

Comparison of the effectiveness of the ilioinguinal-iliohypogastric block and the Transversus abdominis plane block for analgesia after unilateral inguinal hernia repair.

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Introduction

Inguinal hernia repair is one of the most commonly performed surgical procedures worldwide. Preoperative and immediate postoperative pain is associated with the occurrence of chronic pain with reported frequency from 0% to 54% (1). Ilioinguinal-iliohypogastric block (IHN) block and Transversus Abdominis Plane block (TAP block) were a regional block technique that provides effective analgesia after some abdominal surgery if used as part of multimodal analgesia.

In this study, we compared the analgesic efficacy of the ultrasound guided IHN nerves block and transversus abdominis plane block for analgesia after unilateral inguinal repair.

Patients and methods:

After obtaining approval from the Local Research Ethics Committee and written informed consent, we conducted a prospective double-blinded randomized study, between January 2015 and December 2015. Sixty male patients aged between 20 and 60 years of ASA physical status I-II scheduled for unilateral inguinal hernia repair. Were non included patients with allergy to local anaesthetic agents and those who had Body Mass Index more than 35. Patients were allocated randomly in 2 groups according to a computer-generated sequence of random number using Random Allocation Software: TAP block (Group1, n=30); and II/IH block (Group2, n=30). The general anesthesia was standardized for all patients and was induced with propofol 2mg/kg and fentanyl 2µg/kg without neuromuscular block and the patient's airway was maintained using an i.Gel mask. Unilateral ultrasound block was performed with 30 ml 0.125% Bupivacaine after induction. A postoperative analgesic regimen was used consisting of morphine Patients Controlled Analgesia (PCA) and Paracetamol 500mg PO every 6 h. The primary endpoint was the morphine consumption in the 24 h postoperatively. Visual Analog Scale (VAS) 0-10 pain scores (while moving and at rest), the cumulative opioid consumption every hour (mg/h), the time to first bolus of opioid, the Quality Of Recovery questionnaire (QOR-9) were the secondary end point. Normal distributions of the variables were assessed with Kolmogorov-Smirnov and Shapiro-Wilk test. Normally distributed continuous variables were compared using Student t-test. Mann-Whitney U test was used for continuous variables without normal distribution. Kaplan-Meier survival curve was also used. Statistical analysis was performed using IBM SPSS 20.

Results:

Fifty-five patients achieved the study, five were withdrawn after they withdrew their consent for study continuation. Patient characteristic, intraoperative fentanyl consumption and the duration of surgery were similar in the two groups.

The total amount of 24-hour morphine consumption was significantly higher in Group1 (9.16 mg ± 1.61) than Group2 (5.07 mg ± 1.06) p=0.034. The amount of opioid consumption at 6, 11, 15 and 18 hours postoperatively was significantly higher in Group1 (Fig.1). VAS pain scores at rest were significantly lower in Group1 at 6 hours postoperatively (0.2 ± 0.11) than Group2 (0.7±0.17) p=0.032 (Fig. 2).

References:

(1) Anesthesiology 2000; 93:1123-33 (2) BJA 2011;106 (3):380-6

There was no significant difference in pain scores while moving at 2, 6, 12 and 24 hours postoperatively. There were no between-group differences in QOR-9, the time to first bolus of opioid (Group1 147,8 ±24,25 min Vs Group2 125±13,6 min p=0,68) and in the incidence of nausea and vomiting.

