Original Article

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Routine Elective Induction of Labor by 38-39 Weeks Advantages and Safety Concerns

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Abstract

Introduction: Since the idea of active management of labor by Kieran O'Driscoll came into practice, there is a lot of debate as to whether routine elective induction of labor has any advantage in relation to the outcome for mother and fetus without compromising safety to mother and fetus. We have taken an endeavor to study the above aspect.

Objectives: The objectives of this study were as the following section. (1) To evaluate the efficacy of elective induction between 38 and 39 weeks. (2) To assess the maternal and fetal complications of elective induction.

Materials and Methods: This prospective study consisted of a sample size of 420 subjects. Induction done by misoprostol and stripping and augmentation by oxytocin. SPSS 16.0, Mann–Whitney U test, the χ^2 for qualitative, and Student's *t*-test for quantitative variables. A $P = 0.05$ was considered significant.

Result: Vaginal delivery was 90.7% and cesarean 9.3% induction delivery time 12 h and 20 min for primigravidae and 7 h and 40 min for multigravidae.

Conclusion: Routine elective induction of labor between 38 and 39 weeks can be resorted safely by misoprostol and oxytocin. Normal vaginal delivery and cesarean are comparable to spontaneous onset of labor at 40 weeks. Fetal complications are comparable to spontaneous labor at 40 weeks. Elective induction is a more convenient to obstetrician and mother.

Key words: Artificial rupture of membranes, Elective induction of labor, Maternal and fetal outcome misoprostol induction, Oxytocin augmentation

INTRODUCTION

Pregnancy can be terminated once the fetus has attained lung maturity at 37 completed weeks. There are institutional variations in the management of term pregnancies. Elective induction is an accepted procedure among the public since most of them are concerned with horoscopic propriety. Elective induction is also convenient for obstetrician because of the efficient management of complications in a planned atmosphere. Here, we have planned routine elective induction of labor by 38-39 weeks and explored its advantages and safety.[1,2]

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MATERIALS AND METHODS

The study was conducted in Kannur Medical College Obstetrics and Gynecology department for a period of 14-month from 1st July, 2013, to 30 September, 2014. A total of 420 cases of term pregnancies were selected for study purpose. All pregnancies were terminated by elective induction of labor at 38-39 weeks. Out of 420, 284 ladies (67%) were primigravidae and the rest multipara (33%) (Table 1).

Inclusion Criteria

- Gestational age between 38 and 39 weeks
- Vertex presentation
- No obstetrical complications
- No medical complications.

Exclusion Criteria

- Previous cesarean
- Macrosomia

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- Contracted pelvis
- Malpresentations.

Study Design

This is a prospective study. The patients were admitted on the previous day of induction. All cases had undergone a biophysical profile scanning by the first author. This helped to assess the gestational age and estimated fetal weight. All cases had a non-stress test done on the date of admission. Routine blood investigations were performed. Cross matched blood and operation theater availability for emergency caesarean section were assured. A Bishop score[3] was calculated at the time of admission by a vaginal examination. Our practice was to introduce 25 μg of misoprostol into the posterior fornix by 5 AM on the next day of admission.[4] A repeat dose was given after 4 h in 92 cases, and 18 cases required a third dose, 4 h later. 8 cases had to be postponed 1 or 2 days due to lack of response. A Foley's catheter was inserted transcervically in nonreponders. Sweeping were performed to cases while assessing Bishop score whenever feasible.[3]

Sweeping alone initiated labor pain in 63 cases. True labor pain started within 2-4 h of the first dose of misoprostol in 294 cases. Enema (proctoclys) was given once pain started. Intrapartum fetal and maternal monitoring were done by partograph.

