

Trial of Vaginal Delivery Beyond Expected Date of Delivery-A Study of 50 Cases

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Abstract

Introduction: Spontaneous onsets of labour within expected date of delivery not always occur. Some pregnancies cross the expected date of delivery, and need induction of labour. Induction of Labor means initiation of uterine contraction that can be done by pharmacological or non-pharmacological method. Induction of labor is not risk-free. The present study aimed to investigate initiation of uterine contractions beyond the expected date of delivery. **Methods:** This Prospective cross-sectional study was carried out in the Department of Obstetrics & Gynecology, Bangabandhu Sheikh Mujib Medical University, Hospital, from January 2008 to June 2008. A total of 50 patients were enrolled in this study following the inclusive criteria. Data were collected using the predesigned semi-structured questionnaire. Verbal consent was taken before recruiting the study population. Completed data forms were reviewed, edited, and processed for computer data entry. **Result:** Among the study population (N=50), one-fifth of the mothers' (10,20.0%) age was under twenty. The majority of mothers were (34,68.0%) between 20-30 years old with a mean age of 25.4 ± 4.32 years. In seventeen patients (17,34.0%) labour induction was given by oxytocin drip followed by ARM, in ten patients labour induction was given by ARM followed by oxytocin drip & in twenty-three patients (23,46.0%) with unfavorable cervix prostaglandin was used and then followed by oxytocin drip and ARM. The total number of induction failures (who needed a caesarian section) was twenty (20,40.0%). Among the total number of caesarian sections, eleven (11,55.0%) were done due to fetal distress, nine (9,45.0%) were done due to abnormal uterine action, one (1,5.0%) was done due to cervical dystocia. **Conclusion:** Labor induction should be applied to improve birth consequences and when the potential aids outweigh the potential dangers. Researches point out that inducing labour lessens the risk of having a stillbirth, macrosomia and developing high blood pressure as the pregnancy advances.

Keywords: Pregnancy, Induction, Delivery

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INTRODUCTION

Continuation of pregnancy beyond expected date of delivery is not uncommon. Induction of labour is the method that initiate uterine contraction aim is to vaginal delivery. Inducing labour can be built with the pharmacological or non-pharmacological approach [1]. Approximately one-third of pregnant women have their labour medically induced with drug treatment [2].

World Health Organization (WHO) defined induction of labour (IOL) as the process of artificially stimulating the uterus to start labour. Over several years, the incidence of inducing labour for lessening the duration of pregnancy has sustained to rise. In high-income nations, the percentage of infants delivered at term following induction of labour can be as high as one in four births. However, in low-income countries, the rates are generally lower [3]. IOL is not risk-free, and many

women find it uncomfortable. Failed induction might be considered failed if appropriate induction methods don't result in vaginal delivery after 24 or more hours, low fetal rate, infection, uterine rupture, and bleeding after delivery [4]. The estimated due date (EDD) is the date that the spontaneous onset of labour is expected to happen. This due date may be estimated by adding 280 days to the first day of the last menstrual period (LMP) [5]. Pregnancy beyond 40 weeks occurs in 1 every 10 pregnancies. But the occurrence of prolonged pregnancy is reduced when the diagnosis is made precisely by use of early USG rather than from LMP alone. Accurate diagnosis of E.D.D during pregnancy is very significant as the outcome of induction of labour in pregnancy beyond E.D.D worse in women with uncertain dates than those with certain dates [6]. Pregnancy which exceeds E.D.D is related to many threats, such as placental insufficiency, fetal hypoxia, IUD and other difficulties associated with post-maturity and prolonged pregnancy is a cause of anxiety, distress and upset for many women and their families. Despite many trials, the diagnosis and management of pregnancy which exceeds E.D.D sometimes become a problem for obstetricians [7]. The risks are lower in uncomplicated prolonged pregnancies within 41 weeks. But beyond this period the risk increases every day. In any pregnancy that is beyond 41 weeks of confirmed gestational age, fetal wellbeing must be assessed. Induction of labour after 41 weeks was associated with few perinatal deaths [8]. The present study intends to identify the indications for induction of labour.

