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ORIGINAL ARTICLE

Ultrasound Guided Posterior Transversus Abdominis Plane Block Versus Ilio-Inguinal / Ilio-Hypogastric Nerves Block as a Postoperative Analgesia After Inguinal Hernia Repair.

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ABSTRACT

Background: The transversus abdominis plane (TAP) block proved to be effective in the pain management after inguinal hernia repair .It showed less pain at rest and on movement and a less analgesic requirement**.** Ilio-inguinal and ilio-hypogastric (II-IH) nerves block showed numerous advantages as a postoperative analgesia. It's considered as an approach of TAP block.

Objectives: To compare between ultrasound guided posterior approach of transversus abdominis plane and ilio-inguinal and ilio-hypogastric nerves block as a postoperative analgesia after inguinal hernia repair in adults.

Methods: patients with elective unilateral uncomplicated inguinal hernia were randomly allocated into 3equal groups (19 patients in each group) according to type of TAP block interference. Group 1: patients had TAP block through posterior approach .Group 2: patients had II-IH nerves block. Group 3: patients had general anesthesia only. All block technique would be done before general anesthesia. GA was standard for all patients.

Results: The control group show statistically significant higher level of VAS compared to the TAP (posterior and II/IH) block groups at PACU, 2h, 4h, 8h, 12h, 18h and 24 hours after operation (p value <0.001) . As regard the posterior and II-IH groups, there was no statistically significant difference between them at PACU and at 2 hours then II-IH group show statistically significant higher level of VAS compared to posterior group at the remaining times post-operatively. Posterior group showed rapid onset block but take more time as regard technique time with statistical significant difference than II-IH group . Time of first request of analgesia was statistically significantly longer in posterior group when compared to the II-IH and control groups. Also it was statistically significant longer in II-IH group compared to control group**.** The total dose of nalbuphine consumption during first 24 hour postoperatively show less statistically significant consumption in posterior TAP block group when compared with ilio-inguinal and control groups**.** Also it was statistically significant less in II-IH groups compared to control group**.**

Conclusion: Posterior transversus abdominis plane block is more effective than ilio-inginal /ilio-hypogastric nerves block in inguinal hernia repair as regard rapid onset of block, prolonged time of analgesia and lower requirement of opioid consumption in the first 24 hour postoperatively but with longer technique time.

Keywords: Transversus abdominis plane block, II-IH nerve, Inguinal hernia, Postoperative analgesia.

INTRODUCTION

Innervation of the anterolateral abdominal wall arises from the anterior rami of spinal nerves T7 to L1.These include the intercostal nerves (T7-T11), the subcostal nerve (T12), and the iliohypogastric and ilioinguinal nerves (L1). There has been renewed interest in abdominal field blocks and the quest for a single injection providing widespread

analgesia has led to the rapid popularity of the transversus abdominis plane (TAP) block **[1].** It is clear that location of injection into the TAP alters the spread and effect of TAP blocks, so classified into Upper subcostal TAP (deep to the rectus, mainly covering T7 and T8), Lower subcostal TAP (lateral to rectus. mainly covering T-11), Lateral TAP (midway between costal margin and iliac crest in the mid-axillary line, mainly covering T11 and T12) and Posterior TAP (injections in the TAP in the area of the triangle of Petit, covering T11 and T12) which unfortunately, was incorrectly illustrated in the lateral rather than posterior abdominal wall ,also Ilio-inguinal (II) and iliohypogastric (IH) TAP (near the iliac crest lateral to the anterior superior iliac spine, mainly covering T12 and L1) **[2].** Inguinal hernia repair is one of the most commonly performed operations world-wide. However, there is no common consensus among surgeons regarding the best choice of Analgesia. TAP block is more effective than conventional local anesthesia in the pain management after hernia repair because patients who underwent combined TAP block and local anesthesia expressed significantly less pain at rest and on movement and a less analgesic requirement **[3].**

AIM OF THE WORK

The aim of this study is to compare two approaches of ultrasound guided TAP block (posterior versus II-IH blocks) as a postoperative analgesia after unilateral uncomplicated inguinal hernia repair operations in adult enhanced by use of ultrasound imaging.

