ISSN2515-8260 Volume 09,Issue 01,2022

Assess the analgesic efficiency of rectal diclofenac after caesarean section

Dr. Harsh Kasliwal
Associate Professor, Department ofAnaesthesiology, RD Gardi Medical College, Ujjain, Madhya Pradesh, India
Corresponding Author: Dr. Harsh Kasliwal (harshkasliwal84@gmail.com)

Abstract
Background: Pain management following caesarean section still remains a challenge in our environment. Diclofenac suppository is an effective adjunct analgesic for post-operative pain control. Over the last two decades the number of caesareans being performed has increased dramatically. High quality postoperative analgesia is important because the new mother has to recover from major intra-abdominal surgery while also caring for her newborn baby. Many options are available but tailoring the method to the individual can be problematic because it has been difficult to predict the severity of postoperative pain or the individual response to a regimen.
Aims and Objectives
1) To assess the analgesic efficiency of rectal Diclofenac after caesarean section.
2) To evaluate number of doses of analgesics required for post-operative pain relief after caesarean section after using rectal diclofenac.
Material and Methods: The study was conducted at R D Gardi Medical College Ujjain, Madhya Pradesh. 104 females posted for elective and emergency caesarean section of ASA Grade I and II were selected for study. Of those 52 were allocated in study group and 52 in control group. Study group given rectal diclofenac suppository and control group were given rectal glycerine suppository postoperatively. Pain was assessed with visual analogue scale (VAS) at different postoperative interval. Analysis was done by using SPSS.
Observations and Results: Both groups were comparable in demographic data. The mean time of first dose of analgesia required was 7.8 hrs in study group and 3.48 hrs in control group, means rectal suppository increases the duration of analgesia. The number of analgesia doses required during 48 hrs postoperatively were 2.88 while in control group 4.34. While in study group only 10% patient woke up at night due to pain and in control group 48% patient woke up.
Conclusion: Our study concludes that rectal diclofenacsuppository is effective and safe for postoperative pain relief in post caesarean section patients. Quality of analgesia achieved was better with diclofenac. It has got long duration of action postoperatively. It can be administered easily by non-invasive route without any side effect.
Keywords: Visual Analogue Scale(VAS), caesarean section, analgesia, diclofenac, postoperative pain, post-caesarean analgesia, pain relief, pain management

Introduction

Pain management following caesarean section still remains a challenge in our environment. Diclofenac suppository is an effective adjunct analgesic for post-operative pain control. Over the last two decades the number of caesareans being performed has increased dramatically [1-3]. High quality postoperative analgesia is important because the new mother has to recover from major intra-abdominal surgery while also caring for her newborn baby. Many options are available but tailoring the method to the individual can be problematic because it has been difficult to predict the severity of postoperative pain or the individual response to a regimen. There is progressive increase in caesarean deliveries across the world; in developed as well

ISSN2515-8260 Volume 09,Issue 01,2022

developing countries [4]. In India in tertiary care hospital on an average 36.41% deliveries occur by caesarean [5]. All patients are anxious about their operative procedures because of fears of operative and postoperative pain. Various methods are used to relieve the pain like use of opioids, use of NSAIDS, regional blocks. Opioids are most commonly used drugs for postoperative pain relief. But these drugs sedation, respiratory depression which are dangerous [6]. Diclofenac is a potent non-steroidal anti-inflammatory agent (NSAID) which has both analgesic and anti-inflammatory properties [7]. The present study was undertaken to evaluate the analgesic efficiency of rectal diclofenac for postoperative pain relief after caesarean section.

Materials and Methods

This study was conducted at RD Gardi Medical College Ujjain, Madhya Pradesh.. Total 104 females were undergone in elective or emergency lower segment caesarean section of ASA Grade I and II were selected for study.

Exclusion Criteria

1. Patients with local sepsis.
2. Patient with known allergy to local anaesthetics or non-steroidal anti-inflammatory drugs. (NSAIDS).
3. Patients with bleeding disorders.
4. Patients with severe spinal deformities and neurological diseases.

