 0.21
Group B	60	84.91	5.931	
20 minutes				
Group A	60	88.61	9.643	t value 1.413 p value 0.37
Group B	60	87.82	7.694	
30 minutes				
Group A	60	89.38	9.031	t value 1.162 p value 0.13
Group B	60	85.46	8.832	
At recovery				
Group A	60	90.37	8.632	t value 1.046 p value 0.24
Group B	60	89.41	7.343	

## DISCUSSION

This randomized control trial was carried out in general operation theatre Sir Ganga Ram Hospital Lahore to compare TAP block with ilioinguinal and iliohypogastric nerve block as part of multimodal anaesthesia during inguinal hernia repair.

Spinal anaesthesia is also commonly used for this surgery but some patients may not like it and post dural puncture headache is also a troublesome complication. The nerve block are

now increasingly used to augment anaesthesia and reduce the anaesthetic dose of general anaesthetics. Ilioinguinal and iliohypogastric nerve blocks are traditionally used for inguinal hernia repair but the newly introduced TAP block is also used for the abdominal surgeries when the TAP block is done under ultrasound guidance is more effective. Both blocks were effective in pain relief but no appreciable difference was found as the p value was > 0.05.

## CONCLUSION

ilioinguinal and iliohypogastric nerve blocks compared with TAP block are as effective as a part of multimodal anaesthesia during inguinal hernia repair and no significant difference was noted between the two blocks.

## REFERENCES

1. AwadSS, Fagan SP. Current approaches to inguinal hernia repair. *Am J Surg.* Dec 2004;188(6Asuppl):9S-16S.
2. Song D, Gerilich NB, PF, et al. Recovery profiles and costs of anesthesia for outpatient unilateral inguinal herniorrhaphy. *Analg* 2000;91:876-81
3. McDonnell JG, Donnell BO, Curley G, Heffernan A, Power C, Laffey JG. The Analgesic Efficacy of TransversusAbdominis Plane Block After Abdominal Surgery: A Prospective Randomized Controlled Trial. *AnesthAnalg* 2007; 104:197-7
4. Webster K. The transverses Abdominis Plan (TAP) Block:Abdominal plane regional anaesthesia. *Update in Anaesthesia* 24-9
5. Ferdrickson MJ, Paine C, Hamill J. Improved analgesia eith the ilioinguinal block compared to the transverses abdominis plane block after pediatric inguinal surgery : a prospective randomized trial. *PaediatrAnaesth.* 210 Nov;20(11):1022-7
6. Aveline C, Le Hetet H, Le Roux A, Vautier P , Cognet F, Vinet E, Tison C, Bonnet F, Comparison between ultrasound-guided transverses abdominisplae and conventional Ilioinguinal / iliohypogastric nerve blocks for day –case open inguinal hernia repair. *BJA* 106(3):380-6(2011)
7. Krejcie RV, Morgan DW, Determining sample size for research activities. *Educational and psychological measurements.* 1970,30, 607-10
8. Rafi A. Abdominal field block : a new approach via the lumbar triangle. *Anaesthesia* 2001;56(10):1024-6.
9. Petersen PL, Mathiesen O, Stjernholm P, Kristiansen VB, Torup H, Hansen GG, et al. The effect of transverses abdominals plane block or local anesthetic infiltration in inguinal hernia repair: a randomized clinical trial. *European Journal of Anesthesiology (EJA)* 2013;30(7):415-21
10. Awad SS, Fagan SP. Current approaches to inguinal hernia repair. *The American journal of surgery* 2004;188(6):9-16