PATIENTS AND METHODS

Sample size: As pain intensity was estimated as 3± 2.4 in TAP group Vs 5.2± 2.4 in control group **[4].**So at power 80% and95% CI, the estimated sample would be 57 patients. They were included in the period from January 2016 to August 2018. Patients underwent elective inguinal hernia repair in general surgery department in zagazig university hospitals after obtaining institutional review board (IRB) approval (2472/23-2015).Written informed consent was obtained from all participants, the study was approved by the research ethical committee of Faculty of Medicine, Zagazig University. The study was done according to The Code of Ethics of the World Medical Association (Declaration of Helsinki) for studies involving humans.

They were randomly allocated using computer generated randomization table into three equal groups (19 patients in each group):

Group 1: (n=19) underwent ultrasound guided (US) posterior approach of TAP block then general anesthesia (GA)

Group 2: (n=19) underwent ultrasound guided US ilio inguinal and ilio-hypogatric nerve block then GA.

Group 3: (n=19) patients underwent (GA) without TAP block.

Type of the study:

Comparative prospective randomized controlled clinical trial.

Inclusion criteria:

Patient accepted with age 21 - 60 years ,ASA grade I-II , Scheduled to undergo open unilateral inguinal hernia repair in both sexes, Under general anesthesia with Body mass index (BMI) <35 kg/m².

Exclusion criteria:

Complicated hernias (obstructed, strangulated, irreducible …), Contraindication of regional anesthesia e.g. septic focus at the site of injection, patient on anticoagulant therapy or allergy, Chronic use of analgesics or drug dependence and patients with advanced cardiac, liver and kidneys diseases.

Withdrawal criteria:

Cases that were missed during the study or failed technique were excluded which was defined as presence of sensation or absence of numbness at inguinal region up to 20 minutes after block. Also patients have the right to withdraw from the study at any time without any negative sequence on medical or surgical treatment plan.

Techniques:

A) Preoperative preparation:

All participating patients were interviewed during their preoperative clearance appointment. The goal and endpoints of the study were discussed and their written informed consents were taken. Understanding of the Visual Analogue Score for pain (VAS**)** which consist of a 100 mm horizontal line with anchors indicating "no pain" at the left endpoint and "worst pain possible" (or a comparable term) at the right endpoint **[5]**.On physical examination, special attention given to document normal sensation at the site of the upcoming inguinal hernia surgery where the TAP block effect take place. Routine preoperative assessment was done to all patients including history, clinical examination, laboratory investigations (complete blood picture, kidney function tests, liver function tests, coagulation profile), chest X-ray and electrocardiogram [ECG] was done for patients above 40 years old.

B) Operative day:

1. Performance of transversus abdominis plane block:

All patients were brought to the pre-anesthesia block room for placement of the block 30min pre-operatively. Standard ASA monitors were placed; pulse oximetry, sphygmomanometer cuff and ECG. Sedation with midazolam (2-4 mg IV) with preloaded 10ml/kg ringer solution was administered through wide pore intravenous line. The patients' vital signs (heart rate and mean arterial blood pressure) were monitored and recorded preoperatively as baseline values then throughout the procedure (at 15,30,60,90 min and at skin closure).The TAP block was performed using ultrasound machine (SonoScape) model A6; the scanning probe was the linear multi-frequency 11-5 MHz transducer (L746 11-5 MHz Linear Array) .Ultrasound machine was used for all blocks. The blocks were performed using 22-gauge (100 mm) spinal needles. The blocks were performed with the patients in the supine position (in II-IH nerve block) or lateral position (in posterior TAP block).

The skin at the site of the block was prepped with antiseptic solution. Strict aseptic technique was used including sterile gloves, masks, overhead caps, sterile drapes and sterile ultrasound probe covers. The ultrasound linear probe is placed diagonally over the lateral abdominal wall 5-10cm lateral to midaxillary line in posterior TAP after placement of the patient on contralateral site or midway between umbilicus and anterior superior iliac spine in IH-II nerve block in supine position. Scanning to appreciate the three muscular layers forming the abdominal wall; from superficial to deep; external oblique, internal oblique and transversus abdominis.The site of the needle entry was injected with 2ml lidocaine 1%. The needle was inserted in plane until its tip located in-between the internal oblique and transversus abdominis muscles .Injection of 10 ml bupivacaine (0.5 %) diluted in 10 ml normal saline at the side of surgery. Assessment of block was done within 30 minutes after injection. Successful block was confirmed by pain prick andloss of cold sensation in the distribution of T7-L1 dermatomes on the side of the block. Checking level of block before induction of general anesthesia.