Patient belonging to ASA grade I and II for lower section caesarean section were selected who were to be operated under spinal anaesthesia. Patient were allocated in two groups. Study groups were allocated 52 females and control group were allocated with 52 females by simple random technique. At the end of operation after vaginal cleaning study group patients (Group I) received Diclofenac sodium suppository 100mg rectally while control group patients (Group II) received Glycerine suppository rectally. At this time blood pressure, pulse rate, respiratory rate and visual analogue score for pain was recorded. Then pain was assessed using standard 10cm visual analogue scale at rest and at movement at 1, 2, 4, 6, 9, 12, 24 and 48 hours. Duration of analgesia was assessed till the demand of 1st dose of analgesic. Usually 1st dose is administered when VAS is 5 to 6. Within above period, number of doses of analgesics required forpost-operative pain relief was also assessed. At same time nausea, vomiting, sedation, respiratory depression assessed. Statistical Analysis: All values are reported as mean ± SD. Unpaired two- tailed Student‘t’ test was used to assess the significance of the differences in values of the parameters in cases and controls. Differences were considered statistically significant at a probability value $P<0.05$ All statistical analyses were performed with IBM SPSS Statistics version 19.0 (IBM Corporation, Somers, NY) {6}.

Observations and Results

Table 1: Patients segregation as per surgical procedures

Caesarean section	Study group(1)	Control group(2)
Emergency	18(35%)	20(38%)
Elective	34(65%)	32(62%)
Total	52(100%)	52(100%)

ISSN2515-8260 Volume 09,Issue 01,2022

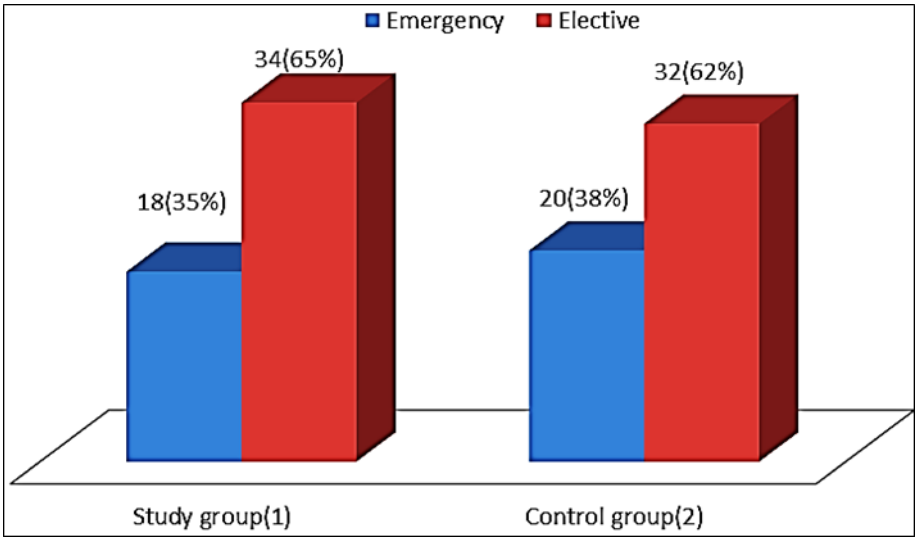

Fig 1: Patients segregation as per surgical procedures

Table 2: Pain VAS score at 0, 1, 2, 4, 6 and 9 hours

Pain scoreat 0 hoursat1hour at 2hoursat4hoursat6hoursat 9 hours

	Group 1	Group 2	Group 1	Group 2	Group 1	Group 2	Group 1	Group 2	Group 1	Group 2	Group 1	Group 2
0	2	-	-	-	-	-	-	-	-	-	-	-
1	23	2	12	-	2	-	-	-	-	-	-	-
2	22	50	33	5	22	-	7	27	1	24	16	-
3	4	-	7	47	23	4	22	-	9	28	15	22
4	1	-	-	-	3	47	18	-	18	-	4	15
5	-	-	-	-	2	1	4	16	19	-	14	8
6	-	-	-	-	-	-	1	9	4	-	3	7
7	-	-	-	-	-	-	-	-	1	-	-	-

