

Effects of Rectal Indomethacin on Mother and Fetus for Diminishing Pain of Labor

At Hazrat Zeinab Hospital 2004- 2005

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اثرات ایندومتاسین رکتال جهت کاهش درد زایمان بر مادر و جنین در بیمارستان حضرت زینب (س) ۱۳۸۳

خلاصه

مقدمه: تاکنون از روشها و داروهای گوناگونی جهت کاهش درد زایمان استفاده شده است. هدف از این مطالعه با توجه به ارزان و در دسترس بودن و مصرف آسان ایندومتاسین بررسی اثرات این دارو در کاهش درد زایمان بر مادر و جنین بوده است.

روش کار: این تحقیق کارآزمایی بالینی و دوسوکور در سال ۱۳۸۳ در زنان باردار اول زا در بیمارستان حضرت زینب (س) انجام شده است. ۱۰۰ نفر از زنان باردار اول زا به صورت تصادفی به دو گروه تقسیم و مورد مطالعه قرار گرفتند. در گروه مورد هنگام شروع فاز فعال زایمان ایندومتاسین رکتال ۵۰ میلی گرم هر ۴ ساعت و در گروه شاهد پلاسبو تجویز گردید. سپس در هر یک از دو گروه به بررسی سیر زایمان، شدت درد در مراحل مختلف زایمان، میزان خونریزی مادر و آپگار دقایق یک و پنج و وزن نوزاد پرداخته شد. مشخصات فردی، وضعیت درد در پرسشنامه جمع آوری گردید. اطلاعات جمع آوری شده با استفاده از آمار توصیفی و جداول توزیع فراوانی پردازش شد.

نتایج: میانگین سن بیماران ۲۱/۵۱ سال بود. بیماران غالباً (۸۱٪) به خاطر شروع درد زایمان و بقیه به علت پارگی کیسه آب مراجعه کرده بودند. میانگین درجه درد در شروع مرحله فعال در دو گروه تفاوت معنی داری نداشت، اما میانگین درجه درد یک ساعت پس از تجویز دارو و در هنگام دیلاتاسیون کامل در گروه دریافت کننده ایندومتاسین به طور قابل توجهی کمتر بود ($P=0/001$ و $P=0/049$) و میانگین درجه درد حین خروج جنین در دو گروه مورد و شاهد تفاوت معنی داری نداشت. در بررسی وزن، آپگار دقیقه ۱ و ۵ نوزادان و هماتوکریت مادر قبل و بعد از زایمان در دو گروه مورد و شاهد تفاوت معنی داری بین دو گروه وجود نداشت. **نتیجه گیری:** با توجه به یافته‌های این مطالعه، تجویز ایندومتاسین رکتال در هنگام زایمان موجب کاهش درد در حد قابل قبولی در بیماران می‌شود که از نظر آماری معنی دار است ولی سیر زایمان را کمی طولانی می‌نماید که از نظر آماری معنی دار نیست و در مجموع با توجه به بی‌عارضه بودن آن هنگام زایمان، می‌توان از این روش بعنوان روشی برای کاهش درد زایمان بهره گرفت.

کلمات کلیدی: زایمان، بی‌دردی، ایندومتاسین

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Introduction

Labor is one of the most painful experiences, but the severity of pain is different in women. Pain tolerance also is different from case to case and in different positions.

Some authors suggest that pain is a biologic response to labor. In the other hand, pain has adverse effects on fetus and mother; so pain of labor must be relieved to some extent to reduce its adverse side effects keeping normal physiology.

Several methods such as systemic drugs (narcotic, sedatives, analgesics and NSAIDs), inhalation analgesia, regional anesthesia (spinal block or sub arachnoidal analgesia, epidural, caudal or bilateral pudendal or cervical block) and other methods are used for painless labor.

In this field we need effective, and also safe, drugs for both fetus and mother. NSAIDs are used but their effects are controversial yet.

Indomethacin as a NSAID, is an analgesic drug that inhibits prostaglandins. It is used in many conditions such as postpartum pain. It's effect on post episiotomy pain in cases of normal vaginal delivery was evaluated in Oxford University in 2004 and useful effects were reported in 50% (1,2).

In other study in Saudi Arabia (1998), Indomethacin suppository was used 15min before episiotomy and there wasn't any sever pain in comparison to the control group who used placebo (3).

Methods and Material

One hundred healthy primygravid women in spontaneous labour who requested analgesia were enrolled in clinical trial double -blinded study at Zeinab Hospital during 2004. Parturients randomly received Indomethacin or placebo suppository. Visual analogue pain scale was determined just before administration of the suppositories (at the beginning of active phase), one hour after using the suppository, by full dilatation and at the time of expulsion of the fetus.

Patients were selected according to inclusion (primy gravida patients how have term gestational age, and are in active phase of

labour) and exclusion criteria (patients who need to augmentation, and or cesarean section). After their agreement to entering the study, they were divided into two groups. Indomethacin suppository (50^{mg}) was used in case group every 4 hour until delivery. Control group received placebo.

