Original Research Paper

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A STUDY ON BILATERAL ILIO INGUINAL, ILIO HYPOGASTRIC NERVE BLOCK AND RECTAL DICLOFENAC FOR POSTOPERATIVE PAIN RELIEF OF CAESAREAN SECTION

Anaesthesiology

KEYWORDS: Ilio Inguinal Nerve Block, Ilio Hypogastric Nerve Block, Rectal Diclofenac, Caesarean Section

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ABSTRACT

Background and goals of study: Pain following surgery is a universal phenomenon. Yet it is often under-estimated and under-treated. Being purely a subjective feeling, pain and its intensity varies among people. Multimodal analgesia using combination of drugs with different modes of action, by different routes, achieves improved pain relief with a reduction in incidence and severity. In this present study, method of poly modal analgesia and pre-emptive analgesia was tried by giving bilateral ilio-inguinal ilio-hypogastric nerve block for postoperative pain relief in caesarean section along with rectal Diclofenac suppositories. The quality of postoperative pain relief and its duration was observed and assessed. **Methods:** Seventy five patients who underwent cesarean section by pfannensteil incision were included in the study. Patients were divided into three groups, receiving bilateral ilio-inguinal and ilio-hypogastric nerve block with rectal Diclofenac, bilateral ilio-inguinal and ilio-hypogastric nerve block alone or rectal Diclofenac alone, postoperatively. Postoperative hemodynamics as well as VAS score and rescue analgesic requirements in each group were observed. **Results:** The combination of bilateral ilioinguinal nerve block and iliohypogastric nerve block with rectal Diclofenac suppositories gives effective and prolonged duration of analgesia in postoperative caesarean patients compared to either block or rectal suppositories alone. All the three groups were comparable in terms of age, weight and height. Duration of surgery was similar in all the three groups. Complications such as inadequate analgesia and epigastric pain occurred in a few patients. **Conclusion:** Bilateral ilioinguinal iliohypogastric nerve block with rectal diclofenac can be used effectively as an alternative method for the postoperative pain relief in post caesarean patients, the combination of these being more effective than either technique alone.

INTRODUCTION Pain is not a straight forward sensory perception. It is an experience as the physiological sensation is inseparable from the associated emotional distress. Pain is best defined as an unpleasant sensory and emotional experience associated with the actual or potential tissue damage or described in terms of such damage.

Failure to relieve pain is morally and ethically unacceptable. Adequate pain relief could be considered as a basic human right.

Uncontrolled pain has been shown to increase the morbidity by many means. It causes significant postoperative respiratory dysfunction, inability to cough, splinting etc. Pain promotes immobility and hence development of deep vein thrombosis. Pain causes alteration in the stress response of surgery, increased catecholamine release, increased oxygen demand and increased cardiac work. Increased catabolic response to surgical trauma and impaired immune mechanism and delayed wound healing also occurs as a result of pain.

Multimodal analgesia by combining various techniques or different group of drugs has decreased the incidence and severity of postoperative pain reducing the incidence of postoperative morbidity.

A typical prescription for postoperative pain relief could incorporate regular Acetaminophen plus regular NSAIDs as baseline analgesic with either systemic opioid or locoregional infusion of local anaesthetic and opioid.

Another theoretical construct, pre-emptive analgesia, is where by the severity of pain that an individual experiences is reduced if an intervention can be applied before the noxious stimulus, an attempt to prevent or reduce peripheral and central sensitization of nociceptors. This was initially described in the first decade of twentieth century. This idea is revised by Woolf et al[1].

In this present study, method of poly modal analgesia and pre-emptive analgesia was tried by giving bilateral ilio-inguinal ilio-hypogastric nerve block for postoperative pain relief in caesarean section along with rectal Diclofenac suppositories. The quality of postoperative pain relief and its duration was observed and assessed.

The aim of the study is to evaluate the efficacy and duration of postoperative pain relief of caesarean section by bilateral ilio-inguinal and ilio-hypogastric nerve block and rectal Diclofenac, and to compare the pain relief achieved by bilateral ilio-inguinal and ilio-hypogastric nerve block and rectal Diclofenac, given combined and separately.

METHODOLOGY:

Seventy five patients who underwent cesarean section by pfannensteil incision were included in the study. Age of the patients ranged from 18 to 32 years and weight ranged from 40 to 80 kgs. Hospital Ethical Committee approval was obtained.

