

Original Article

Use of Misoprostol in Term pregnant women for Good Delivery Outcome: Experience at a tertiary care Hospital in Dhaka

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Abstract

Background: Use of misoprostol in term pregnancy is very useful for the better outcome during delivery. **Objective:** The purpose of the present study was to see the delivery outcome among the term pregnant women. **Methodology:** This cohort study was carried out in the Department of Obstetrics and Gynaecology at Sir Salimullah Medical College and Mitford Hospital during the period from 1st September 2005 to 28th February 2006. Primi or second gravida patients with the gestational age between 37 weeks to 42 weeks in singleton pregnancy with cephalic presentation and not in labour who came for delivery purposes during the study period at any age were selected as study population. After proper selection of the cases, induction of labour (IOL) was done by applying Tab Misoprostol 50mcg in the posterior vaginal fornix. Purpose of induction of labour was successful when vaginal delivery occurred without any untoward side effects and without any surgical interference. **Result:** Out of 60 pregnant women 21 (35%) patients had unfavourable Bishops' score with 3-5 and 39 (65%) patients had favorable Bishops' score with 6-10. This table shows that 39 patients had favourable pre- induction cervical score, among them 79% had delivered vaginally and 21% had undergone LUCS. 21 patients had unfavourable cervix, among them 57% experienced vaginal delivery and 43% experienced LUCS. Out of all study population 60% of study population who were primigravide had vaginal delivery in 67% cases and caesarean section in 33% cases and among 40% 2nd gravida cases vaginal delivery was 79% and caesarean delivery was 21%. **Conclusion:** In conclusion the use of misoprostol during term pregnancy is significantly related with the normal delivery. [*Journal of Science Foundation 2014;12(2):22-26*]

Keywords: Misoprostol; term pregnancy; delivery; caesarean section

Introduction

Induction of labour is an integral part of modern obstetric practice and should be simple, safe, effective and preferably non invasive (Calder 1999). There are different methods of induction of labour like medical, surgical and combined. There is no ideal accepted method of induction of labour. History says, from ancient time many methods were used for induction of labour. Currently oxytocin and prostaglandins are randomly used for induction of labour (Dutta 2005). Oxytocin is the drug of choice for labour induction when the cervix is favourable. At present oxytocin is the prime labour induction drug available in our country (Harman 2001). Prostaglandins are equally effective as that of oxytocin but are more effective in cases of

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intrauterine fetal death or early gestational period with unfavourable cervix and have got no diuretic effect (Kwon et al., 2001).

Prostaglandins are hormones naturally present in the uterus that cause contractions during labour. Currently, a prostaglandin (Misoprostol), a synthetic Prostaglandin E₁ analogue marketed as a gastrointestinal mucosal protection agent is a safe, easily available, efficacious and inexpensive for use in cervical ripening and labour induction. Latest studies show that, prostaglandin is superior to oxytocin as prostaglandin is local hormone which softens the cervix directly. In fact, prostaglandin provides an excellent alternative to conventional oxytocin for induction of labour. There has been a growing body of literature to suggest that misoprostol is highly effective and safe as a labour inducing agent (Sanchez-Ramos et al., 1999). It is less expensive, can be stored at room temperature and has fewer side effects. The use of misoprostol results in a shorter induction to delivery time, a reduction in rate of caesarean section and without any adverse effect on the mother and the neonatal outcomes. It is rapidly absorbed and is more effective than oxytocin or dinoprostol for induction of labour.

