USE OF MISOPROSTOL FOR INDUCTION OF LABOUR IN UNFAVOURABLE CERVIX

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Abstract

Objective: Objective of this study was to determine the maternal and fetal outcome after induction of labour with misoprostol in term pregnancies with unripened cervix.
Study Design: Experimental study.
Place and Duration of Study: Non probability convenient, in the labour ward of Nawabshah medical college hospital Sindh, Pakistan from 6th April 2008 to 5th Dec 2008.
Material and Methods: Total 114 patients were induced with misoprostol who had singleton pregnancy of more than 36 weeks with cephalic presentation, reactive CTG and unfavorable cervix (Bishop Score <4). Sampling strategy was non probability convenient sampling. However, patients with previous cesarean section, parity >4, nonreactive CTG, any contraindication to induction of labour and bishop score > 4 were excluded from the study. After taking an informed consent, patients were given 100mcg misoprostol in posterior fornix of vagina every 6 hour till 3 doses or initiation of labour. Labour was recorded on partogram. Maternal and fetal outcome were recorded on a self designed proforma.
Results: Majority of patients i.e. 63(55.2 6%) belonged to age group of 23-30 years. Eighty seven (76.31%) patients who received induction were primigravida while 27(23.68%) patients were P2-P4. Thirty six (31.57%) patients required single dose of misoprostol, 54(47.36%) patients required two doses while 24(21%) patients required three doses. Out of all these 114 patients, labour was successfully completed in 93(81.57%) patients. While cesarean section was done in 21(18.42%) patients. About 48(42.10%) patients were delivered in 8 to 9 hours. Uterine hyper stimulation was seen in 9(7.89%) patients. Apgar score was less than 7 in six (5.26%) newborns.
Conclusion: Misoprostol is safe for induction of labour with an unfavorable cervix. The results were satisfying with minimal complications.

Keywords : Labour induction, Misoprostol, unripe cervix

Article

INTRODUCTION

Induction of labour is the initiation of labour Misoprostol is safe for induction of labour with an unfavorable cervix. In a pregnant lady who is not laboring, it is done for the health benefit of the mother or fetus or both. Cervical ripening or priming is a new concept which has gained momentum in the past 20 years. It is considered the main determinant in the success of induction of labour. With an unripe cervix induction may be difficult and unsuccessful. The use of an agent to ripen the cervix prior to conventional methods of induction is the standard practice. Induction of labour can be achieved by a variety of physical and biochemical stimuli designed for this purpose. However, approximately 20% of women having induction of labour end up with cesarean section1,2.
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Prostaglandins are most frequently used for ripening the cervix and induction of labour. Extra amniotic PGE2 gel or vaginal pessaries are currently the agents of choice. These are very costly and not easily affordable. A more affordable alternative is to use misoprostol, for induction of labour. It is a synthetic analogue of naturally occurring PGE1, originally manufactured for the treatment of peptic ulcer. Misoprostol has gained worldwide acceptance for cervical ripening. Its off label use for

induction of labour has been endorsed by ACOG and RCOG3.
An advantage of misoprostol includes its low cost and stability at room temperature. There have been several meta analysis of randomised controlled trials evaluating the use of misoprostol for cervical ripening and labour induction suggesting that misoprostol is effective but there is concern that misoprostol may increase the rates of hyperstimulation and fetal distress4,5. Objective of this study was to determine the maternal and fetal outcome after induction with misoprostol in term pregnancies with unripened cervix.

MATERIAL AND METHODS

This study was conducted in the department of obstetric and gynecology at Nawabshah Medical college hospital Sindh, Pakistan from 6th April 2008 to 5th Dec 2008. Nawabshah Medical college hospital is a tertiary care hospital. Total obstetric admissions during the study period were 976. Out of these patients, 166 were induced for labour due to various indications by different methods. A total of 114 patients were induced with misoprostol who had singleton pregnancy of more than 36 weeks with cephalic presentation, reactive CTG and unfavorable cervix (Bishop Score <4). Sampling strategy was non probability convenient. However, patients with previous cesarean section, parity >4, non reactive CTG, any contraindication to induction of labour and bishop score > 4 were excluded. After taking approval from hospital ethical committee and obtaining an informed consent, patients were given 100mcg misoprostol in posterior fornix of vagina every 6 hour till 3 doses or initiation of labour. Artificial rupture of membranes was performed after head engagement when in active labour or when bishop,s score was >6. Oxytocin infusion was started if indicated. Labour was recorded on partogram.
Fetal distress was labeled in the presence of meconium staining of liquor and abnormal fetal heart rate i.e. fetal heart rate less than 110 beat per minute, > 160 beats/min , decreased variability and presence of late and variable deceleration on CTG.) . Hyperstimulation was defined as tachysystole (at least 6 contractions in 10 minutes) or prolonged uterine contractions > 2 minutes accompanied by abnormal fetal heart rate tracing. In case of hyperstimulation, resuscitation was given in the form of left lateral position, oxygen and intravenous hydration. If hyperstimulation persisted women were given subcutaneous terbutaline. Labour induction was considered successful if the women entered the active phase of labour (cervical dilatation of > 3 cm and regular uterine contractions). Maternal and fetal outcome recorded on a self designed proforma. Information was gathered regarding age, parity, bishop score, apgar score, induction delivery interval, cesarean section, fetal distress, failed induction and uterine hyperstimulation and post partum hemorrhage. Data analysis was done by SPSS 11. Frequency and percentages were calculated.

