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COMPARISON OF PREOPERATIVE RECTAL DICLOFENAC AND RECTAL PARACETAMOL FOR POSTOPERATIVE ANALGESIA IN PAEDIATRIC PATIENTS

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ABSTRACT

BACKGROUND: Acute postoperative pain has adverse effects on the various physiological functions of the body. It can cause haemodynamic derrangement, delay in ambulation. In paediatric population it causes anxiety, apprehension & behaviour changes.

AIMS & OBJECTIVES: To compare the efficacy of preoperative rectal diclofenac, paracetamol and their combination for postoperative analgesia , haemodynamic stability, adverse effects in paediatric patients.

METHOD: We conducted a randomized observational study were children of age group 2-12 year undergoing minor surgical procedures were randomly allocated into 3 groups, of 15 patients each. Group 1 received diclofenac suppository 2 mg/kg after induction. Group 2 received paracetamol 15 mg/kg suppository after induction. Group 3 received combination of Diclofenac 1mg/kg & paracetamol 10 mg/ kg suppositories. Pain scoring (modification of the objective pain scale by Hannallah and colleagues) which denotes pain based on 3 parameters, crying, movements, agitation (confused, excited).

CONCLUSION: We concluded that though, diclofenac sodium, paracetamol & their combination are good postoperative analgesics when given by rectal route in pediatric patients undergoing minor surgeries, combination group provides better analgesia than others in terms of haemodynamic stability, post-operative analgesia, adverse effects.

INTRODUCTION

Pain is an unpleasant sensory and emotional experience associated with actual or potential tissue damage. This process of cutting tissue, traction and tissue injury leads to stimulation of free nerve endings and specific nociceptors leading to intraoperative and postoperative pain. This acute pain has adverse effects on the patients moral as well as various physiological functions of the body. So adequate control of postoperative pain is essential for good out come as well as it is one of the factors which reduce the hospital stay. Pain relief can be achieved by various methods like systemic opioids, NSAIDs, central neuroaxial block either intrathecal or epidural opioids, local anaesthetic or by peripheral nerve block and infiltration of wound by local anaesthetics. Historically children have been under treated for pain and for painful stimuli because of wrong belief that they neither suffer or feel pain nor respond to or remember the painful experience to the same degree that adults do. An unproved safety and efficacy of the analgesics and worries about the risk of opioid induced respiratory depression added more reasons for the under treatment of pain in children. The society of paediatric anesthesia clearly defines the alleviation of pain as a basic human right irrespective of age, medical condition, treatment, service response for the patient care or medical institution. The aim of this study was to compare the effect of preoperative rectal diclofenac sodium and preoperative rectal paracetamol,& their combination in terms of heart rate, systolic blood pressure, SpO2, postoperative pain scores, duration of postoperative analgesia and side-effects.

METHOD

In this study, 45 patients of either sex, age between 2– 12 years, belonging to ASA grades I,II undergoing various surgical procedures were studied. ASA grade III,IV or V patients were excluded from this study. Group Allocation: These patients were randomly allocated to three groups. Randomization was done by computer generated numbers by internet. Execution of Randomization after induction. Group 1 –patients received diclofenac sodium 2 mg/kg suppository immediately following induction. Group 2 – patients received paracetamol 20 mg/ kg suppository immediately following induction. Group 3 - patients received diclofenac 1 mg/mg & paracetamol 10 mg/kg suppositories after induction. Preoperative written informed consent was taken from parent/guardian. Patients were kept NBM Starvation protocol was followed in each case. In the operating room, monitors, pulse oximeter, blood pressure cuff and ECG monitor were attached. An Intravenous line was secured and inj. ringer lactate solution was started. All patients were premedicated with Inj.Glycopyrrolate 0.004mg/kg, Inj.Midazolam 0.02mg/kg, Inj.Ondansetron 0.08 mg/kg. Patients in both groups were preoxygenated with 100% O2. Induction was done with Inj.thiopentone 6mg/kg, with loss of eyelash reflex as the anaesthetic endpoint. After confirming that patient could be ventilated on mask, short acting muscle relaxation was obtained with Inj. Succinylcholine 2mg/kg. Patients were ventilated with reservoir bag and mask. Endotracheal intubation was done with proper sized uncuffed armoured portex endotracheal tube. Bilateral equal Air entry was checked, and tube fixed by adhesive tape. Patients in group A received diclofenac suppository 2 mg/kg post induction. Patients in group B received paracetamol suppository 20mg/kg post induction. In group C ,patients received combination of diclofenac 1mg/mg& paracetamol 10 mg/mg suppositories after induction. Patients were maintained on O2+N2O & sevoflurane 0.8-1%with Inj.atracurium & controlled ventilation on pressure mode of ventilation. Vital parameters, heart rate, systolic blood pressure, SpO2 and ETCO2 were monitored every 10 min intraoperatively and their mean values found out. At the end of surgery ,patients were extubated after reversal of neuromuscular blockade by inj glycopyrolate 0.002 mg/ kg & inj neostigmine 0.05 mg/ kg. Pain scoring (modification of the objective pain scale by Hannallah and colleagues) which denotes pain based on 3 parameters, crying, movements, agitation (confused, excited) at 0 hrs after extubation, heart rate, systolic blood pressure,SpO2 and pain scale were recorded. These parameters were also observed at 1, 2 and 6 hrs after surgery in the recovery room and ward. Rescue analgesic was given routinely after 6 hrs postoperatively or when pain score was>3 in the form of Inj.diclofenac IV 1mg/kg. All patients were observed for any side-effects in the postoperative period for 6 hrs. in the ward, and any complication if occurred was treated in the conventional manner. The P value of >0.05