Misoprostol is a cheap & stable PGE₁ analogue that is active both by the vaginal & oral route of administration for cervical ripening and induction. When it is given orally, it is rapidly absorbed by the gastrointestinal tract and undergoes de-esterification to its free acid, which is responsible for its clinical activity. The peak concentration and half-life of misoprostol acid, the active metabolite, are 12 and 21 minutes, respectively (Zieman et al., 1997). The total systemic bioavailability of vaginally administered misoprostol is three times greater than that of orally administered misoprostol (Sanchez-Ramos et al., 1998). In Bangladesh, misoprostol is available as tablet form, each containing 200mcg. A variety of clinical practices are used in different centers for management of induction labour & consequently there are no agreed guideline that describe the method of induction of labour (Wood et al., 2001). In 1970 when more reliable methods become available, labour induction rates rose about 50% in specialized center (Wood et al., 2001). The success of induction depends to a large extent on the consistency; compliance and configuration of the uterine cervix (Shetty et al., 2001). In 10% of all pregnant women have an unfavourable cervix and require labour to be induced (Glmezoglu et al., 2001). Therefore induction of labour to be effective it is not sufficient simply to stimulate contractility of the myometrium.

The induction method must endeavour as far as possible to replicate the events of normal parturition. In addition to generating myometrial contractility it must induce the changes of cervical ripening if these have not occurred naturally (Dutta 2005). Although the safety and reliability of induction has greatly increased in recent years, in more advanced countries because of development of newer and better induction techniques and modern facilities for foetal and maternal monitoring, we are still in position where we have to depend mainly on clinical judgment and this imposes several limitations. However, in absence of sophisticated monitoring techniques patients are induced everyday practice with best possible efforts and attention, cases are managed to have a better obstetric outcome. In this study, the role of vaginal misoprostol for the induction of labour was evaluated in the department of Obstetrics and Gynaecology at a tertiary care hospital in Dhaka city.

Methodology

This is a prospective study that was carried out in the department of Obstetric and Gynaecology in Sir Salimullah Medical College and Mitford Hospital during the period from 1st September 2005 to 28th February 2006. 60 cases were selected from patients who came for delivery purposes during the study period. Primigravida or second gravida with gestational age between 37 weeks to 42 weeks, Patients not in labour, Singleton pregnancy with vertex presentation, unfavourable cervix (Bishop's score < 6) and intact membrane were included in this study. Cephalopelvic disproportion, multiple pregnancies, fetal distress, malpresentation, H/O asthma, Any contraindication to normal vaginal delivery, H/O uterine surgery like LUCS, Myomectomy or Hysterotomy operation, ruptured membrane cases were excluded from this study. The cases were primigravida or second gravida with the gestational age between 37 weeks to 42 weeks with cephalic presentation and not in labour. The methods of induction of labour by vaginal Misoprostol were explained to the patients who volunteered and were selected for the study. Consent was taken from every patient. All relevant clinical information of the cases was recorded systematically in a predesigned clinical data sheet. At first, proper history of the patient was taken which included period of amenorrhoea, H/O

antenatal check up, immunization, gravida, last menstrual period etc. Then general examination of the patient was done to detect any disease which complicates pregnancy or labour. This was followed by per abdominal examination to see foetal presentation, lie, foetal heart sound. Then per vaginal examination was done to do the clinical pelvimetry and Bishop's scoring. If the pelvis was adequate for normal vaginal delivery then irrespective of any Bishop's score cases were selected for induction of labour. After proper selection of the cases, induction of labour was done by applying tab misoprostol 50mcg in the posterior vaginal fornix. Misoprostol is available in our country as tab cytomis each containing 200 mcg. So, 1/4th of the tablet was used. Close observation of the patient was done to see when the labour started. If the labour did not start then the same dose was repeated up to the establishment of true labour pain. When the labour started close monitoring of the patient and the foetus were done. When the labour went into the active phase then further application of Tab cytomis was stopped and the partograph was maintained. Following the Partograph the progress of labour was monitored. If the labour was seen to be prolonged then augmentation was done by giving oxytocin drip. Close observation of the progress of labour was done to see whether there was any untoward effect of induction of labour like tachysystole, hyperstimulation or foetal distress. After collecting all the data, analysis has been done by using SPSS and the results are displayed in tables and diagrams. Discussions have been done by comparing the results of the study with the results from similar study done in home and abroad.