2. General Anesthesia Technique:

On arrival to the operative room with established peripheral intravenous access, standard monitoring then preoxygenation for 5 minutes was done. General anesthesia was standardized for all patients in three groups. Intravenous fentanyl 1mcg/kg, propofol 2mg/kg and cisatracurium 0.1mg/kg were given to facilitate tracheal intubation. Endotracheal tube with suitable size used to intubate the trachea then mechanical ventilation by volume controlled mode was used to maintain normocapnia ETCO2 around 35-38 mmHg and to maintain O2 saturation > 98%.Isoflurane/O2 mixture was administered.

Fentanyl 0.5mcg/kg IV administered for any intraoperative increase in the heart rate (HR) or mean arterial pressure (MAP) above 20% of baseline and total amount of intaoprative fentanyl was calculated.

Post-operative:

At the end of Surgery, patients were taken to Post Anesthesia Care Unit (PACU). Postoperatively all patients are given paracetamol (perfulgan) as standard intravenous analgesia at dose of 500 mg for patients ≥ 50 Kg weight (or 15mg/Kg for patients ≤50 Kg weight) every 8 hours. If pain score was equal or above 30 on VAS, they received a titrated dose of nalbuphine (4 mg at each dose) .**VAS** at PACU then at 2, 4, 8, 12, 18 and24 Hours postoperatively were recorded. **Total amount of nalbuphine consumption** (TNC) during the first 24 hour after surgery and **time to first request for analgesia** (it's the time between admission of patients to the PACU until the patients suffered from pain at score equal or above 30 on VAS.) were recorded.

STATISTICAL ANALYSIS

Data collected using Microsoft Excel software. Data were then imported into Statistical Package for the Social Sciences (SPSS version 20.0) (Statistical Package for the Social Sciences) software for analysis. Qualitative data was represented as number and percentage and quantitative data was represented by mean ± SD and range the following tests were used to test differences for significance. Difference and association of qualitative variable by Chi square test (X2) or Fisher exact according to appropriate. Differences between quantitative multiple by ANOVA then post-hoc test for significant groups or Kruskal Wallis, correlation by Pearson's correlation or Spearman's. P value was set at <0.05 for significant results and <0.001 for high significant result.

RESULTS

As regard the patient's clinical data there was non-significant difference between the studied groups regarding age, weight, gender, height, BMI and ASA classification **(table 1)**.

There was statistically significant higher heart rate in control group compared to other groups at 15 min till the end of surgery and skin closure (P value <0.05) however, there was no significant difference between the ilio-inguinal and posterior group all over procedure (p value >0.05) **(table 2).** Regarding mean arterial pressure (MAP) there was no significant difference among the two groups or the control one in the intraoperative MAP from the skin incision till the end of the surgery **(table 3).**

The control group show statistically significant higher level of VAS compared to the TAP (posterior and II/IH) block groups at PACU, 2h, 4h, 8h, 12h, 18h and 24 hours after operation (p value <0.001) . As regard the posterior and II-IH groups, there was no statistically significant difference between them at PACU and at 2 hours then II-IH group show statistically significant higher level of VAS compared to posterior group at the remaining times post-operatively **(table 4)**.

Posterior group showed rapid onset block (9.2 ±3.4 min) but take more time as regard technique time($18.8 \pm 5.5\ min$)with statistical significant difference than II-IH group (12.2 ± 2.9 and16.9±2.9 minutes respectively) **(table 5)**.

Time of first request of analgesia was statistically significantly longer in posterior group when compared to the II-IH and control groups (425.3±60.1 , 146.6±18.1 and 23.2±9.5 minutes respectively).Also it was statistically significant longer in II-IH group compared to control group **(table 6).**

The total dose of nalbuphine consumption during first 24 hour postoperatively show less statistically significant consumption in posterior TAP block group when compared with ilio-inguinal and control groups (8.11±1.3, 14.8±1.3 and 27.8±3.9 mg respectively)**.** Also it was statistically significant less in II-IH groups compared to control group **(table 6).**

Table (1): patient characteristic distribution among studied groups:

	Ilio-inguinal/ilio hypogastric Group (n=19)	Posterior Group (n=19)	Control Group (n=19)	F	p-value
Age (years) (M±SD) Range (min-max)	**50.74±5.6 (40-60)**	**49.82±6.22 (40-60)**	**50.32±6.39 (40-58)**	**0.087**	**0.967 (NS)**
WT(kg) (M±SD) Range (min-max)	**81.3±8.65 (70-95)**	**82.32±7.22 (65-95)**	**83.26±10.04 (70-100)**	**0.38**	**0.764 (NS)**
Gender (n%) Male (%) Female (%)	**15 (79%) 4 (21%)**	**18 (94%) 1 (6%)**	**16 (84%) 3 (16%)**	**0.089**	**0.98 (NS)**
Ht(cm) (M±SD) Range (min-max)	**162.6±7.5 (150-180)**	**161.8±8.1 (158-177)**	**159.6±6.9 (150-175)**	**0.589**	**O.624 (NS)**
BMI (Kg/m²)(M±SD) Range (min-max)	**31.71±2.75 (24.8-34.6)**	**31.7±2.9 (24.8-33.9)**	**32.28±2.43 (26.8-34.6)**	**1.16**	**0.35 (NS)**
ASA (I/ II) I II	**17 (90%) 2 (10%)**	**16 (84%) 3 (16%)**	**15 (79%) 4 (21%)**	**0.89**	**0.99 (NS)**

Data were expressed as mean (M) ± standard deviation (SD), range (minimum to maximum) number (n) of cases and percentage (%)

NS: non-significant difference (p>0.05), (F) anova test.

(BMI) Body mass index, (Ht) height,(wt) weight,(ASA) American society of anesthesiologists.

Table (2): Intra-operative Heart rate (HR) at different times among studied groups.

Heart rate Beat/min	Ilio-inguinal/ilio hypogastric Group (n=19)	Posterior group (n=19)	Control group (n=19)	F	p-value
Basal HR (M±SD) ***Range***	**75.33±5.56 (66-84)**	**75.77± 5.546 (65-85)**	**77.89±6.732 (70-90)**	**2.387**	**0.076 NS**
at 15 min (M±SD) ***Range***	**79.55±6.21 (66-90)**	**78.77± 5.854 (65-88)**	**97.89±5.321* (70-90)**	**4.562**	**0.004 S**
at 30 min(M±SD) ***Range***	**85.98±4.321 (76-100)**	**85.77± 6.214 (65-105)**	**107.89±6.112* (90-115)**	**6.247**	**<0.001 HS**
at 60 min(M±SD) ***Range***	**75.56±6.321 (66-84)**	**75.77± 6.987 (65-85)**	**115.89±5.213* (90-130)**	**7.139**	**<0.001 HS**
at 90 min(M±SD) ***Range***	**75.48±5.56 (66-84)**	**75.74± 4.875 (65-85)**	**105.89±4.214* (80-112)**	**5.874**	**<0.001 HS**
At skin closure(M±SD) ***Range***	**75.56±6.321 (65-84)**	**75.74± 4.875 (65-85)**	**100.89±3.214* (80-110)**	**4.66**	**0.006 S**

Data were expressed as mean (M) ± standard deviation(SD) and range . (N) number (NS) non-significant difference (S) significant difference
(HS) highly significant difference
*means statistically significant higher compared to other groups.

Table (3): intra-operative mean arterial pressure (MAP) among studied groups.

MAP: mmHg	Ilio-inguinal/ilio hypogastric Group (n= 19)	Posterior group (n=19)	Control group (n=19)	F	p-value
Basal MAP(M±SD) ***Range***	**78.8 ± 8. 7 (62 -88)**	**79.9 ±8.7 (62 -89)**	**81.9 ±7.9 (78-90)**	**1.214**	**0.324 NS**
At 15 min (M±SD) ***Range***	**74.4 ±8.3 (62 -85)**	**75.6 ±6.4 (62 -89)**	**85.6 ±5.9 (75-98)**	**1.687**	**0.154 NS**
At 30 min (M±SD) ***Range***	**78.8 ±8.8 (62 -95)**	**79.9 ±9.7 (63 -89)**	**81.9 ±3.5 (78-90)**	**1.009**	**0.321 NS**
At 60 min (M±SD) ***Range***	**78.3 ±8.6 (62 -90)**	**79.5 ±8.9 (62 -89)**	**84.9 ±5.6 (78-95)**	**1.721**	**0.134 NS**
At 90 min (M±SD) ***Range***	**80.8 ±8. 7 (62 -88)**	**83.9 ±10.1 (62 -89)**	**85.6 ±8.5 (78-98)**	**1.513**	**0.189 NS**
at Closure (M±SD) ***Range***	**85.8 ±8.6 5 (78-100)**	**86.9 ±8.3 (79-100)**	**91.8 ±9.6 (81-105)**	**2.499**	**0.067 NS**