OBJECTIVE

- To assess the socio-demographic pattern of patients with beyond E.D.D pregnancy.
- To ascertain the mode of delivery beyond E.D.D pregnancy.

METHODS

A cross-sectional hospital-based study was conducted in the Department of Obstetrics & Gynecology at Bangabandhu Sheikh Mujib Medical University Hospital during the period of January 2008 to June 2008. A total of 50 patients were enrolled in the study using purposive sampling technique and data was collected using a predesigned semi-structured questionnaire. Ethical clearance was obtained from the hospital to ensure that the information collected was kept confidential and was only used for the purpose of the study. The inclusion criteria for the study were patients with uncomplicated singleton pregnancy at or around 41 weeks with cephalic presentation, while the exclusion criteria included patients with eclampsia/pre-eclampsia, cardiac disease, any other medical disease, CPD, multiple pregnancy, APH, pre-existing fetal distress, or previous history of caesarean section. The data collected was analyzed using frequencies, percentages, cross-tabulations, and simple statistical methods. The study coordinators also performed random checks to verify the data collection processes and to ensure the accuracy of the data.

RESULTS

Table 1: Distribution of the study population based on Characteristics (N=50)

Characteristics	(N,%)
Age in years	
<20	10, 20.0%
20-30	34, 68.0%
>30	6, 12.0%
Mean \pmSD	25.4 \pm 4.32
Education	
Illiterate	9, 18.0%
Upto primary	16, 32.0%
Secondary	25, 50.0%
Socioeconomic condition	
Lower class	11, 22.0%
Middle class	24, 48.0%
Upper class	15, 30.0%
Gravidity	
Primigravida	30, 60.0%
Multigravida	20, 40.0%

Among the study population (N=50), one-fifth of the mothers' (10, 20.0%) age was under twenty. The majority of mothers were (34, 68.0%) between 20-30 years old with a mean age of 25.4 \pm 4.32 years. Most of the patients (25, 50.0%) had secondary education, nine patients (9,18.0%) were illiterate and sixteen patients

(16, 32.0%) had up to the primary level of education. Many of the patients (24, 48.0%) came from middle-socio-economic condition, one-third of the patients (15, 30.0%) came from upper class, thirty patients (30,60.0%) were primigravida and twenty patients (20, 40.0%) were multigravida

Table 2: Distribution of the study population based on the Duration of Pregnancy (N=50)

Duration of pregnancy	(N,%)
40 wk	23, 46.0%
41 wk	18, 36.0%
>41 wk	9, 18.0%

Twenty-three patients (23, 46.0%) came at 40 weeks of pregnancy, eighteen patients came at (18, 36.0%) on 41 weeks of pregnancy and nine patients (9, 18.0%) came at >41 weeks of pregnancy.

Table 3: Distribution of the study population based on the Procedure of Diagnosis (N=50)

Procedure of diagnosis	(N, %)
By LMP with clinical assessments and confirmed by investigation (USG)	37, 74.0%
By LMP with clinical assessments only	13, 26.0%

E.D.D were diagnosed by LMP with clinical assessment only in thirteen cases (13,26.0%) and by LMP with a clinical assessment with was confirmed by investigation (USG) in thirty-seven cases (37,74.0%).

Table 4: Distribution of the study population based on Pre-induction Clinical Findings (N=50)

Pre-induction clinical findings	Findings	(N, %)
Engagement of head	Engaged	21, 42.0%
	Not Engaged	29, 58.0%
Bishops score	0-5 (unfavorable cervix)	22, 44.0%
	6-13 (unfavorable cervix)	28, 56.0%

Twenty-eight patients (28,56.0%) had pre-induction bishop's score within 6-13 (favorable cervix) and twenty-two patients (22,44.0%) had bishop's score within 0-5 (unfavorable cervix), twenty-one patients (21,42.0%) had engaged head and twenty-nine patients (29,58.0%) had non-engaged head during examination.

Table 5: Distribution of the study population based on Methods of Induction (N=50)

Methods of induction	(N, %)
Oxytocin drip followed by ARM	17, 34.0%
ARM followed by Oxytocin drip	10, 20.0%
Prostaglandin followed by Oxytocin drip and ARM	23, 46.0%

In seventeen patients (17,34.0%) labour induction was given by oxytocin drip followed by ARM, in ten patients labour induction was given by ARM followed by oxytocin drip & in twenty-three patients (23,46.0%) with unfavourable cervix prostaglandin was used and then followed by oxytocin drip and ARM.