Table 3: Need of 1st dose of analgesia in both the Groups

Time(Hours)	Study group	Control group
2-3	-	-
3-4	-	27(52%)
4-5	2(4%)	25(48%)
5-6	-	-
6-7	14(27%)	-
7-8	7(13%)	-
8-9	9(17%)	-
9-10	16(31%)	-
10-11	1(2%)	-
11-12	3(6%)	-
Mean	7.8+1.74	3.4+0.5

Table 4: No. of analgesic doses Needed in 48 hrs

No. of the doses	Study group	Control Group
0	-	-
1	-	-
2	11(21%)	-
3	36(69%)	-
4	5(10%)	35(67%)
5	-	17(33%)

ISSN2515-8260 Volume 09,Issue 01,2022

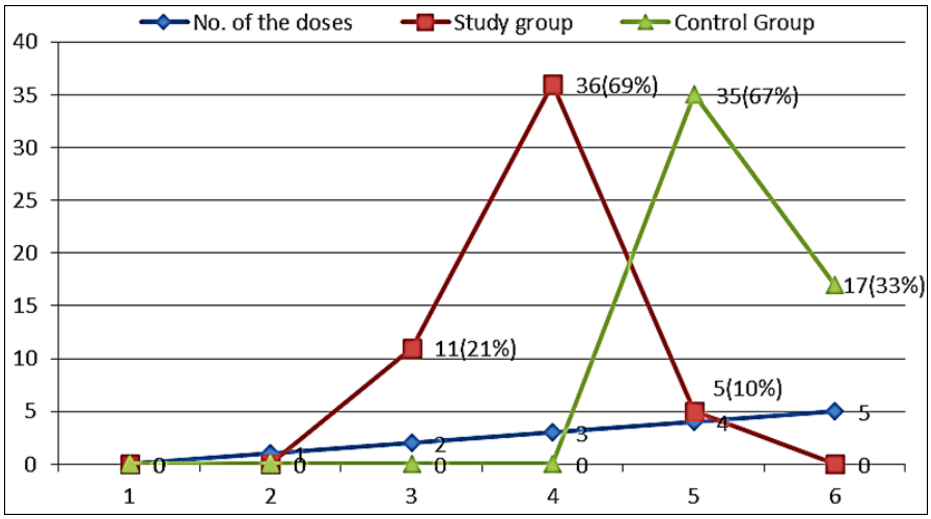

Fig 2: No. of analgesic doses Needed in 48 hrs

Age range of the patients were 18 to 32 years. In study Group (Group I) mean age with SD was 22.64 +2.79 while in control group (Group II) it was 22.42+2.85 years. Table (1) and Figure (1) shows distribution of patients according to surgical procedure. 34 (65%) in study group and 32 (62%) in control group underwent emergency LSCS. By applying Chi square test there was no statistically significant difference between two groups. ($X2 = 0.1736$, $P > 0.05$) Table (2) shows pain VAS score at 0, 1, 2, 4, 6 and 9 hrs and table (3) shows requirement of 1stdose of analgesia in both the Groups. At 0 hr in both the groups no patient had pain score more than 4. So both groups were comparable. At 1 hr there was no patient who had pain score more than 4 but from study group those who had pain score 4 at 0 hr were shifted to pain score less than 4. That shows the effect of diclofenac suppository on pain. At the end of 2 hr in study group only 4 (8%) patient had pain score more than 4 while in control group 28 (56%) patients had pain score more than 4. Those who have score more than 5 received analgesic dose. So in study group only 2 received analgesic dose while in control group 27 received analgesic dose. At the end of 4 hrs from study group only 5 (10%) patients had pain score more than 4 at rest, while in control group 24 (48%) patient had pain score more than 4 at rest. That means 14(28%) patients from study group and 24 (48%) patients from control group received dose of analgesia. At 6 hrs most of the patients had already received analgesic doses and so pain score at rest and movement in this group had pain score less than 5. At 9 hrs in most of the patients had already received analgesic doses and so pain score at rest and movement in this group had pain score less than 5 compared to study group. In study group only 2 (4%) patients required analgesia within 4 to 5 hrs and almost 96% requires analgesia after 6 to 7 hrs. in control group 26 (52%) required 1st dose of analgesia within 4 to 5 hrs. This is also statistically highly significant ($X2 = 16.87$, $P < 0.001$) this shows that rectal suppository increases analgesic period and required less number of analgesic doses. Table (4) and Figure (2), showing number of analgesic doses required during 48 hrs. In study group most i.e. 45 (90%) required less than 4 doses while in control group all have required more than 4 doses. This shows that rectal suppository decreases the requirement of analgesia doses approximately by 50%. It was statistically highly significant. ($X2 = 13.39$, $P<0.001$) The mean number of doses of analgesia required during 48hrs were 2.88 + 0.55 in study group and that of in control group were 4.24 + 0.46. It was almost double.

