Short Communication

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Evaluation of Post Operative Analgesic Efficacy of Intramuscular Pethidine, Compared to Indometacin and Diclofenac Na Suppositories in Unilateral Inguinal Hernioplasty Patients

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We compared analgesic effects of intramuscular pethidine to diclofenac sodium and indometacin suppositories. This study is a semiexperimental clinical trial study over 55 patients of 17 to 60 years old who had undergone unilateral inguinal hernioplasty. These patients divided into 3 groups incidentally the first group including 17 patients who received 100 mg indometacin suppository every 8 h to relief postoperative pain. The second group of 18 patients who received 100 mg Diclofenac Na suppository every 8 h and the third group including 20 patients who received 0.5 mg kg^{-1} body weight pethidine intramuscularly every 8 h and the first dose of each drug started 2 h after termination of operation. The severity of pain was checked by Visual Analogue Scale (VSA) method every 2 h for 24 h. Mean pain severity checked and compared in 6 h intervals. Mean pain severity and standard deviation in the first 24 h were 23±12 for indometacin and 27±12 for pethidine and 31±9 for diclofenac Na groups respectively. There is no meaningful difference in pain relief during the first post op day. We concluded that Indometacin and diclofenac Na suppositories are good substitutes of intramuscular pethidine to relief post op pain during the first post op day.

Key words: Intramuscular pethidine, indometacin, Diclofenac Na, suppository, post operative (post op) pain, nonsteroidal anti inflammatory drugs NSAID

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INTRODUCTION

More than 100000 patients need surgical interventions to diagnose or treat their illness, yearly. They suffer of varying degrees of post operative pain (Chauvin, 1999) and inadequate pain relief (Dugas, 1993; Bonica, 1990). Up to 77% of hospitalized patients in medical or surgical wards have pain (Devita, 1989). Many drugs have been used to relief postoperative pain, including narcotics and non-steroidal anti-inflammatory drugs (NSAID).

Narcotic drugs have side effects including nausea, vomiting, confusion, respiratory depression constipation, tolerance and addiction in long term therapy. (Devita, 1989; Hardman and Limbird, 2002; Sia *et al*., 1997; Montgomery *et al*., 1996; Keenan *et al*., 1983; SindhVananda *et al*., 2005).

NSAID also have been used to relief post op pain with lesser complications and cost. (Dugas, 1993; Sia *et al*., 1997; Miller *et al*., 2000; Tripathi, 2001).

And reduce Narcotic consumption to relief post pain when added to Narcotics (Rashid and Jaruidi, 2000; Bourlert, 2005; LeGeby *et al*., 2005).

In this study we compared the efficacy of post op pain relief of Diclofenac sodium and Indometacin suppositories to each other and to intramuscular Pethidine. All of the patients had unilateral inguinal Hernioplasty operation in 5th of Azar teaching Hospital of Gorgan University of Medical Sciences. All drugs had been made in the same factory and had similar trade mark.

MATERIALS AND METHODS

This study is a semi experimental clinical trial research on 55 patients who had undergone unilateral inguinal Hernioplasty (Oct 2004-Mar 2005) in 5th of Azar Hospital. They were 17 to 60 years of age. The patients divided into three groups incidentally.

The first group of 17 patients who received indometacin suppository, the second group of 18 patients who received diclofenac Na suppository and the final third group of 20 patients who received Intramuscular pethidine to relief post op pain.

All patients were of class 1 and 2 of ASA anesthesia classification, they had similar General anesthesia procedure and the opium Addict patients or the others who had previous Analgesic therapy due to underlying illness and those with allergic reaction to NSAIDs were not included in this study.

Pain severity checked by VAS (Visual Analogue Scale) Method and the patients trained to this method before operation.

VAS includes a straight line with no divisional lines with 10 centimeters length. No pain is Zero number and severe pain is hundred in number.

Post op pain is determined by the patient and recorded and measured by a ruler.

This method is accurate to measure clinical acute or chronic pain and could be understand by the patients (Malek *et al*., 2004; Chauvin, 1999; Macaffery and Beebe, 1989; Phipps and Sands *et al*., 1999; Wilson and Giddens, 2001).

In the first group, the first dose of 100 mg indometacin suppository was used for the patients, 2 h post op when they were pain free and this regimen continued every 8 h for them up to 24 h.

Every 2 h pain estimated by the patients by VAS method. Pain measured to be zero when the patients were sleep. All drugs manufactured by the same drug company. In the Second group 100 mg Diclofenac Na suppository was used and pain controlled in the same manner of the first group.

