

Original Article

Outcome Of Induction Of Labour By Intravaginal Prostaglandin Versus Intravenous Oxytocin In a Tertiary Care Hospital

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Abstract

Aim of the study was to determine the effectiveness and safety of intravaginal misoprostol VS intravenous oxytocin in induction of labour and to compare the induction delivery interval between prostaglandin induction and oxytocin induction and to detect maternal and foetal outcome between prostaglandin induction and oxytocin induction and also reduce the rate of caesarean section .

A prospective, randomized trial was carried out in one hundred singleton pregnant women admitted in Dhaka National Medical Hospital during the period of January 2006 to December 2006.

Women who had unfavorable cervix (Bishop's score < 4) were selected. 50 of them received 50 mgm misoprostol intravaginally for three doses, 6 hourly. Another 50 patient received intravenous starting from 10 mU /ml up to 40mU. Thirty-nine patients out of 50 patients of misoprostol group achieved normal vaginal delivery. Rest eleven patients ended by caesarean section. 82% of this group delivered within 10 hours. The maximum required dose was 50-150mgm.

Maternal complications were PPH 2% .Neonatal outcome were satisfactory. Thirty – six patients out of 50 patients of Oxytocin group achieved normal vaginal delivery. Rest fourteen patients ended by caesarean section. Only 66% of this group delivered within 10 hours. The maximum required dose was 40mU/ml.

From the study it was found that intravaginal misoprostol is well tolerated and very effect then intravenous oxytocin in induction of labour in unfavorable cervix. It certainly reduces the number of caesarean section. It is cost effective.

Introduction

Induction of labour is a standard obstetrics approach in properly selected patients. It is a method by which initiation of uterine contraction prior to their onset leading to cervical dilatation and effacement. A long induction delivery interval inevitably leads to important complications.

Induction of labour should be simple, safe, effective and preferably non invasive. The success of induction depends to a large extent on the consistency, compliance and configuration of the cervix.

The unripe cervix remains a well-recognized impediment to the successful induction of labour. A simple efficient method of ripening the cervix before induction is, therefore, clearly of use. The main indications for medical induction of labour are PIH, Pre-eclampsia, diabetes in pregnancies Rh-incompatibilities, APH, IUGR, IUD and others medical disorders in pregnancy.

There are various methods by which labour may be induced with definite advantages and disadvantages, Among them prostaglandins are powerful agent Over the decades prostaglandins have been used locally quite frequently to effect cervical ripening and intravaginal, intracervical and extra-amniotic routes have all been tried.

Vaginal administration produce long lasting continuously increasing uterine contraction while no regular contractility could be seen in oral administration.

It is apparent that a generation of obstetrician has practiced effective induction of labour by prostaglandin.

Methods and Materials

This was a prospective, randomized clinical trial.

Study subjects were the patients who came to DNMIH during the study period for delivery purpose The methods were

explained to the patients and only who volunteered were finally selected for study. Prior to interview informed consent were taken from every patient. Patients who met the selection criteria were interviewed and recruited in the study. The study was conducted at the department of Gynae and Obstetrics in DNMIH. Randomization was from simple randomization table.

The respondent were divided into two groups. The first group was the prostaglandin group where induction was given by intravaginal prostaglandin. The second group oxytocin where induction was given by intravenous oxytocin

Observation And Results

The results now been presented in figures and tables. The description highlights the main feature. In all here were a total of 100 pregnant women. Among them the total 50 women were in intravaginal prostaglandin group and total 50 were in intravenous oxytocin group.

Table -1

Demographic distribution

Age years	Prostaglandin	%	Oxytocin	%
20-25	36	72%	34	68%
26-30	11	22%	12	24%
31-35	2	4%	3	6%
36-40	1	2%	1	2%

Table -2

Gravidity chart

Gravidity	Prostaglandin	%	Oxytocin	%
prime	23	46	25	50
2nd	18	36	15	30
3rd	5	10	7	14
4 th	2	4	3	6

Table -3

Indications for induction

Indications	Prostaglandin	%	Oxytocin	%
Post dated pregnancy	33	66	35	70
PE	1	2	1	2
PIH	6	12	6	12
LFM	7	14	5	10
RH-Negative	1	2	1	2
IUD	2	4	2	2

Table -4

Indications for LUCS

Indications	Prostaglandin	%	Oxytocin	%
Failed induction	6	12	7	14
Foetal distress	5	10	7	14

Table -5

Foetal outcome

Appgarscore	Prostaglandin	%	Oxytocin	%
0-3	0	0	0	0
4-6	5	10	6	12
7-10	44	88	43	86

Table -6

Maternal complications

Complications	Prostaglandin	%	Oxytocin	%
Cervical tear &PPH	2	4	0	0

Discussions

Death during delivery is a common complication in our country¹. The rate of maternal and foetal death is very high in Bangladesh. especially at the time of d. To decrease the maternal and foetal death rate we can perform the induction of labour in a properly selected patient. Induction is a method by which initiation of uterine contraction prior to their onset leading to cervical dilatation and effacement and delivery of a baby at 3rd trimester. Commonest indication for induction of labour in Bangladesh and worldwide are prolonged pregnancy, pregnancy induced hypertension, premature ruptured membrane, pre- eclampsia etc. However, this can be a costly affair when the cervix is unfavorable for delivery.

