ORIGINAL ARTICLE

Maternal and Fetal Outcome Where Three Doses of Prostaglandin E2 were Used for Induction of Labour

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ABSTRACT

Objective: To assess maternal and fetal outcomes where three doses of vaginal prostaglandins (PGE2) are used for induction of labour.

Subjects and Methods: This study was Retrospective cohort study conducted in Gynae B unit LRH from 1st January 2013 till 28th February 2014. A total of 708 patients had induction of labour with prostaglandin E2, among them 65 women had received three doses of vaginal PGE2 (3mg tablet or 2mg gel) for induction of labour. The clinical record of these 65 patients was further analyzed. Primary outcomes included mode of delivery, frequency of hyperstimulation of uterus, postpartum haemorrhage (PPH), and fetal outcome was observed in terms of Apgar score.

Results: In this study analysis of 65 patients who received third dose of prostaglandin E2 was done, it is observed that 58.46% (n=38) had normal vaginal delivery, while 36.92% (n= 24) had caesarean section, out of which 26.15% (n=17) caesarean sections were done for failure to establish labour after 3rd dose of prostaglandin E2, PPH occurred in 3.07% (n= 2) of patients while there was no case of uterine Hyperstimulation. It was observed that 92.30% (n=60) of babies were born with Apgar score of 7 or above.

Conclusion: The delivery outcomes for those women receiving a third 3mg dose of PGE2 shows that just over 58.46% of these women achieve a vaginal delivery, and maternal and fetal outcome were also reassuring which suggests that use of 3rd doses of vaginal PGE2 for induction of labour can be considered in cases where labour is not established after two doses of PGE2, after maternal and fetal reassessment.

Key words: Induction of labour, Prostaglandins E2

INTRODUCTION

Induction of labour is defined as, “An intervention designed to artificially initiate uterine contractions leading to progressive dilatation and effacement of the cervix and birth of the baby”. This includes both women with intact membranes and women with spontaneous rupture of the membranes but who are not in labour.[1]

The clinical requirement for induction of labour arises from circumstances in which it is believed that the outcome of the pregnancy will be better if it is artificially interrupted rather than being left to follow its natural course. Vaginal prostaglandin E2 (PGE2) is the preferred method of induction of labour, unless there are specific clinical reasons for not using it (in particular, the risk of uterine hyperstimulation). It is administered as a gel, tablet or controlled release pessary. The recommended regimens are, one cycle of vaginal PGE2 tablets or gel ,that is one dose followed by a second dose after 6 hours ,if labour is not established (up to a maximum of two doses)or one cycle of vaginal PGE2 controlled release pessary, which means one dose over 24 hours.[2]

Failed induction is defined as failure to establish labour after one cycle of treatment, which consist of insertion of two vaginal PGE2 tablets (3 mg) or gel (1–2 mg) at 6-hourly intervals, or one PGE2 controlled released pessary (10mg) over 24 hours[2]. It is estimated that a failed induction in the presence of an unfavorable cervix is found in 15% of cases.[3]

If induction fails, healthcare professionals should discuss this with the woman and provide support. The woman’s condition and the pregnancy in general should be fully reassessed, and fetal wellbeing should be assessed using electronic fetal monitoring. If induction fails, the subsequent management options include, further attempt to induce labour or caesarean section.[2]

Failed induction of labour does not necessarily indicate caesarean section[4].when one cycle of induction has failed, and the cervix is favorable, further induction can be undertaken with amniotomy and oxytocin. If the woman has an unfavorable cervix and intact membranes, it may not be possible to perform amniotomy. In these cases, consideration must be given to the

administration of further prostaglandin agents. However, the suggested time interval between courses of prostaglandin agents is not known.[4]

The review of available evidence till date shows no clear guideline on dose and timing prostaglandin E2 for re induction of labour after one cycle of failed induction. This study is conducted to see the maternal and fetal outcome when one cycle of induction has failed and was continued with 3rd dose of PGE2, after reassessing maternal and fetal condition.