Discussion

This study was conducted to evaluate the effectiveness and safety of rectal Diclofenac as an adjunct analgesic in a resource constrained setting where more potent opioids are not readily available and hence a less potent opioid derivative pentazocine is more commonly used as the

primary analgesic following caesarean section. Adequate pain control following caesarean section should be aimed at irrespective of one's setting of practice; not only is this good practice, it is as well the right of the patients [8, 9, 10].Pain is an unpleasant, subjective, sensory and emotional experience associated with real or potential tissue damage, or described in terms of such damage. It is an unavoidable component of the postsurgical experience, and even the most fortunate of patients is not exempted. An individual who undergoes surgery would probably consider it his or her right to obtain adequate relief of postoperative pain. In present study first dose of analgesia required was 7.8 hrs + 1.74 in study group and that of control group it was 3.48 + 0.50 which are similar to the finding to the ME Bone[11]*et al*. in which they found that mean time for analgesia after diclofenac suppository as 7.3hrs. Also A R Dennis[12]*et al*. in their study found that mean time for first dose of analgesia get increased by 5 hrs in patients receiving diclofenac suppository. In present study mean number of doses of analgesia required during 48hrs were 2.88 + 0.55 in study group and that of in control group were 4.24 + 0.46. It was almost double. Which are similar to the findings given by Jayne A searles*et al*.[13], H. Ejnell[14]*et al*. and R.M Scott[15,16]*et al*. Although,the management of acute pain after caesarean section has evolved considerably over the past decade. The general approach to pain after cesarean section is changing, shifting away from traditional opioid-based "unimodal" therapy toward a "multimodal" or "balanced" approach [17,18].In the meanwhile there are some studies indicating that the use of diclofenac alone is more effective to control postoperative pain in comparison with acetaminophen alone. Results of Sidik*et al*., done on 80 patients undergoing scheduled cesarean section in 4 groups, placebo, rectal diclofenac, intravenous paracetamol and paracetamol–diclofenac combination, showed less pain severity score and need for narcotics in patients receiving diclofenac while acetaminophen was less effective than the combination of diclofenac-acetaminophen. Diclofenac is one of the most potent cyclooxygenase enzyme inhibitors and by inhibiting the synthesis of prostaglandins it reduces inflammation and promotes peripheral analgesic effect.It seems, that will cause better analgesic effects while using them separately and will have longer and more effective analgesia.

Conclusion

Although, approach towards immediate post-operative pain control (especially following caesarean section) in our environment be changed from the present 'unimodal approach' to one with a 'multimodal strategy' involving the use of at least two different analgesic agents with different mechanisms of action such as the combination of an NSAID (e.g. Diclofenac) and an opioid or opioid derivative (e.g. pentazocine). However, this study concludes that rectal diclofenac suppository is effective and safe for postoperative pain relief in post caesarean section patients. Quality of analgesia achieved was better with diclofenac. It has got long duration of action postoperatively. It can be administered easily by noninvasive route without any side effect.