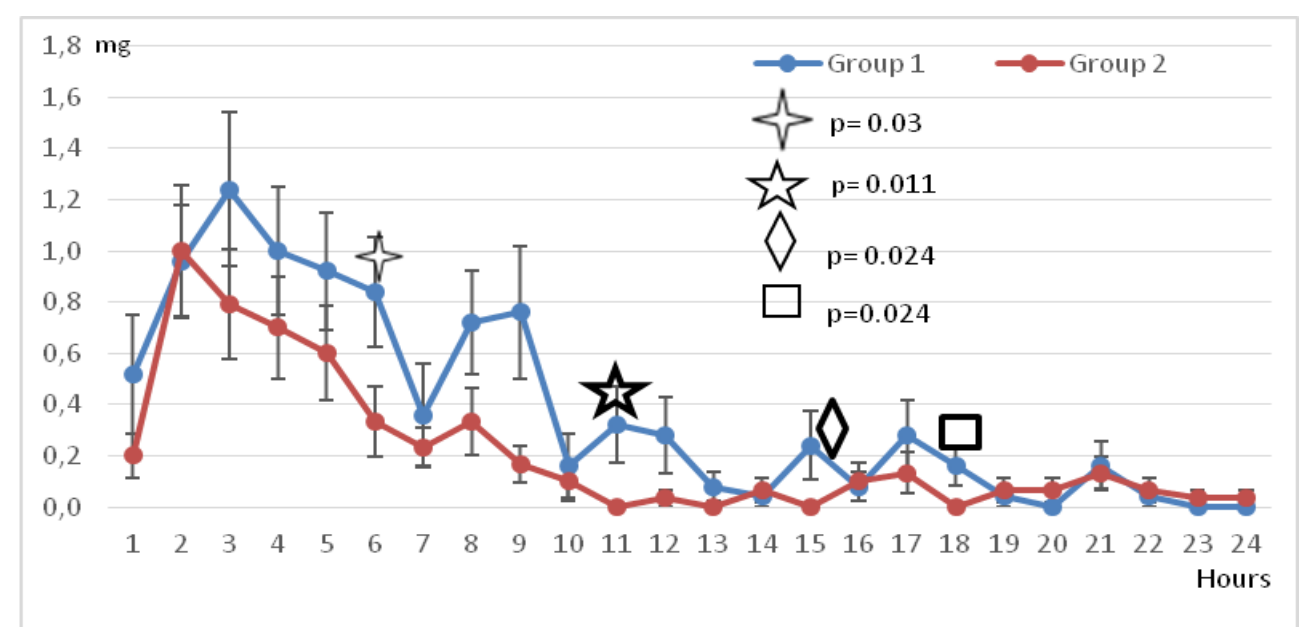


Fig. 1: Comparison of opioid consumption between the two groups.

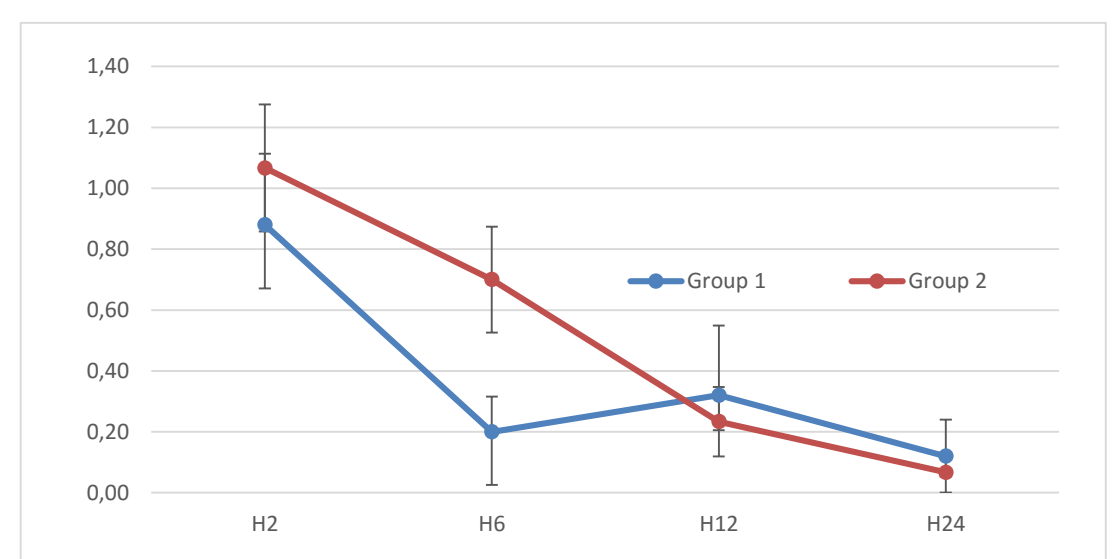


Fig. 2: Mean pain intensity scores (y-axis, VAS (0-10)) at rest in the first 24 hours postoperatively. Comparison between the two groups.

Discussion :

In the current study, opioid consumption was lower during the first 24 hours after ultrasound-guided IHN block compared with USG TAP block. But Aveline and colleagues have (2) reported that USG TAP block was more effective than IHN block. This finding could be explained by a blinded technique of the IHN block. The VAS pain scores (at rest and while moving) in the postoperative period were very low and less than 2 from 10 after USG IHN or TAP block. Only the VAS pain score at 6h postoperatively was lower after USG TAP block but it was associated with a large amount of opioid consumption.

No such complications were observed, especially any extension on the block to the femoral nerve or puncture of intraperitoneal viscera.

Conclusion:

USG IHN and TAP block are effective in controlling postoperative pain after unilateral hernia repair. The II/IH block has the advantage of less dose of opioid requirement in day case surgery.

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