Table 6: Distribution of the study population based on Mode of Delivery (N=50)

Mode of delivery	(N,%)
Vaginal Delivery	30, 60.0%
Normal vaginal delivery	24, 48.0%
Assisted vaginal delivery	6, 12.0%
Vacuum extraction	5, 10.0%
Forceps delivery	1, 2.0%
Caesarian section	20, 40.0%

Total vaginal delivery was thirty (30,60.0%). Among them twenty-four patients (24,48.0%) delivered by normal vaginal delivery, six (6,12.0%) assisted vaginal delivery among them five (5,10.0%) by vacuum extraction and one (1,2.0%) by forceps. Caesarian section was done in twenty patients (20,40.0%).

Table 7: Distribution of the study population based on Mode of delivery in relation of Gravidity (N=50)

Mode of delivery	Primigravida (N, %)	Multigravida (N, %)	Total
Vaginal delivery	12, 40.0%	18, 90.0%	30, 100%
Caesarian section	18, 60.0%	2, 10.0%	20, 100%
Total	30, 100%	20, 100%	50, 100%

Among primigravida (n=30), twelve (12,40.0%) had vaginal delivery and eighteen (18,60.0%) had caesarian section. Among multigravida

(n=20), eighteen (18,90.0%) had vaginal delivery and two (2,10.0%) had caesarian section.

Table 8: Distribution of the study population based on failed induction cases (n=20)

Characteristics		(N, %)
Gravidity	Primigravida	18, 90.0%
	Multigravida	2, 10.0%
Procedures of diagnosis of posted pregnancy	Clinical assessment with investigation	8, 40.0%
	Clinical assessments only	12, 60.0%
Methods of induction	Oxytocin drip with ARM	9, 45.0%
	Prostaglandin with oxytocin drip with ARM	11, 55.0%

The total number of induction failures (who needed a caesarian section) was twenty (20,40.0%). Among them eighteen (18,90.0%) were primigravida and two (2,10.0%) were multigravida. In patients who needed caesarian section diagnosis of postdated pregnancy was done by main invitations (USG) in eight

(8,40%) patients and by history with clinical failure in twelve (12,12%) patients. Out of total induction failure in nine patients (9,45%), induction was given by oxytocin and ARM and in eleven patients (11,55.0%) induction was given by prostaglandin followed by oxytocin and ARM.

Table 9: Distribution of the study population based on Indications of caesarian section (n=20)

Indication	(N, %)
Fetal distress	11, 55.0%
Abnormal uterine action	9, 45.0%
Uterine inertia	5, 25.0%
Hyperstimulation	2, 10.0%
Cervical dystocia	2, 10.0%

Among the total number of caesarian sections, eleven (11,55.0%) were done due to fetal distress, nine (9,45.0%) were done due to abnormal uterine action, one (1,5.0%) was done due to cervical dystocia, five (5,25.0%) were done due to uterine inertia, and two (2,10.0%) were done due to hyperstimulation.

DISCUSSION

Induction of labour is the method of initiation of uterine contractions after the period of sustainability to attain vaginal delivery before the onset of spontaneous labour [9]. This cross-sectional study was conducted in the Department of Obstetrics and Gynecology, Bangabandhu Sheikh Mujib Medical University, Dhaka. In this current study, most of the patients (34,68.0%) age was between 20 to 30 years with a mean age of 25.4 years. A study carried out in Ethiopia, found that majority of the patients was between 18 to 30 years old [10]. A retrospective cohort study found that most of the mothers were 26 to 28 years old [11]. Another study portrayed that the ages of the patients ranged from 18-43 years, with a mean age of 29.3 years [12]. In Australia, scientists showed that 45%² of women aged between 20 to 34 years went through induction labour [13]. In this recent study, most of the mothers (25,50.0%) completed a secondary level of education. A similar result was found in another analysis, conducted in Nigeria [14]. Another related study found that the majority of mothers completed a four-year college program [15]. Another analysis depicted that, one-fourth (25.8%) of the mothers were

