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"STUDY OF EFFECT OF TRANSVERSES ABDOMINIS PLANE BLOCK FOR POST OPERATIVE ANALGESIA IN ABDOMINAL HYSTERECTOMY"

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ABSTRACT **Background & Aims:** Abdominal hysterectomy is an open surgical procedure associated with considerable post operative pain. Transversus abdominis plane block is a regional anaesthetic technique, found to be effective for post operative analgesia. Here we study the effect of transverses abdominis plane block for post operative analgesia in abdominal hysterectomy and the degree of analgesia and duration of postoperative analgesia. **Materials and methods:** Sixty four patients aged 35 to 60 years belonging to amereican society of anaesthesiology Grade 1& 2 posted for elective abdominal hysterectomy were enrolled in this prospective randomized control trial and divided randomly into two groups of 32 each by sealed envelope method. Group T received USG guided TAP block after skin closure with 20 ml of Inj 0.25% Ropivacaine plus inj Dexamethasone 4mg bilaterally. Group N patients received Inj Diclofenac 75 mg i.v. in 100 ml NS after skin closure. **Results:** Mean duration of analgesia in TAP group was 8.031 with standard deviation 2.250 and median of 8. In NSAID group, mean duration of analgesia was 6.188 with standard deviation of 1.378 and median of 6. Z value is 3.356. p value was 0.0007 which was highly significant. **Conclusion:** TAP block is a safe,effective method for control of post operative analgesia than conventional analgesics(NSAIDS). The TAP block procedure required less rescue analgesics and gave longer duration of action, as compared to NSAIDS.

KEYWORDS : TAP Block, Diclofenac, Ropivacaine, Dexamethasone

1. INTRODUCTION:

Abdominal hysterectomy is an open surgical procedure associated with considerable post operative pain.Pain is an unpleasant emotional and sensory experience. The post operative pain inTransversus abdominis plane block is a regional anaesthetic technique, found to be effective for post operative analgesia.This procedure blocks sensory nerves of the anterolateral abdominal wall from T6 to L1[3]. The advantages of TAP block are preservation of lower limb motor and sensory functions, hemodynamic stability and less invasiveness. It has little effect on respiration. Ultrasound guidance reduces the number of attempts and time for induction, which speeds the block onset. Also, it prevents accidental injection of local anaesthetic into blood first 48 hours can adversely impact on healing, patient outcomes and prolong hospital stay[1]

2. MATERIALS AND METHODS:

After approval of the institutional Ethical Committee this randomized prospective study was conducted in 64 female patients. The study was registered with clinical trial registry (CTRI registration no 2018/12/016782). Written informed and valid consent were taken. The patients were allocated randomly by computerized method into two groups of 32 each.

Inclusion criteria were male patients aged between 35 and &60 years, American Society of Anesthesiology I-II, scheduled for elective uncomplicated abdominal hysterectomy under spinal anaesthesia

Exclusion criteria were, patients who did not consent to the study, age ≤35 years and ≥60 years,body mass index ≥30 kg/m2 , skin infection at the puncture site, allergy to ropivacaine, compromised renal and liver function, uncontrolled diabetes melitus, severe cardiovascular or respiratory distress.

All routine investigations were carried out and fitness was confirmed. On the operative day, after confirming the nil by mouth status the patient was taken to operation theatre and intravenous fluid started. Necessary monitors were attached. All routine investigations were carried out, and fitness was confirmed .Informed consent was taken from all patients after explaining the procedure. Under all aseptic precautions, spinal anaesthesia was given to the patient in sitting position with 0.5% inj. bupivacaine, 3.5 ml using a 23G spinal needle. Intraoperative parameters such as pulse rate, mean blood pressure, spo2 and ECG were monitored every 10 minutes. No analgesic was given in the intraoperative period. After the wound closure patients in Group T were given USG guided TAP block with 20 ml of Inj 0.25% Ropivacaine plus inj Dexamethasone 4mg bilaterally and. Group N patients received Inj Diclofenac 75 mg i.v. in 100 ml NS.