All patients were examined and assessed preoperatively according to the physical status ASA grading. Only patients belonging to ASA II were selected for the study. Patients with other co morbidities were excluded from the study. After obtaining the consent for surgery, patients were explained about the study and they were counseled and reassured. This was to gain the confidence of the patients that

will minimize the emotional component of pain very much.

Patients were explained about the procedure and postoperative follow up pattern. The Visual Analogue Scoring was explained as 0 to 10 scale reading and the patient was asked to tell the number according to the severity of pain.

Patients were divided into three groups.
Group I (n=25): Received bilateral ilio-inguinal and ilio-hypogastric nerve block with 10 ml of 0.5% Bupivacaine both sides along with rectal Diclofenac 100 mg suppositories after the caesarean section.

Group II (n=25): Received bilateral ilio-inguinal and ilio-hypogastric nerve block alone postoperatively.

Group III (n=25): Received rectal Diclofenac suppositories 100 mg alone postoperatively.

Patients were positioned in right lateral position, and under aseptic precautions, sub-arachnoid block was given using 23 gauge spinal needle in L3L4 space with 1.8 ml of 0.5% Bupivacaine. Immediately after the injection, the patient was turned supine and the uppermost level of analgesia was noted by pin-prick. The patient was monitored every one minute for 5 mins, and then every 5 min for fall in BP and bradycardia, till the end of the surgery.

After the surgery was over, the level of blockade was noted. The ilio-inguinal and ilio-hypogastric nerve block was given prior to application of dressing.

Anterior superior iliac spine was palpated. Under aseptic precautions, the 23 gauge hypodermic needle was introduced about one inch medial to anterior superior iliac spine, on a line between spine and umbilicus. 8 – 10 ml of 0.5% Bupivacaine was deposited as the needle pierces the fascia of oblique muscles, initially felt as a pop off feeling and after negative aspiration for blood. Since this point was sometimes difficult to determine, fan shaped and up and down infiltration of local anaesthetic is required for a successful block.

Vaginal toileting was done and then the rectal Diclofenac suppository was placed rectally.

Postoperatively patient was monitored for any fall in the blood pressure and pulse rate. The Visual Analogue Score was assessed. Quality of pain relief was assessed by the need for rescue analgesics. In these cases, intramuscular Diclofenac 75 mg was used as rescue analgesic. Duration of pain relief was also assessed and analyzed by the statistical tool ANOVA. In our study, we considered that effective analgesia was present till the patient scores 5 in Visual Analogue Scale.

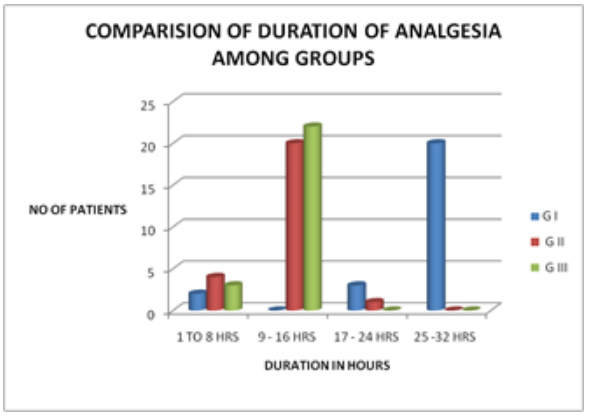
Then, the patient was also assessed for any side effects – toxicity of local anaesthetics, inadequate analgesia, nausea and vomiting, epigastric tenderness, sedation etc.

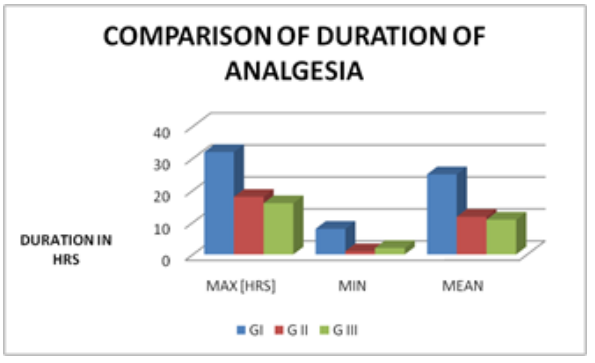
RESULTS:
All the three groups were comparable in terms of age, weight and height. Duration of surgery was similar in all the three groups. Most of the patients in Groups I and III had a sensory block level of T6-T8, while those in Group II had a level of T7-T8.