Result

A total number of 60 pregnant women were recruited for this study as per inclusion and exclusion criteria. Out of 60 pregnant women 36 (60%) patients were primigravida and 24 (40%) patients were second gravid. The mean age with standard deviation of the study population was 24.08 ± 3.25 years with the range of 18 to 31 years. The mean Bishop's Score was 6.2 ± 1.76 with a minimum value of 3 and maximum value 10. The mean gestational age of the study population was 40.41 ± 1.1 weeks with the minimum and maximum value of 38 and 42 weeks respectively. The mean induction delivery interval was 11.1 ± 4.4 hours with the range of 4–24 hours (Table 1).

Table 1: Details of Patients at Induction

Variables	Value
Primigravida	36(60%)
Second gravida	24(40%)
Age [Mean±SD (Range) in years]	24.08 ± 3.25 (18 – 31)
Bishop's Score [Mean±SD (Range)]	6.2 ± 1.76 (3 – 10)
Gestational Age [Mean±SD (Range) weeks]	40.41 ± 1.1 (38 – 42)
Induction delivery interval (hours)	11.1 ± 4.4 (4–24)

Out of 60 patients 31(51.7%) patients needed only 1 dose of misoprostol and 24(40%) patients needed 2 doses and only 5(8.3%) patients' needed 3 doses of Misoprostal (Table 2).

Table 2: Total Doses of Misoprostol Given

Total Doses	Frequency	Percentage
1	31	51.7
2	24	40.0
3	5	8.3

Out of 60 pregnant women 21 (35%) patients had unfavourable Bishops' score with 3-5 and 39 (65%) patients had favorable Bishops' score with 6-10. This table shows that 39 patients had favourable pre-induction cervical score, among them 79% had delivered vaginally and 21% had undergone LUCS. 21 patients had unfavourable cervix, among them 57% experienced vaginal delivery and 43% experienced LUCS (Table 3). Out of all study population 60% of study population who were primigravide had vaginal delivery in 67% cases and caesarean section in 33% cases and among 40% 2nd gravida cases vaginal delivery was 79% and caesarean delivery was 21% (Table 4).

Discussion

A well designed prospective study was done to evaluate the outcome of induction of labour by vaginal Misoprostol in term pregnancy in the department of Obstetrics and Gynaecology, Sir Salimullah Medical College and Mitford Hospital, Dhaka from September 2005 to February 2006. For this study 60 patients were selected after fulfilling the inclusion and exclusion criteria. In each case, induction of labour was done after taking proper history and all the information were recorded in the data collection sheets. All the records were studied with analysis of various aspects of the cases in relation to the present study. The study was conducted to evaluate the outcome of induction of labour in term pregnancy to see whether routine induction of labour increases the rate of caesarean section, to find out the cause of failure of aim of induction and any complication of induction of labour.

Table 3: Relation of Cervical Score with Mode of Delivery

Mode of delivery	Cervical Score		Total
	Favourable	Unfavourable	
Vaginal delivery	31(79.0%)	12(57.0%)	43(71.7%)
LUCS	8(21.0%)	9 (43.0%)	17(28.3%)
Total	39(100.0%)	21(100.0%)	60(100.0%)

*Favourable score = ≥ 6 ; Unfavourable score = < 6 ; Chi-square test has been performed to see the level of significance; p value 0.0001

In the study out of 60 patients 36 (60%) cases were primigravida and 24 (40%) cases were second gravida. The mean age was 24.08 ± 3.25 years. The lowest aged patient was 18 years and eldest one was 31 years. It is promising and hopeful regarding safe mother that all the patients were in early age group. Mean gestational age was 40.41 ± 1.1 weeks range was 38-42 weeks. Mean Bishop's score was 6.2 ± 1.76 and range was 3-10. In analysis of indications of induction of labour – Post dated pregnancy was on the top of the list the number of which was 33 (55%), Preeclampsia was in the second position the number of which was 10 (16.65%).