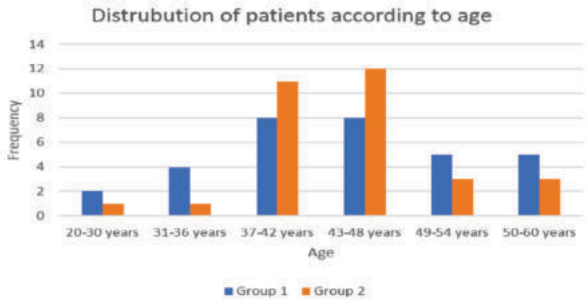
Post operative pain was assessed with VAS(0-10)scale at 4,6,8,12 and 24 hrs post operatively.Rescue analgesic in the form of Inj Tramadol 1mg/kg IV in 100ml NS was given, if VAS score more than 4. Time of requirement of rescue analgesics was noted and compared in both the groups Patients in group T were monitored for local site infection , hematoma formation, local anaesthesia toxicity , peritoneal and bowel perforation. Patients in group N were monitored for gastric irritation.

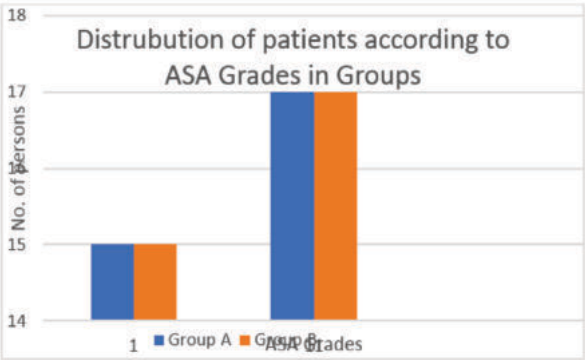
Quantitative data were expressed in form of Mean+ SD for statistical analysis. The unpaired t- test was used for comparison of mean between two groups. The paired t-test was used for intra-group comparison. The chi-square test was used for qualitative data. Mann-Whitney test was used for comparing VAS scores at various time intervals. All statistical analysis was made using SPSS 20 Windows (Statistical package for Social Science). A p value < 0.001 was considered highly significant and p value >0.05 was considered as non-significant.

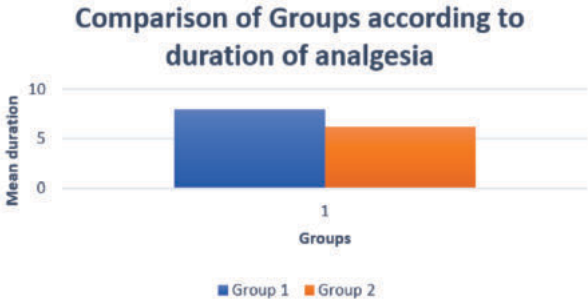
3. RESULTS

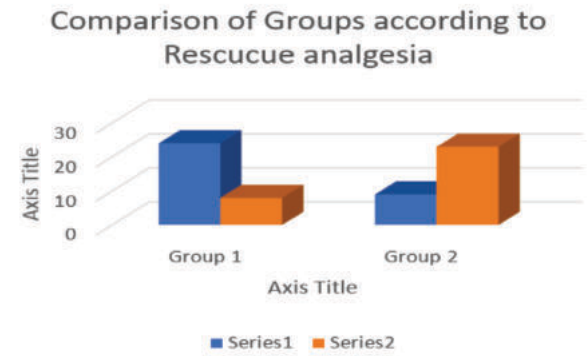
Study population consisted of 64 patients scheduled for TAH . They were divided into 2 groups of 32 each .Group T received Inj Ropin 0.25% 20ml with Inj Dexa 4mg bilaterally; whereas Group N received , Inj Diclofenac75 mg iv in 100ml NS after skin closure in both groups. The study was conducted on patients in age group from 25 -60 years. The mean age for TAP block group was 45.03+/-8.51.The mean age for NSAID group was 44.28+/-6.8. Difference between 2 groups was statistically insignificant with p value of 0.698. In both groups 15 patients were under ASA grade I i.e.46.88% and 17patients were with ASA grade II i.e.53.12% with median value of 2.There was no statistically significant difference in ASA grade in both groups. Mean