Then we compared labor progression and pain score in different phases of labor (active phase, complete dilatation, fetus delivery) and one hour after our intervention. Data was recorded in the special forms according to our variables.

We also compared hematocrit alternations and Apgare score in two groups. Demographic characteristics were collected in question arrive and analyzed by descriptive statistics.

Results

Mean age of women was 21.51 ± 2.97 years. 81% were referred because of beginning of labor and others because of rupture of membrane. Age and cause of admission were almost the same in case and control groups.

Labor condition was evaluated in both groups and there wasn't any significant differences in dilatation and effacement at admission time between two groups at the time of initiation of the drug ($P=0.772$ and $P=0.425$ respectively).

Fetus station was -2 to -3 at time of admission in most of patients ($P=0.736$) and mid position and firm cervix was reported mostly; so there wasn't any significant differences between case and control groups ($P=0.732$ and 0.964 respectively).

Bishop score at the beginning of starting for position and consistency of the curv the drug was almost similar in both groups labor condition at the time of intervention was also the same in both groups ($P=0.308$ and $P=0.391$ for dilatation and effacement respectively)

Position and consistency of cervix and station of fetus at the time of intervention were

almost the same in both groups ($P=0.61$, $P=0.84$ and $P=0.27$ respectively).

Delivery progress was recorded after drug usage in case and control groups. Active phase of labor occurred 70 min after the first examination in case group and after 110 min in control group. But the difference wasn't significant statistically.

The period to occur Complete dilatation after administration of the drug was 185 min in case group and 208 min in control group, but complete dilatation in case group occurred with some delay, although there wasn't any

statistically significant difference between groups ($P=0.256$); but it might be because of the low number of cases.

The period time of initiation of the drug to fetus expulsion was 240 min in control group and 268 min in case group ($P=0.093$).

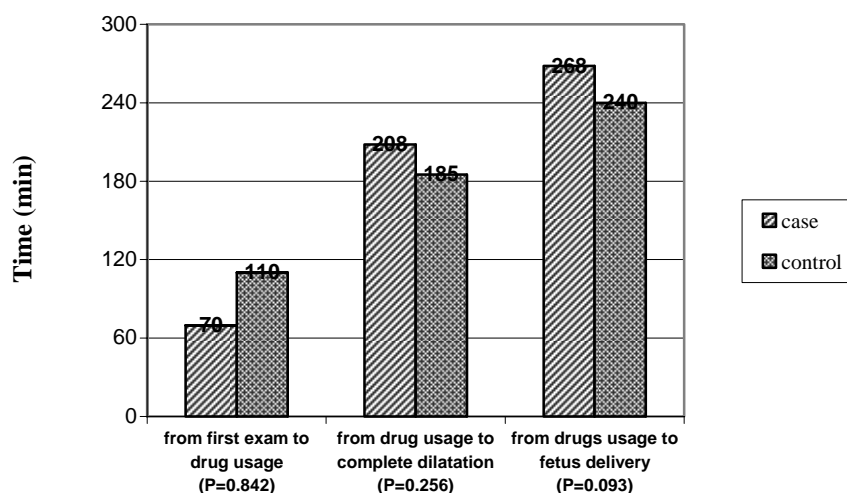


Figure 1: Mean time to different phases of labor in case and control groups in investigation of the effects of rectal indomethacin on mother and Fetus in painless labor. At Hazrat Zeinab Hospital 2004 2005

Pain of labor in patients was scored from 0 to 10 (0=without pain, 10= the most sever pain) Mean pain score at the beginning of active phase was 6.57 ± 1.25 in control group and 6.47 ± 1.28 in case group, but the difference wasn't significant according to T test.

Mean pain score at the complete dilatation was 7.06 ± 1.34 in control group and 6.57 ± 1.09 in case group. Mean pain score at complete cervical dilatation in those who used indomethacin was significantly less than control group ($P=0.049$).

Mean pain score at the time of delivery was 6.55 ± 1.27 in control group and 6.12 ± 1.16 in case group, so the difference between two groups wasn't significant statistically.

Mean pain score one hour after drug usage was 5.04 ± 0.91 in control group and 3.27 ± 1.16 in case group, the difference of which was significant statically ($P=0.001$).

We also studied probable side effects.