For cervical ripening various methods and materials are used. More recently prostaglandin analogues have been advocated for labour induction.

Misoprost², PGE1 analogue have been widely used for labour induction in last few years for its efficacy⁴.

During this study period total number of admitted obstetrics patients were 2.520. Among them hundred patients were recruited for study after informed consent and depending on inclusion criteria from 180 of postdated and other cases. This study was designated to compare the efficacy of intravaginal misoprostol with intravenous oxytocin. In this study 100 patients were studied, 50 in each group. In this present study dose schedule was for the intravaginal group 50 microgram misoprostol Six hourly for maximum 3 doses and 5 unit of

oxytocin in 500ml at a rate of 30 drop/m to initiate contraction⁵.

In this study demographic characteristics of mother showed 72% of prostaglandin group & 68% of oxytocin group were in the age group of 20-25 years. Regarding parity 46% of prostaglandin group & 50% of oxytocin group were multiparous⁶

Indication of labour in this study post dated pregnancy occupied the top then LFM then PIH then others².

Induction delivery interval was less in multigravida 3-5 where cervical scoring were >5. Induction delivery interval >15 X hours in primigravida. Whose cervical scoring were <3-4. Group In this study failed induction occurred in both group (12% of intravaginal misoprostol group and 14% intravenous oxytocin group).

There were differences in mode of delivery in both primi and multigravida. In primi patient vaginal delivery occurred more in the intravaginal misoprostol group¹⁰ and in multiparous patient vaginal delivery occurred more in intravenous oxytocin group. Caesarean section rate was in misoprostol group was in 22% and in oxytocin 28%.

PPH due to cervical tear occurred in intravaginal misoprostol group only in the present study (4% cases). In some studies it was found that uterine hyper contraction or tachysystol³, nausea, vomiting and high rate of caesarean section occurred.

Several studies were undertaken in Bangladesh by different researchers to find out a suitable method of induction of labour previously. Dewan F (1995)⁹ et al showed in her study that Foley's catheter was an effective method of induction of labour. Induction delivery interval was shorter in case of Foley's catheter group than that of sweeping of membrane group.

Prostaglandin E2 was found more effective in a comparative study between oxytocin and prostaglandin E2 group done by Ashrafunnessa et al in 1997.

Ferdous J showed that intravaginal misoprostol was equally effective in induction of labour as induction by Foley's catheter group in 2002.

Sultana A compared intravaginal misoprostol with dinoprostol gel the study revealed that the number of hours from insertion to vaginal delivery was significantly shorter in intravaginal misoprostol group in 2002.

In addition misoprostol tablets are currently⁸ being used in case of cervical ripening of missed abortion.

The present study also establishes the effectiveness of use of intravaginal misoprostol is a suitable method of induction of

labour than intravenous oxytocin in patient with cervical scoring.

Another observation during this study was that proper selection of patient is a vital factor⁷ for induction and outcome.

Summary

A well-designed clinical trial was carried out to compare the safety & efficacy of intravaginal misoprostol and intravenous oxytocin on cervical ripening and induction of labour. For this study, 100 women who were admitted at Dhaka National Medical College Hospital were selected during the study period, January 2006-December 2006. Prostaglandin and oxytocin both are used for induction of labour. But prostaglandins are currently most commonly accepted widely used agents for their ripening of unfavorable cervix and for induction of labour in the developed countries. Many of them are expensive and not available in our country like intra cervical gel.

Misoprostol, on the other hand cheap available and easy to administer and better preserve at normal temperature.

In this study 50 patients were selected for intravaginal and 50 patients for intravenous oxytocin. Lower Bishop's scoring group shows better result in prostaglandin group than in oxytocin group. Result of both groups in term of induction-delivery interval, mode of delivery and foetal and maternal outcome were compared.

Misoprostol is not free from side effect but close monitoring and immediate appropriate management of the complications are to be considered mandatory during induction of labour. The response rate was satisfactory with intra vaginal use of Misoprostol for induction of labour but a set schedule of prostaglandin dosage could not be recommended from the study.

Conclusion And Recommendation

Pregnancy, though it is a physiological process, makes the women and her family anxious, insecure and uncertain. For the obstetrician it is very important issue as they are concerned for the safety of both mother and baby. Induction with unripe cervix is difficult. Now a day's prostaglandins are commonly accepted and widely used agent for ripening of Cervix and for induction of labour. In our study it was found that intra vaginal misoprostol is very effective for induction of labour with unfavorable cervix then intravenous oxytocin. In

conclusion, it can ripen the cervix and increases the vaginal delivery rate. It reduces the rate of caesarean section and its complications. there by reducing hospital stay, treatment cost and manpower. No adverse effects of misoprostol like drug reaction, febrile morbidity or diarrhea were observed. But side effect like haemorrhage was found. So misoprostol is not free from side effect. Even it may produce life threatening side effect like rupture uterus. So, close monitoring and immediate appropriate management of the complications are to be considered mandatory during its use. Perinatal outcome is also well in this study and no fetal morbidity was found.

To arrive at a definite conclusion, a long term well designated clinical trial with a bigger sample size should be carried out to assess the safety, efficacy and acceptability of this new induction method.

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