The range of duration of analgesia was variable in the three groups with 8-32 hrs in Group I, 1-18 hrs in Group II and 2-16 hrs in Group III. The mean duration of analgesia was 25.03 hrs in Groups I, 11.76 hrs in Group II and 10.84 hrs in Group III.

This value was statistically significant as detected by ANOVA. The table value of' f'at 5% significant level for (3,8) degrees of freedom was 4.07. The calculated value was 7.33 and was more than the table value. Thus, the null hypothesis was rejected and alternative hypothesis was accepted. Calculated value 7.33 > 4.07 (table value).

The combination of bilateral ilioinguinal nerve block and ilio-hypogastric nerve block with rectal Diclofenac suppositories gives effective and prolonged duration of analgesia in postoperative caesarean patients compared to either block or rectal suppositories alone.





DISCUSSION:
In this study, the study groups are statistically comparable in age, height and weight. Duration of surgery was similar in all the three groups.

In Group II, who received nerve block alone, the effective analgesia was 11.76 hrs, which is consistent with the study of A-Bell MD et al2 who did a randomized double blinded placebo controlled trial and concluded that the bilateral ilioinguinal - ilio-hypogastric nerve block reduced the amount of systemic morphine required to control post caesarean pain.

This method of block reduces the need for analgesics in the postoperative period which correlated well with the study of Ganta R et al3 who stated that it reduced the pain scores and analgesia requirements in the immediate post operative period.

In Group III, who received rectal Diclofenac 100 mg alone, the duration of analgesia was 10.84 hrs, which is consistent with the study by Lim et al4 which stated that Diclofenac suppository was effective in reducing post caesarean PCEA requirement by 33% for the first 24 hrs, postoperatively.

Rashid et al5 in his randomized single blinded controlled study using rectal Diclofenac for post caesarean analgesia showed that VAS score for pain in the study was significantly less at 12, 18, 24 hrs after surgery and concluded that it reduces the patients opioid requirements with a corresponding reduction in opioid related side effects.

In Group I, the above two techniques are combined in a multimodal approach and as a preemptive analgesia and the effective duration of analgesia is prolonged in this group to 25.03 hrs.

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Dennis AR et al6 in 1995 in his study proved that rectal Diclofenac along with intrathecal Bupivacaine and Morphine produced prolonged analgesia compared to a single approach.

So in this study we have combined a peripheral nerve block and a NSAID rectally to give effective and prolonged analgesia postoperatively.

The postoperative pain that follows a caesarean section with the pfannensteil incision has both a somatic component and a visceral component. The somatic pain originating at the incision site is conducted by ilio-hypogastric and ilioinguinal nerves which innervate L1-L2 dermatome7,8.

The visceral pain component is diffuse with no peripheral nerve association. So an enhanced nerve block in combination with analgesics in this case rectal Diclofenac will decrease postoperative PCA morphine use.

Rectal Diclofenac has a rapid onset of absorption although slower than that from oral administration. Peak plasma concentrations are attained on average within a hour9.

Side effects were minimal in this study. Inadequate analgesia was seen in 2 patients in Group I, in 3 patients in Group II and in 3 patients in Group III.

In Groups I and II, it may be due to failed block or due to the regression of sensory level and in Group III, it may be due to irrelevant absorption from the rectum.

Some patients in Group I and III complained epigastric pain – 3 in Group I and 5 in Group III. It may be due to the gastric irritation caused by rectal Diclofenac, which was treated by giving IV Ranitidine 50 mg. No rectal irritation or nausea and vomiting was encountered. No local anaesthetic toxicity was noted.

From the above observation, we come to realize that a multimodal approach of combining an NSAID rectal Diclofenac and peripheral nerve blockade, (ie) bilateral ilioinguinal ilio-hypogastric nerve block gives an effective and prolonged duration of analgesia in the postoperative period of caesarean section by pfannensteil incision.

CONCLUSION:

Bilateral ilioinguinal ilio-hypogastric nerve block with rectal Diclofenac can be used effectively as an alternative method for the postoperative pain relief in post caesarean patients. The combination of the two techniques provided prolonged analgesia of 25.03 hrs with minimal side effects compared to either technique alone which helps in early ambulation.

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