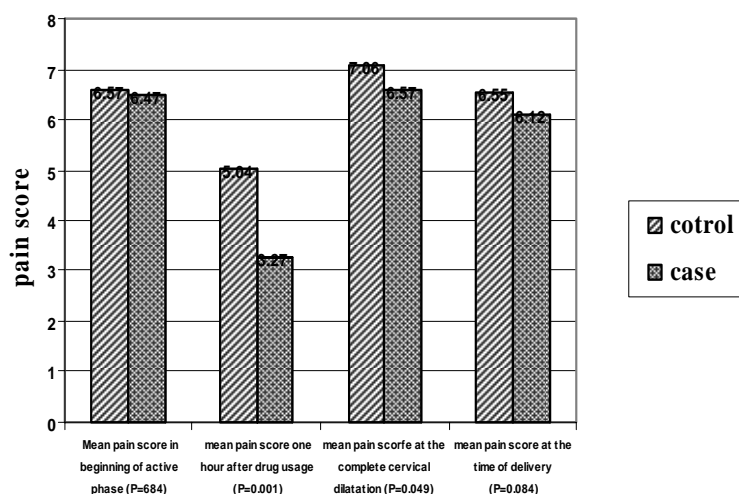


Figure 2: Mean pain score in different phases of labor in case and control groups in investigation of the effects of rectal indomethacin on mother and Fetus in painless labor. At Hazrat Zeinab Hospital 2004- 2005

Mean hematocrit before labor was 36.24 ± 3.01 in control group and 36.37 ± 3.10 in case group, which showed no significant difference.

Mean hematocrit 6 hours after labor was 34.76 ± 2.27 in control group and 35.69 ± 2.74 in case group, so there wasn't any significant difference.

Mean birth weight, which again did not have significant difference in two groups, was 3148.04 ± 371.81 grs in control group and 3175.51 ± 372.49 grs in case group.

Mean of 1st min apgar was 8.29 ± 0.64 in control group and 8.17 ± 0.64 in case group. Mean of 5th min apgar was 9.02 ± 0.61 in control group and 9.39 ± 0.53 in case group, so apgar score in both groups was almost the same.

Discussion

According to the results of our study, There was a delay in labor stages in the case group who received Indomethacin compared with control group, which may be because of tocolytic effects of Indomethacin and also decreasing of pain to some extent.

Pain score also was compared between two groups. Pain score at the beginning of active

phase of labor (time of our intervention) was almost of the same in both groups (0.684), but the mean pain score one hour after Indomethacin usage was significantly less than control group ($P=0.001$). The mean pain score at complete dilatation of cervix in case group was significantly less than others too (0.049); but mean pain score after fetus delivery didn't differ significantly.

So rectal Indomethacin during labor may cause a good pain reveal, which is also confirmed in other researches. Satisfactory analgesic effects of rectal Indomethacin during labor also is reported from Oxford University (2004), Dublin (1999) and Saudi Arabia (1998) (1,2,3).

Several studies have evaluated analgesic effects of rectal Indomethacin (as an NSAID) for reducing the pain after episiotomy, but it's effects on labor phases hasn't been studied (1,2,3,4). Painless labor without significant side effects using epidural analgesia was also reported from Nepal in 2003 (5).

Birth weight and Apgar score and mother's hematocrit were almost the same in both case and control groups. We conclude that there

wasn't any significant fetomaternal side effect for Indomethacin in our study. Although some side effects such as hemorrhage before and after labor and Intraventricular and periventricular hemorrhage are reported in some articles after Indomethacin usage (6, 7, 8).

Indomethacin and other NSAIDs are not advised to be used for more than 48-72 hours in pregnancy specially after 34 weeks of gestational age because of their side effects such as PDA, PHN and fetomaternal hemorrhage, platelet dysfunction, chromosomal abnormalities and GI disorders (7,8,9,10). But these side effects are not seen in short-term usage or administration during labor, but tocolytic effect is reported because

of cyclooxygenase inhibiting and suppress of prostaglandin (11).

In the other hand Indomethacin makes the vaginal labor more acceptable for pregnant women and decreases cesarean section incidence (12).

Although labor phases were prolonged in our patients who used Indomethacin, fetomaternal complications were not increased.

Conclusion

Rectal Indomethacin can induce acceptable and significant analgesic effects, so according to its safety we suggest rectal Indomethacin as a method to diminish pain of labor.

Abstract

Introduction: There are several methods to reduce pain of labor. In this study we evaluated the analgesic effects of indomethacin (according to its accessibility, easy usage and low price) in reducing pain of labor and also its probable side effects on fetus and mother.

Methods and Material: This was a clinical trial, double blind study on primy gravid pregnant women who came to Mashad Zeinab Hospital for delivery in 2004. 100 Patients were divided into two groups, case and control, randomly; and rectal indomethacin and placebo were used at the active phase of labor in them respectively. Labor progression, pain score in different steps of delivery, first and fifth minute apgar score, and weight of neonate and hematocrit of mother were compared between two groups.

Results: Mean age of patients was 21.51 ± 2.97 years and 81% of the patients came to hospital because of beginning of labor and others because of rupture of membranes. Pain score at the active phase of labor was almost the same in two groups but pain score 1 hours after intervention and at the complete dilatation in the case group was significantly less than control group ($P=0.001, P=0.049$). Pain score after fetus delivery was almost the same in both groups. First and fifth minute Apgar, Pre and post delivery hematocrit of mother did not differ significantly in the two groups.

Conclusion: Administration of rectal indomethacin at the active phase of labor can reduce labor pain significantly but may elongate labor duration (non-significantly). So it is a safe method for painless delivery.

Key words: Labor, Indomethacin, Painless

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