SUBJECTS AND METHODS

This study was Retrospective cohort study conducted in Gynae B unit LRH from 1st January 2013 till 28th February 2014. A retrospective review of all women who received a third 3mg PGE2 tablet for induction of labour between January 2013 and February 2014 was undertaken. Cases were identified from evaluating the case records of all women who had induction of labour during specified time period. The data obtained included age and parity of patient, mode of delivery, Apgar score of baby, frequency of PPH and Hyperstimulation of uterus (uterine tachysystole (more than five contractions per ten minutes for at least 20 minutes) or uterine hyper systole/hypertonus (a contraction lasting at least two minutes) [1] and indication of caesarean section in those who had caesarean section. Women with previous caesarean section, multiple pregnancy, and grand multigravida were not included in this study. The descriptive statistics was applied using Microsoft Excel and the frequency and percentages were calculated and results were expressed in tables.

RESULTS

A total of 708 patients had induction of labour with prostaglandin E2, among them 65 women had received three doses of vaginal PGE2 (3mg tablet or 2mg gel) for induction of labour. The clinical record of these 65 patients was further analyzed. Age and parity of patients is shown in Tables 1 and 2. Mode of delivery was observed, 58.46% (n=38) had normal vaginal delivery as shown in Table 3. Indication of caesarean sections was also noted and it was found that failure to establish labour after three doses of PGE2 was leading cause of caesarean section 26.15% (n=17) as shown in Table 4. Maternal and fetal outcomes are elicited in Tables 5 and 6.

Table 1: Age of patients

Age (years)	No.	%
18-34	54	83.0
35 and above	11	17

Table 2: Parity of patients

Parity	No.	%
Primigravida	33	51
Multigravida	32	49

Table 3: Mode of delivery

Mode of delivery	No.	%
SVD	38	58.46
Instrumental Delivery	3	4.62
Caesarean section	24	36.92

Table 4: Indication for CS

Indication for CS	No.	%
Failed induction after 3 doses of prostaglandin E2	17	71
Fetal distress	4	17
Secondary arrest of labour	2	8
Antepartum haemorrhage	1	4

Table 5: Maternal complication

Maternal complication	No.	%
Frequency of PPH	2	3.07
Frequency of hyperstimulation of uterus	Nil	0

Table 6: Fetal outcome

Apgar score	No.	%
0-6	5	8
7-10	60	92

DISCUSSION

The rates of induction of labour (IOL) are rising all over the world[5], cases of failed induction are also rising, there is no clear management protocol for patient with failed induction. If considering re induction, the main queries are about the time interval between failed induction with two tablets and then re induction, and about dose of PGE2, can three or four tablets of PGE2 be used, if maternal and fetal reassessment is reassuring. Till date there are no studies conducted on above mention subjects.

In this study patients where 3rd dose of PGE2 was used for induction of labour were recruited and mode of delivery was observed and it was found that 58.46% (n=38) had normal vaginal delivery, in another similar study 34% of patient

has achieved normal vaginal delivery.[6] In our study 36.92% (n=34) had delivered through caesarean section while in another study 53% had ended up in caesarean section[7] among these caesarean section 11.4% were done for failure to establish labour with 3rd dose of PGE2, in our study 26.15% of patients were operated for same indication.

Maternal outcome were observed in terms of PPH and uterine hyperstimulation, in this study 3.07% had PPH, in another study PPH was observed in 18.9% of cases, in this study there was no case of uterine hyperstimulation, in another study where 3 doses of PGE2 was used 0.7% had used terbutaline for uterine Hyperstimulation.[7] Fetal outcome was noticed, in this study Apgar score 0f <7 was observed in 8.16% of cases while in study done by Ayaz[7] 1.1% of babies were born with Apgar score less than 7.

In light of finding of our study it is recommended that 3rd dose of PGE2 should be considered, in cases where labour is not established after two doses of PGE2. As more than half of the patients had normal vaginal delivery in our study so the use of 3rd dose of PGE2 seems promising in preventing caesarean sections for failed induction. Keeping in view raising caesarean section rate and its impact on future obstetrics of women, 3rd dose of PGE2 is better and cost effective alternative treatment for failed induction. There is paucity of studies regarding management of patient with failed induction, so more research is recommended regarding this subject to formulate clear guidelines.

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