duration of analgesia in TAP group was 8.031 with standard deviation 2.250 and median of 8. In NSAID group, mean duration of analgesia was 6.188 with standard deviation of 1.378 and median of 6. Z value is 3.356. p value was 0.0007 which was highly significant. Number of doses of rescue analgesic in Group T were 1 in 75% patients and 2 in 25% patients. Whereas number of doses in Group N were 1 in 28.12% and 2 in 71.88% of patients.The difference in number of doses of rescue analgesic was highly significant.(p value-0.0001)









4.DISCUSSION

Abdominal hysterectomy is an open surgical procedure associated with considerable post operative pain.Transversus abdominis plane block is a regional anaesthetic technique, found to be effective for post operative analgesia. TAP block was first introduced in 2001 by Rafi.

This procedure blocks sensory nerves of the anterolateral abdominal wall from T6 to L1[3].

Duration of postoperative analgesia for group T was time between skin closure and requirement of first rescue analgesic.In our study, mean duration of analgesia in group T was 8.031 hours. **Dr Bhattacharjee et al**[12] conducted a study in 2014 to assess analgesic efficacy of TAP block in providing effective perioperative analgesia in patients undergoing total abdominal hysterectomy.

There were 90 adult female patients of ASA grade 1 or 2. Group B received TAP block with 0.25% Bupivacaine. Group N received normal saline. Both groups were given general anaesthesia. Hemodynamic responses to surgical incision and intraoperative fentanyl consumption were noted. VAS scores were assessed on the emergence, at 1,2,3,4,5,6 and 24 hours. Time to first rescue analgesic, duration of postoperative analgesia, incidence of postoperative nausea and vomiting were also noted.

Median duration of analgesia was significantly higher in group B(290 min). This difference in duration of analgesia might be due to addition of inj dexamethasone.

Dr Waleed and Dr Abdullah[13] conducted a study in 2014 to assess effect of addition of dexmedetomidine to bupivacaine in TAP block in post operative pain relief among abdominal hysterectomy patients. A total of 50 patients scheduled for abdominal hysterectomy were divided into two equal groups in a randomized double blinded way. Group B patients received TAP block with 20 ml of 0.25% bupivacaine and 2 ml of Normal Saline , while group BD received 0.5mcg/kg of dexmedetomidine and 20 ml of 0.25% bupivacaine bilaterally. Time for first analgesic administration, totally used doses of morphine, pain score, hemodynamic data and side effects were recorded.

The time for first analgesic dose was longer in group BD (470 min). This similarity of duration of analgesia might be due to addition of 0.5mcg/kg of dexmedetomidine in their study.

Dr Tugba et al conducted a prospective, randomised, single blind, parallel group, placebo controlled study from Nov 2014 to Feb 2016,to assess the effects of TAP block on analgesic and anaesthetic consumption during total abdominal hysterectomy under general anaesthesia.

Sixty six women were randomised in two groups, with ga alone and with TAP block using 20ml of 0.25% bupivacaine. Intraoperative remifentanyl and sevoflurane consumption were recorded. Post operative pain, nausea, quality of recovery scores, rescue analgesic requirements during postoperative 24 hr period were also recorded.

Mean duration of analgesia in TAP block group was 148.8min. This difference might be because in this study TAP block was given prior to surgery and also because no additive was added to the main drug.

Duration of postoperative analgesia for Group N was time between administration of Inj Diclofenac 75mg iv and requirement of first rescue analgesic. In our study, mean duration of analgesia in Group N was 6.188 hours.