Among 60 patients 43 (71.6%) patients delivered vaginally and 17 (28.4%) patients needed caesarean section. Again out of 43 vaginal delivery 22 (51.20%) patients needed single dose of Misoprostol tablet and 21 (48.8%) patients needed more than one dose. In this study there was no failure of induction of labour and labour was established in 100% cases. Another similar study done by Jahan (1990) showed that 63% patient with unfavourable cervix required caesarean section after induction of labour and in that study no prostaglandins was used for cervical ripening. But in this study, because of prostaglandins the percentage of caesarean section was only 43% and vaginal delivery was 57%. In another study done by Kenedy et al (1982), the mean age of the patients was 26.6 years and mean cervical score was 6.6. But in this study the mean age was 24.08 ± 3.25 years and mean Bishop's score was 6.2 ± 1.76 .

Of total 60 patients 17(28.4%) cases needed caesarean section due to failure of aim of induction. In this study patient with both favourable and unfavourable cervix were taken. The study showed better outcome in patient with favourable cervix. Regarding pre induction cervical score 39(65%) cases had favourable score. Among them 31(79%) cases delivered vaginally and 8(21%) cases had undergone caesarean section. And among 21 (35%) unfavourable cases 12(57%) cases experienced vaginal delivery and 9(43%) cases had undergone caesarean section. This study indicates that there is a direct potential relationship between cervical condition (Bishop's score) and vaginal delivery.

Table 4: Mode of Delivery In Relation to Gravida

Mode of delivery	Primigravida	2 nd Gravida	Total
Vaginal delivery	24(67.0%)	19(79.0%)	43(71.7%)
Caesarian delivery	12(33.0%)	5(21.0%)	17(28.3%)
Total	36(100.0%)	24(100.0%)	60(100.0%)

*Chi-square test has been performed to see the level of significance; p value 0.0001

There is a similar type of study carried out by Amiruzzaman (2004) on 65 patients and the mean age of patients was 24.65 years and in this study it is 24.08 \pm 3.25 years, which is almost similar. In this study, in the analysis of indication of induction of labour prolonged pregnancy is on the top which is same in this study. In this study 48 (73.8%) cases were delivered vaginally and 17 (26.1%) cases needed caesarean section- the results are almost similar to that of this study. But out of 48 vaginal delivery 83.3% patients needed single dose of oral Misoprostol tablet and 16.7% needed more than one dose. But in this study 51.2% cases needed one dose of vaginal Misoprostol and 48.8% needed more than one tablet. Regarding Neonatal outcome in his study there was one fresh stillbirth such untoward outcome had not occurred in this study.

Mode of delivery in relation to gravidity, it is seen that multigravida (79%) has more percentage of vaginal delivery than that of primigravida (67%) and caesarean delivery is more in cases of primigravida (33%) than that of multigravida (21%). Regarding induction delivery interval, the interval between IOL and onset of labour was significantly shorter. Mean induction delivery interval was of 11.1 \pm 4.4 hrs. Routine induction was done in uncomplicated post dated pregnancy and with some indications with term pregnancy. As antenatal foetal monitoring facilities are limited and patient compliance is very poor in our country, this study was designed to see the outcome of routine induction of labour in term pregnancy rather than continuing the pregnancy to have spontaneous labour which may increase the perinatal morbidity and mortality. In this study it was found that due to routine induction of labour, vaginal delivery rate was more in multigravida (79%) less in primigravida (67%) and caesarean section rate was less in multigravida (21%) and more in primigravida (33%). These results are comparable with a study done by Parry et al (1998). In that study in multigravida, induction of labour was associated with a significant reduction in incidence of caesarean section from 22% in the control group to 11% in the induced group, for primigravida the difference was in opposite direction but did not reach the significance induced group 31% to control group 24%. So these appear to be the evidence for multiparous women that induction of labour is associated with improved vaginal delivery outcome.

Conclusion

In the conclusion, it can be said that the use of Misoprostol results in a shorter induction to delivery time, a reduction in the rate of caesarean delivery and also did not appear to produce miserable adverse effects on the method of delivery or the foetus. There is increasing evidence that Misoprostol, administered vaginally, is as effective as conventional methods of induction of labour.

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