In the third group, 2 h post op, When the patients were pain free 0.5 mg kg^{-1} of body weight pethidine prescribed intramuscularly and the regimen continued every 8 h up to 24 h.

Pain checked in the same manner of the first and second groups. Statistical analysis was done with (Nonparametric Klomogrov Smirnov'S Statistical Test) and there was normal distribution of pain severity in each group.

Mean pain severity compared among three groups by Analysis of vaienel groups (ANOVA) method. SPSS Statistical software was used for analysis and (p-value) estimated to be 0.05.

RESULTS

Among 55 patients, 46 were male and 9 were female. In the Indometacin group 14 were male and 3 were female. In the Diclofenac Na groups 16 were male and 2 were female and in pethidine group there were 16 males and 4 females. Mean pain severity and standard deviation for the first 6 h were 46±20 for indometacin group and 55±16 for Diclofenac Na group and 57±14 for pethidine group, which have no meaningful statistical, difference.

As noted in Table 1 the same results have proved during the second and third and fourth 6 h periods respectively.

Mean pain severity and standard deviation among the entire post op 24 h were 23±12 for Indometacin group and 27±12 for Diclofenac Na group and 31±9 for pethidine group, that there is no meaningful statistical difference among 3 groups (Fig. 1).

Table 1: Comparison of analgesic effects of indometacin and diclofenac Na suppositories to Intramuscular pethidine during 6 h intervals and total 24 h of post op period

		Mean pain severity and SD			
Group	Time (h)	Indometacin	Diclofenac Na	Pethidine	p-value
First	6 h	46±20	55±16	57±15	NS*
2nd	6 h	23±15	25±17	29±16	NS
3rd	6 h	13±15	11±15	22±15	NS
4th	6 h	7±6	10±9	10±7	NS
Total	24 h	23±12	27±12	31±9	NS

NS: Non Significant

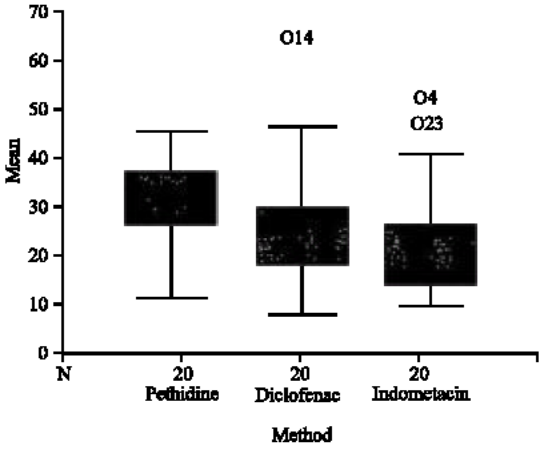

Fig. 1: Mean pain severity compared for 3 groups during the first post op 24 h

DISCUSSION

There is no meaningful statistical difference in mean pain severity pain score among three groups. It could be concluded that analgesic effect of intramuscular pethidine is similar to indometacin and diclofenac Na suppositories. This finding was consistent with finding of Sia et al. (1997) in post op cesarean section patients and abdominal gynecological surgery patients (Montgomery *et al*., 1996).

Keenan *et al*. (1983) in thoracotomy patients and Reasbeck *et al*. (1982) in major laparotomy patients had the same results of pain relief with diclofenac Na suppository. Hororka *et al*. (1993) had the same results with diclofenac Na supp in laparoscopy patients and in tonsillectomy patients reported by Tarkkila and Saarnivaara (1999). Some studies including Hodsman *et al*. (1987) had better results with Narcotics compared to NSAIDS (Hynninen *et al*., 2000; Hodsman *et al*., 1987; Colquhoun and Fell, 1989).

The mechanism of action of NSAID is inhibition of prostaglandins in central nervous system and periphery, where they act and pain reliefs (Black *et al*., 2001; Haviley *et al*., 1992). Non steroidal anti-inflammatory drugs have suggested to relief post op pain because of efficacy and lesser side effects and cost compared to narcotic drugs (Hardman and Limbird, 2002; Keenan *et al*., 1983; Tripathi, 2001; Tarkkila and Saarnivaara, 1999; Hynninen *et al*., 2000). NSAIDS have no tolerance and when added to narcotics, opiate consumption will be reduced (Bowrlet, 2005; Legeby, 2005). We concluded that NSAID are good substitute of narcotics to relief post op pain.

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