Data were expressed as mean (M) ± standard deviation(SD) and range . (N) number (NS) non-significant difference

Table (4): Comparison of Postoperative visual analogue scale (VAS) score of pain at rest among the studied groups:

Post-operative VAS at rest:	Ilioinguinal/ iliohypogastric Group (n=19)	Posterior group (n=19)	Control group (n=19)	Kruskal Wallis test	P	Post hoc Test
IN PACU:						
Median	**18**	**9**	**20**	**29.6**	**<0.001 HS**	**>0.05 [1] NS** **<0.05 [2] S** **<0.001[3] HS**
Range	**14-23**	**0 - 15**	**15-20**			
AT 2H:						
Median	**23**	**8**	**30**	**31.3**	**<0.001 HS**	**>0.05 [1] NS** **<0.05 [2] S** **<0.001[3] HS**
Range	**18-30**	**0 -10**	**20 -33**			
AT 4H:						
Median	**25**	**15**	**30**	**39.2**	**<0.001 HS**	**<0.001 [1] HS** **<0.05 [2] S** **<0.001[3] HS**
Range	**20-34**	**5 – 23**	**24 – 40**			
AT 8H:						
Median	**28**	**20**	**30**	**25.6**	**<0.001 HS**	**<0.05 [1] S** **<0.05 [2] S** **<0.05[3] S**
Range	**23-37**	**10 – 30**	**22 – 37**			
AT 12H:						
Median	**35**	**22**	**40**	**40.7**	**<0.001 HS**	**<0.001 [1] HS** **<0.05 [2] S** **<0.001[3] HS**
Range	**30-43**	**20 – 29**	**24 – 45**			
AT 18H:						
Median	**40**	**23**	**48**	**42.6**	**<0.001 HS**	**<0.001 [1] HS** **<0.05 [2] S** **<0.001[3] HS**
Range	**40-52**	**20 – 30**	**40 - 52**			
AT 24H:						
Median	**45**	**25**	**48**	**51.3**	**<0.001 HS**	**<0.001 [1] HS** **<0.05 [2] S** **<0.001[3] HS**
Range	**50-60**	**25 – 37**	**44 - 56**			

Data were expressed as median and range.

*(n) number. (NS) non statistically significant difference , (S) statistically significant difference ,(HS) high statistically significant difference **. (1)** ilio-inguinal & posterior groups**,(2)** ilio-inguinal &control (**3)** posterior & control groups.

Table (5): Comparison of onset of block and technical time between the block groups.

	Ilio-inguinal/ ilio hypogastric group (n=19)	Posterior group (n=19)	F test	P
Technical time min(M±SD) Range	**16.9 ± 2.9 (10-20)**	**18.8 ± 5.5 (15 -35)**	**2.412**	**0.041 S**
Onset of block min (M±SD) Range	**12.2 ± 2.9 (10-15)**	**9.2 ±3.4 (10-18)**	**2.874**	**0.045 S**

Data were expressed as mean (M) ± standard deviation (SD) and range (minimum to maximum)
(n) number of cases, (p>0.05), (S) statistically significant difference,(F) test.

Table (6): Comparison of total rescuing analgesia consumption and timing of first request of analgesia among the studied groups.

	Ilio-inguinal/ iliohypogastric Group (n=19)	Posterior group (n=19)	Control group (n=19)	F test	P	LSD
Time of first analgesic(min) : *Mean* ± SD *Range*	146.6±18.1 125-190	425.3±60.1 260 -500	23.2± 9.5 15-40	**16.65**	**<0.001 HS**	**HS<0.001[1] Hs<0.001[2] HS<0.001[3]**
Total dose of nalbuphine (mg): *Mean ± SD* *Range*	14.8 ± 1.3 12 -16	8.11±1.3 6-10	27.8 ±3.9 24 -34	**226.4**	**<0.0001 HS**	**Hs<0.001 [1] Hs<0.001 [2] Hs<0.001[3]**

:

Data were previously expressed as mean (M) ± standard deviation (SD) and range.