Source of support: None.

Conflict of interest: None.

References

1. Villar J, Valladares E, Wojdyla D, Zavaleta N, Carroli G, Velazco A *et al*. Caesarean delivery rates and pregnancy outcomes: the 2005 WHO global survey on maternal and perinatal health in Latin America. Lancet. 2006;367:1819-1829.
2. Churchill H, Savage W, Francome C. Caesarean birth in Britain. London: Middlesex University Press, 2006.
3. MacDorman MF, Declercq E, Menacker F, Malloy MH. Infant and neonatal mortality for primary cesarean and vaginal births to women with "no indicated risk", United States, 1998-2001 birth cohorts. Birth. 2006;33:175-182.

4. National Institutes of Health state-of-the-science conference statement. Cesarean delivery on maternal request. Obstet Gynecol. 2006;107:1386-97.
5. Gupta M *et al*. The rate and indications of caesarean section in a tertiary care hospital at Jaipur, India. Int. J Reprod. Contracept Obstet Gynecol. 2017 May; 6(5):1786-1792.
6. Mumtaz Rashid *etal*. The use of rectal diclofenac for postcesarean analgesia. Saudi Medical Journal. 2000;21(2):145-149.
7. Buchanan JM, Halshaw J, Baldesera J, Pollard JK, Poole P. Post-operative pain relief; a new approach: narcotics compared with non-steroidal anti-inflammatory drugs. Ann R Coll. Surg. Engl. 1988;70:332-335.
8. Cousins MJ. Relief of acute pain: a basic human right? Med J. 2000Aust;172:3-4.
9. Somerville MA. Death of pain: pain, suffering and ethics. In: Gebhart GF, Hammond DL, Jensen TS (eds). Proceedings of the 7th World congress on pain. Progress in pain research and management. 1994;2:44.
10. Cousins MJ, Brennan F, Carr DB. Pain relief: a universal human right. Pain. 2004 Nov;112(1-2):1-4.
11. Dr. AarushiKataria, Dr. Naveen Nandal and Dr. Ritika Malik, Shahnaz Husain -A Successful Indian Woman Entrepreneur, International Journal of Disaster Recovery and Business ContinuityVol.11, No. 2, (2020), pp. 88–93
12. Aarushi, Naveen Nandal, Parul Agrawal. AN EXPLORATORY RESEARCH IN PRODUCT INNOVATION IN AUTOMOBILE SECTOR. JCR. 2020; 7(2): 522-529. doi:10.31838/jcr.07.02.98
13. Kumar, S. (2022). Effective hedging strategy for us treasury bond portfolio using principal component analysis. Academy of Accounting and Financial Studies Journal, Vol. 26, no.2, pp. 1-17
14. BoneME,FellD.Comparison of rectal diclofenac with intramuscular papaveretum or placebo for pain relief following tonsillectomy. Anaesthesia. 1988;43:277-280.
15. DennisAR,Lesson PayneC, HobbsGJ. Analgesia after caesarean sectio the use of rectal diclofenac as an adjunct to spinal morphine. Anaesthesia. 1995;50:297-299.
16. Jayne A, Searles David, PringW. Effective analgesia following perineal injury during child birth: a placebo controlled trial of prophylactic rectal diclofenac. British Journal of Obstetrics and Gynaecology. 1998;105:627-631.
17. EjnellH,BjorkmanR,WahlanderL,HednerJ.Treatment of postoperative pain diclofenac in Uvulopalatopharyngoplasty.British Journal of Anaesthesia. 1992;68:76-80.
18. Scott RM,Jennings PN.Rectal diclofenac analgesia after abdominal hysterectomy Aust. NZJ Obstetrics and Gynaecology. 1997;37(1):112-114.
19. Kehlet J, Dahl J. The value of "multimodal" or "balanced analgesia" in postoperative pain treatment. AnesthAnalg. 1993;77:1048-56.
20. Venkateswaran R, Prasad KN. Management of postoperative pain. Indian J Anaesth. 2006;50(5):345-54.