unable to read and write [16]. In this present analysis, thirty patients (30,60.0%) were primigravida and twenty patients (20,40.0%) were multigravida. A study conducted in Dublin, Ireland showed that 50.4% were primigravidas and 49.6% were multigravidas [17]. Another study conducted in India revealed that a total of 4981 deliveries, 2179 were primigravida and 2802 were multigravida [18]. This present study found that twenty-three patients (23,46.0%) came at 40+ weeks of pregnancy. Based on gestational age and outcome, those whose gestational ages were equal to greater than 41 weeks and 3 days constituted the maximum number who had induction of labour, but the vaginal delivery rate was lowest in them [12]. Another related study found that half of the patients were multiparous and about 70% of the patients were undertaken induction labour at the gestational age of 37-41 completed weeks [16]. Another analysis found that almost 1 in 4 mothers (24%) experienced induction labour before 39 weeks [15]. Another similar study described that most of the women underwent induction labour before 290 days [19]. In this contemporary analysis, E.D.D were diagnosed by LMP with clinical assessment only in thirteen cases (13,26.0%) and by LMP with a clinical assessment with was confirmed by investigation (USG) in thirty-seven cases (37,74.0%). Several studies suggested that the past decade assessed the precision of LMP dating in contrast with an ultrasound [20-22]. Another article depicted that, E.D.D was adjusted in 13 (5.7%) women in the scan group and 2 (0.9%) in the no-scan group [23]. A study conducted in Bangladesh

found that USG is a better option compared to LMP to estimate EDD [24]. In this analysis, twenty-eight patients (28,56.0%) had pre-induction bishop's score within 6-13 (favorable cervix) and twenty-two patients (22,44.0%) had bishop's score within 0-5 (unfavorable cervix). Another study found that the mean rise in the bishop score was 2.68 ± 1.39 points for the entire cohort ($p < 0.005$) [25].

In the present study, seventeen patients (17,34.0%) with labour induction were given oxytocin drip followed by ARM. Another contrast study showed that 30.6% of pregnant women did not require the use of oxytocin [25]. Another method established that mothers who had induction of labour with oxytocin alone were more likely to face failed induction of labour [26]. Recently, found that pregnant women induced by misoprostol were 1.5 times more likely to have failed induction in contrast with those who were induced with oxytocin [27]. In this study, total vaginal delivery were thirty (30,60.0%) & among them twenty-four patients (24,48.0%) delivered by normal vaginal delivery and caesarian section was done in twenty patients (20,40.0%). A similar study found that the rate of successful pre-induction resulting in delivery was 69.45 with vaginal births accounting for 66.6% of all cases [25]. Another study found that, in the 2nd trimester, most of the mothers (76.8%) underwent vaginal delivery [28]. Most obstetricians in developed countries favor conservative management (no induction) and they claim that induction increases the caesarian section rate [29]. In our study, among the total number of caesarian sections, eleven (11,55.0%) were done due to fetal distress, and nine (9,45.0%) were done due to abnormal uterine action. Another related article found that the most common indication observed included failed progress (18.29%), this was because of oxytocin, unjustified induction of labour without prior assessment of threats, fetal size, position, presentation, stage of labour and pelvic adequacy [30].

Limitations of the Study

The study was conducted in a single hospital with a small sample size. So, the results may not represent the whole community.

CONCLUSION

The Continuation of pregnancy beyond expected date of delivery has risk for both mother and fetus like fetal hypoxia, macrosomia, meconium aspiration, traumatic delivery. Induction of labour is not also risk free. However, labour induction should be applied to enhance birth outcomes when the potential benefits outweigh the potential risks. Researches point out that inducing labour reduces the risk of having a stillbirth, macrosomia, meconium aspiration syndrome.

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Conflict of Interest: None declared.

Ethical Approval: The study was approved by the Institutional Ethics Committee.

RECOMMENDATION

Further research with a larger sample from distinct centers and a similar group of expected delivery should need to validate the current study results. To get robust data, multicenter studies are in great need of policymakers to interpret the demonstrable scenario and to take necessary steps toward mitigating this problem

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