(n) number. (LSD) lowest significant difference,(HS) high statistically significant difference **.(1)** ilio-inguinal & posterior groups**,(2)** ilio-inguinal & cont

DISCUSSION

A multimodal approach to postoperative analgesia after abdominal surgeries is required to block nociceptive transmission from both the abdominal wall incision and from the abdominal viscera .It is known from cadaveric and observational studies that a single shot lumbar TAP block with 20 ml of local anesthetics is effective in blocking the corresponding dermatomes **[6].**TAP block is a promising technique with a potential for wide application in providing analgesia after surgery involving the anterior abdominal wall **[7].**The use of ultrasound-guided block of the anterior abdominal wall for postoperative pain relief is an attractive method because of its simplicity and safety **[8].** TAP block was performed before surgical incision and before induction of general anesthesia to assess success of block either by pin prick or by cold sensation. also the hemodynamics all through the operation and in the first post-operative day (POD) were recorded, heart rate was significantly higher in control group than other groups from 15 min till the end of surgery and skin closure, also there was no significant difference between the ilio-inguinal and posterior ones all over the times. Also the total dose of nalbuphine consumption during first 24 hour postoperatively was significantly lesser in posterior group when compared with ilio-inguinal and highly different when compared with control group. **Abdallah et al**. collected multiple meta-analysis studies and concluded that the posterior TAP block appears to produce prolonged analgesia based on different studies not direct clinical trials **[4]**. Similarly in the result of the study showed that II-IH group was significantly higher than posterior group in intra-operative fentanyl consumption.

Time of first request of analgesia (TFA) was found to be statistically significantly prolonged in posterior group when compared to the II/IH and control groups. Several possible explanations may account for these findings. First, a more posterior injection point may allow the TAP block to capture lateral cutaneous branches of thoracolumbar nerves before entering into the TAP where they undergo extensive branching and anastomoses. Secondly, the posterior technique resulted in a retrograde local anesthetic spread that reaches the paravertebral space and extends between the T4-L1 levels within 4 hours of injection, potentially producing some degree of block along the thoracolumbar sympathetic chain. Evidence suggestive of a role of the sympathetic nervous system in acute postoperative pain continues to emerge, and sympathetic block may account for the prolonged analgesic effect associated with the posterior technique. The analgesic efficacy of the TAP block has been demonstrated in another prospective randomized trials compared with placebo, in this study The total dose of nalbuphine consumption during first 24 hour postoperatively show less consumption in posterior TAP group when compared with II/IH and highly significant when compared with control group. Similarly in another study, surgical procedures such as hysterectomy were also reported that the addition of TAP block to conventional general anesthesia reduced the analgesic requirements**[9]**.

This study showed superiority for posterior approach of TAP block over ilio-ingunal block as regard time of first analgesia and total nalbuphine consumption during 1st POD. **Aveline etal**. in their study demonstrated that pain intensity at rest was lower during the first 24 h after an ultrasound guided posterior TAP block compared with an II-IH nerve block and this agreed with result of this study **[10]**. Analgesic demand was decreased in patients who benefited from a TAP block. Hamid et al. found the same result that ultrasound-guided posterior block TAP in a multi-modal approach for pain control after cesarean section is more suitable than other approaches of TAP block and creates a longer duration of analgesia and a better pain control by VAS during rest **[11]**. **Stav etal,** in their study concluded that Ultrasound-guided II-IH nerve block provided better pain control by VAS and more duration of analgesia than US-guided posterior TAP following the Lichtenstein patch tension-free method of open inguinal hernia repair in men during 24 hours after surgery**[12]** .This was explained in the study by Potential anatomical variations in the ilio-inguinal and ilio-hypogastric nerves localization, which was sometimes difficult to visualized by the ultrasound ,This could play a role in the intensity of post-operative acute pain.

It was found also in the study that Posterior group showed rapid onset block but take more time as regard technique, on the other side the ilio-inguinal group show less time as regard technical time but more delayed onset than posterior one.

CONCLUSION

Transversus abdominis plane block block is considered one of standard postoperative analgesia especially in inguinal hernia repair. Posterior transversus abdominis plane block is more effective than ilio-inginal /ilio-hypogastric nerves block as regard rapid onset of block, prolonged time of analgesia and lower requirement of opioid consumption in the first 24 hour postoperatively but with longer technique time.

Conflict of Interest: Nil

Limitations of the study: Availability of high resolution ultrasound.

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