was considered as statistically insignificant (NS). P value <0.05 was statistically significant (S). P value <0.001 was statistically highly significant (HS).

Pain scoring (modification of the objective pain scale by Hannallah and colleagues)

Observation	Criteria	Points
Crying	No crying	0
	Crying but responds to TLC	1
	Crying not responding to TLC	2
Movement	None	0
	Restlessness	1
	Thrashing	2
Agitation	Asleep/calm	0
	Mild	1
	Hysterical	2

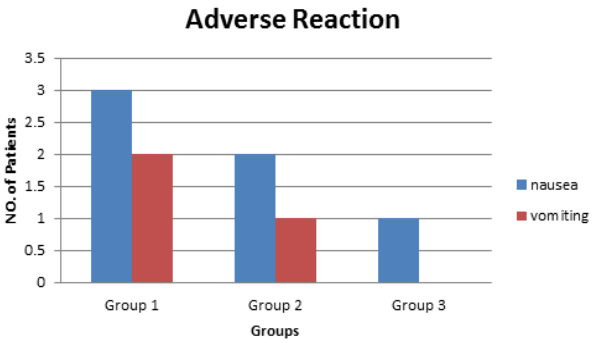
RESULTS

Pain score

Pain score	Group 1	Group 2	Group 3	P value
1 hour	1±0.3	1±0.8	1±0.1	<0.05
2 hour	2±0.4	2±0.7	2±0.2	<0.05
6 hour	3±0.5	3±0.7	3±0.1	<0.05

Adverse reaction

Parameter	Group 1	Group 2	Group 3	P value
Nausea	3(20%)	2(13%)	1(6%)	<0.05
Vomiting	2(13%)	1(6%)	-	<0.05



We found that rectal Diclofenac and Paracetamol,& their combination, possess analgesic action, but the postoperative pain scores in patients who received rectal Diclofenac & Paracetamol suppositories are better as compared to those in the paracetamol group, & Diclofenac group, the difference between the pain scales being statistically significant (p<0.05).

Incidence of nausea was more with diclofenac suppository, though not statistically significant.

We concluded that rectal diclofenac sodium , paracetamol & their combination

are good postoperative analgesics in pediatric patients undergoing minor surgeries.

Diclofenac&Paracetamol combination provides cost-effective analgesia & better haemodynamic stability .

DISCUSSION

We conducted a randomized study to compare the efficacy of intraoperative rectal diclofenac and rectal paracetamol & their combination for postoperative analgesia in pediatric age group was conducted in an our hospital. We found that rectal Diclofenac and Paracetamol & combination of both possess analgesic action, but the postoperative pain scores in patients who received rectal Diclofenac paracetamol combination are better as compared to those in the Paracetamol group & Diclofenac group.

Regarding adverse reactions, The incidence of nausea was 20% in diclofenac group, while 80% had no side effects, In the paracetamol group, the incidence of nausea was 13%, while 87% had no side effects ,in combination group it was 6% incidence of nausea.

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