Requirement of rescue analgesics in 24 hours:

Requirement of rescue analgesics in Group T was measured by calculating total number of doses of Inj Tramadol 1mg/kg given to the patient in 24 hours after TAH.

In our study, 24 patients (75%) required only single dose of rescue analgesic, while 8(25%) patients required two doses of rescue analgesics.

In study done by Dr Bhattacharjee et al , rescue analgesic (median intraoperative fentanyl requirement) was lower in Group B(114mcg), which was similar to our study.

In study done by Dr Christina et al, TAP block group consumed less narcotics(5.05 IV morphine equivalents).

In study done by Dr Waled et al, total doses of used morphine were less in Group BD(19mg) vs Group B(29mg)($p<0.001$).

In study done by Dr Raghavendra et al, total 24 hour consumption of tramadol was significantly higher in TAP group as compared to epidural group(68.8mg vs 5.3mg $p<0.001$). This difference might be because they have used Epidural block placement + general anaesthesia against TAP group. In study done by Dr Carney et al, mean total morphine requirements in TAP group were reduced (27mg) vs.

Placebo group(55mg). In study done by Dr Hong et al, TAP block reduced mean 24 hour morphine consumption in abdominal hysterectomy(p=0.04).

In study done by Dr Jesper et al, there was no difference in the mean 24 hours postoperative morphine consumption between the two groups(p=0.733).

In study done by Dr Wijewardana et al, patients undergoing TAP block had reduced 24 hour cumulative postoperative pethidine consumption. (p=0.02)

5.Limitations :

TAH was conducted under spinal anaesthesia. Recovery from spinal anaesthesia may vary in different patients.Tolerance and response to pain is different in every patient.

6.CONCLUSION:

TAP block is a safe,effective method for control of post operative analgesia than conventional analgesics(NSAIDS). The TAP block procedure required less rescue analgesics and gave longer duration of action, as compared to NSAIDS.

7.REFERENCES:

1. Abdullah FW, Laffey JG, Halpern SH, Brull R: Duration of analgesic effectiveness after the posterior and lateral transversus abdominis plane block techniques for transverse lower abdominal incisions: a meta-analysis. Br J Anaesth. 2013, 111:721-35.
2. Ng A, Swami A, Smith G, Davidson AC, Emembolu J: The analgesic effects of intraperitoneal And incisional bupivacaine with epinephrine after total abdominal hysterectomy. Anesth. Analg. 2002, 95:158-62
3. Almarakbi WA, Kaki AM: Addition of dexmedetomidine to bupivacaine in transverses abdominis plane block potentiates post-operative pain relief among abdominal hysterectomy patients: a prospective randomized controlled trial. Saudi J Anaesth. 2014, 8:161-6.
4. Waldron NH, Jones CA, Gan TJ, Allen TK, Habib AS.Impact of perioperative dexamethasone on postoperative analgesia and side-effects: systematic review and meta-analysis. Br J Anaesth. 2013;110:191–200.
5. Ganai S ,Lee KF Adverse outcomes of geriatric patients undergoing abdominal surgery who are at high risk of delirium.Arch Surg 2007 ;142:1072-8.
6. Elia N,Lysakowski C.Does multimodal analgesia with acetaminophen,NSAIDS,patient controlled analgesia morphine offer advantages over morphinr alone.Anaesthesiology 2005;103:1296-304.
7. K D Tripathi.Essentials of medical pharmacology2008:188
8. Christie IW,McCabe Major complications of epidural analgesia after surgery:Results of a six year survey.Anesthesia 2007;62:335-41.
9. Rozen,Tran,Ashton.Refining the course of the thoracolumbar nerves:A new understanding of the innervation of anerior abdominal wall.Clin Anat 2008;21:325-33.
10. Wijewardana,Pathiraja.Tha analgesic efficacy of Transversus Abdominis Plane block after Total abdominal hysterectomy:A randomized control trial.Sri Lanka Journal of Obstetrics and Gynaecology 2014

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