RESULTS

Induction of labour with misoprostol was done in 114 patients who fulfilled the inclusion criteria. Majority of patients i.e. 63(55.26%) belonged to age group of 23-30 years (Table 1).

Table-1: Sociodemographic data (n=114)

Variables	Frequency	Percentage
Age		
<20	9	7.89
20-30	63	55.26
31-40	30	26.32
>40	12	10.53
Parity		
Primidravida	87	76.32
P2-P4	27	23.68

87(76.32%) patients who received induction were primigravida while 27(23.68%) patients were P2-

P4. In 63(55.26%) patients induction of labour was done due to post dates pregnancy (more than 41 weeks) while in 51(44.74%) patients induction was done due to medical/obstetrical reasons. Thirty six (31.58%) patients required single dose of misoprostol, 54(47.37%) patients required two doses while 24(21.05%) patients required three doses of misoprostol. Out of all these 114 patients, labour was successfully completed in 93(81.58%) of patients. Cesarian section was done in 21(18.42%) patients (Table 2).

Table-2: Duration of labour & mode of delivery

Variables	Frequency	Percentage
Duration of labour <7 hour	36	31.57
8-9 hour	48	42.10
>9 hour	21	18.42
Mode of delivery SVD	66	57.89
Instrumental delivery	27	23.68
Cesarean section	21	18.42

Total (in duration of labour) is 105 because rest of patients had failed induction (labour was not started)

Among these, 9(7.89 %) had failed induction, 3 (2.63 %) had fetal distress, 3(2.6 3%) had arrest of labour (non progress of labour) and 6(5.26 %) had deep transverse arrest. Fourty eight (42.10%) patients were delivered in 8 to 9 hours (Table 2).

Uterine hyperstimulation was seen in 9(7.89%) patients and post partum hemorrhage in 12(10.52%) patients. Apgar score was less than 7 in six (5.26%) newborns (Table 3).

Table-3: Complications of induction of labour

Variables	Frequency	Percentage
MATERNAL Hyperstimulation	9	7.89
Post partum hemorrhage	12	10.52
Failed induction	9	7.89
NEONATAL		
Apgar score < 7	6	5.26
Apgar score > 7	108	94.7

DISCUSSION

Labour induction is a very important part of obstetric care. It is done to ensure benefits or to minimize risk to mother or fetus. Previously oxytocin was the commonest inducing agent but with introduction of prostaglandins, it was seen that prostaglandins are better agents when cervix is unripe. Mechanical methods have been used as cervical ripening agents with variable results6. Misoprostol has been used as cervical ripening agent and studied extensively regarding route (oral, vaginal) and dose (25 mcg, 50mcg, 100mcg) of administration3,4. Studies have shown that it is an

effective cervical ripening agent. Misoprostol has been found safe in induction of labour in resource constrained hospital settings in developing countries like ours, using basic clinical tools for monitoring7.8
Intra cervical misoprostol 50 microgram has resulted in 90% success rate in other studies8 regardless of bishop score and now induction with greater dose is being tried9.
In our study, misoprostol resulted in successful induction in 81.5% of cases. Similar rate of successful induction was also shown in a study from Karachi10.
Our study showed that misoprostol resulted in short induction delivery interval as shown in other studies3,4.
In our study, most common reason of cesarean section was failed induction seen in 7.89 % and deep transverse arrest in 5.26 % of cases. Similar results were seen in other studies11,12.
Misoprostol has been proved to be more efficient in stimulating labour compared to oxytocin and dinoprostone 13 but safety still need to be proven14.
In our study, 7.89% patients developed uterine hyperstimulation. Another study from Lahore15 and systematic reviews16 show that use of misoprostol is associated with significant hyperstimulation, which has adverse effects for mother and baby.
In a recent meta analysis, intravaginal misoprostol caused increased incidence of uterine hypertonus and some increase in the risk of fetal distress which was not statistically significant17.
Post partum hemorrhage is more common in induced labour than spontaneous initiation of labour. In our study, PPH was seen in 10.52% patients. Similar results were seen in a study conducted by Memon A18 and other studies19.
Limitation of this study was, that number of patients was small in this study sample. There is need to carry larger studies to further prove safety and efficacy of this drug.

CONCLUSION

Misoprostol is safe for induction of labour with an unfavorable cervix. The results were satisfying with minimal complications. Maternal and fetal outcome though much less than desirable was the best we could achieve in our humble setting. The risks and benefits of induction of labour with misoprostol need to be balanced against other induction methods and/or against continuation of pregnancy till spontaneous onset of labour.

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