Once the lady is in active labor (cervix dilatation of more than ≥4 cm), we performed artificial rupture of membrane (ARM). Oxytocin drip was started in titrating dose of 2 mIU/min and an increment of 2 mIU/min, in those cases with inadequate uterine contractions. Ampicillin 2 g IV was given to mother after ARM. Sedation with injection pentazocin 30 mg + promethazine 25 mg was the usual practice, especially in primigravidae. Intravenous (IV) hydration was ensured. The patient was kept on empty stomach in cases of delayed progress. Intrapartum monitoring of mother and fetus was done observing the NICE clinical guidelines (Table 2).[5]

RESULTS

Successful vaginal delivery was accomplished in 381 (90.7%) cases. Cesarean section was done in 39 cases (9.3%) which are statistically significant ($P < 0.001$). Indications were fetal heart variations, meconium stained amniotic fluid and inadequate progress with poor cervical dilatation and descent of head.

The mean induction delivery time was 12 h 20 min for primigravidae and 7 h 40 min for multigravidae which are also statistically significant ($P < 0.001$). 29 cases were vacuum-assisted vaginal deliveries (Table 3).

Table 1: Split up of case by Gravida

No. of Primi Gravida	284
Para I Gravida II	88
Para II Gravida III	32
Para III Gravida IV and above	16
Total cases	420

Table 2: Method of induction

Single dose misoprostol	310 cases
Second dose	92 cases
Third dose	18 cases
Postponed (failed third dose)	8 cases
ARM	368 cases
ARM pitocin	342 cases

ARM: Artificial rupture of membranes

Table 3: Mode of delivery

Vaginal delivery	381	90.71%
Caesarean Primi	33	7.86%
Caesarean multi	6	1.43%
Total	420	

About 10 units oxytocin infusion and per rectal application of 600 μg misoprostol were done to prevent postpartum hemorrhage (PPH) in all cases. Only 3 patients had mild to moderate atonic PPH which was controlled with injection prostodin 250 μg. One of them was transfused with one unit of blood. Cervical tear resulting in traumatic PPH was not seen in any case. No maternal complications such as tachysystole cases or hypertonic uterine action leading to fetal distress were present.

All babies had a good APGAR SCORE. 6 babies had poor 1 min APGAR SCORE (<5) which improved with simple resuscitation measures by a pediatrician. We ensured pediatric care in all deliveries.

DISCUSSION

The American College of Obstetrics and Gynecology do not recommend elective induction of labor before 39 completed weeks of gestation for non-medical indications,[6] the main reasons are compromised fetal lung maturity and increased cesarean rate, i.e. 23.8% in induction and 13% in spontaneous labor.[7]

American College of Obstetrics and Gynecology further revised the name "Term" pregnancies in 2013[8] as follows:

38^0 to 38^{+6} days	Early term
39^0 to 40^{+6} days	Term
41^0 to 41^{+6} days	Late term
≥42^0 weeks	Post term

We have followed the WHO guidelines for induction of labor wherever possible.[9] Clinical guidelines for induction of labor by National Institute of Clinical Excellence also were followed.[10] However in our study with a proper selection of cases and confirmed of dates, neonatal respiratory distress was not observed in any of the cases. In the present study, the cesarean rate was only less than only 9.3%, which is statistically significant, $P < 0.001$ Early Ultrasonography for fetal gestational age and late ultrasonography for the biophysical profile (Doppler study in selected cases) are essential for a successful induction. Continuous fetal monitoring, ideally with partogram and supervision by a senior obstetrician are essential. Service of the blood bank, operation theater, anesthesiologist, pediatrician and supporting staff should be ensured.

CONCLUSION

Routine elective induction of labor between 38 and 39 weeks can be achieved safely by misoprostol and oxytocin. There is a definite benefit to mother and fetus with almost no complications. The induction can be scheduled for convenience which eliminated messy middle of night deliveries and late pregnancy discomforts. A single obstetrician in a busy unit has definite advantage with planned induction, not compromising safe motherhood. However, all precautions mentioned earlier should be adhered to. Hospital staff and resources should be adequate and vigilant for a successful outcome.

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