ORIGINAL ARTICLE

Comparison of Misoprostol and Oxytocin for Induction of Labor in Post-Term Pregnancy

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ABSTRACT

Aim: To compare the outcomes of misoprostol and oxytocin for labor induction in women with post-term pregnancy.

Study Design: Randomized controlled trial

Place & duration: Department of Obstetrics & Gynaecology, Muhammad College of Medicine (former Al Razi Medical College) Peshawar from 1st January 2020 to 30th June 2020.

Methodology: One hundred pregnant women with gestational age >38 weeks were included. Patient's detailed demographics were recorded after taken informed consent. All the patients were equally divided into two groups. Each group contained 50 patients. Group 1 received two doses of 50ug misoprostol orally at 6 hours while group 2 received 5 units of oxytocin in 500ml RL. Maternal outcomes such as time duration from induction to delivery and mode of deliver were examined, fetal outcomes were also examined and compare between both groups.

Results: In group 1 mean age of patients was 26.24±4.78 years and in group 2 it was 27.12±3.62 years, no significant difference was observed with p-value >0.05. No significant difference was found regarding induction to delivery interval in both groups 1 and 2 (7.36±1.58 hours and 7.88±1.69 hours) p-value >0.05, no significant difference was observed regarding mode of delivery. No significant difference was observed between both groups regarding Apgar score at 5 minutes and NICU admission.

Conclusion: Misoprostol orally and oxytocin both are safe and effective for induction of labor in women with post-term pregnancy.

Keywords: Labor induction, Misoprostol, Oxytocin, Maternal Outcome, Neonatal outcomes

INTRODUCTION

Induction of labour is the process by which in 24 weeks of gestation artificial means are initiated.[1] In the event of continued pregnancy over time, mother and child may be at risk of unexpected reactions (caesarean, longer career, postpartum haemorrhage, birth trauma, etc.). In order to avoid and boost health outcomes, induction of labor is widely practiced.[2] Induction of labour is the most frequent in 20% of pregnancies under conditions where deviations from normal physiological processes such as high blood pressure or diabetes or foetal disorders such as foetal growth restriction or macrosomy occur.[1,2]

A variety of approaches in pharmacology and pharmacology are used for induction of labour. Similar to pharmacological approaches, oxytocin and prostaglandin and soft Muscle stimulants, such as herbs and pea oil, include mechana-based strategies, such as a dilation system hygrosclopic of the cervical cervix, a hygraoscopic separation of membranes and a stimulation of the nipple.[3]

In order to succeed in an induction, the cervix needs to undergo adjustments to ensure successful uterine contraction in progressive expansion and removal of the cervix. The maturity of the cervix will be calculated by a scoring system established by Bishop in 1964.[4] Oxytocin is provided in cases of favour of the cervix: 6 or higher, while PG is usually inserted inside a vagina or cervix in case of adverse cervix to alleviate the cervix in order to trigger contraction of the uterus.[5] Oxytocin induction is generated.

PGs have been used for induction of labour since the 1960s.[6] The most effective detected substance is intravaginal or intracervic prostaglandin E (PGE). PGs increase the rate of delivery and decrease the segment rate for caesarea.[7] The amount of misoprostol available in comparison to other PGs is minimal, widely available, stable room temperature, and has few secondary effects.[8] It is common to use oxytocin in IOL alone or in combination with other agents. The risk of oxytocin infusion included: foetal and asphyxiation, uterus collapse, fluid retention, PPH and amniotic fluid embolism.[9,10]

The recent study was conducted aimed to examine the outcome of two different medicines for induction of labor at post dated pregnant women. This study will be helpful for providing the better health care to the pregnant women.

MATERIALS AND METHODS

This cross sectional/observational study was conducted at Department of Gynecology and Obstetrics Muhammad College of Medicine Peshawar for a duration of six months from 1st January 2020 to 30th June 2020. In this study total 100 pregnant women ages of 18 to 35 years with gestational age >38 weeks were included. Patients detailed medical history including age, sex, residence and parity was recorded after taken informed consent. Patients with multiple pregnancy, prelabor rupture of membrane, diabetic patients, patients with cardiac disease, abnormal cephalic presentation and patients with antepartum hemorrhage

were excluded. Patients were equally divided into two groups. Each group contains 50 patients. Group 1 receive two doses 50ug of misoprostol orally at 6 hourly and Group 2 receive 5 units of oxytocin in 500ml, RL at start 10 drops up to 60 drops till effective contraction occurs.Indication of induction of labor was recorded. Outcomes contains time duration from induction to delivery, mode of delivery, indication of lower segment C-section, fetal outcome and Apgar score was recorded. Maternal complications were also recorded. All the statistical data was analyzed by computer statistical software SPSS 24.0. P-value <0.05 was considered as significant.

RESULTS

In group 1 mean age of patients was 26.24±4.78 years and in group 2 it was 27.12±3.62 years, no significant difference was observed with p-value >0.05. Mean gestational age in group 1 was 38.12±1.02 weeks and in group 2 it was 38.56±0.85 weeks. No significant difference was observed regarding indication of labor induction between both groups with p-value >0.05 (Table 1).

No significant difference was found regarding induction to delivery interval in both groups 1 and 2 (7.36±1.58 hours and 7.88±1.69 hours) p-value >0.05, In group 1 41 (82%) patients had spontaneous vaginal delivery and in group 2 40 (80%) patients had vaginal delivery. In group 1 9 (18%) patients had C-section and in group II 10 (20%) patients had C-section, no significant difference was observed regarding mode of delivery (Table 2).

Table 1: Demographics of all the patients

Variables	Group 1	Group 2	P-value
Age (years)	26.24±4.78	27.12±3.62	>0.05
Gestational age	38.12±1.02	38.56±0.85	>0.05
Indications of labor induction			
Post-term pregnancy	40 (80)	39 (78)	N/s
gestational hypertension	4 (8)	4 (8)	N/s
Rh negative mother	3 (6)	4 (8)	N/s
Oligohydromnios	2 (4)	3 (6)	N/s
Foetal indication	1 (2)	0 (0)	N/s

Table 2: Time interval from induction to delivery, and mode of delivery

Variables	Group 1	Group 2	P-value
Time interval	7.36±1.58	7.88±1.69	0.08
Mode of delivery			
Vaginal Delivery	41 (82)	40 (80)	N/s
Cesarean Section	9 (18)	10 (20)	N/s

Table 3: Neonatal outcomes between both groups

Variables	Group 1	Group 2	P-value
Apgar at 5 minutes			1.32
<7	4 (8)	5 (10)	
>7	46 (92)	45 (90)	
Birth weight	3.46±1.55	3.28±1.14	1.02
NICU admission	3 (6)	5 (10)	0.84

According to the neonatal outcome, 4 (8%) and 5 (10%) patients in group 1 and 2 had Apgar score <7 at 5 minutes. In group 1 mean birth weight was 3.46±1.55 kg and in group 2 mean birth weight was 3.28±1.14 kg. In group 1 and 2, 3 (6%) and 5 (10%) patients were admitted to NICU, no significant difference was observed regarding neonatal outcomes between both groups (Table 3).

DISCUSSION

The main objective of recent study was to examine the efficacy of misoprostol and oxytocin IV for induction of labor in post-dated pregnant women. Post-term pregnancies resulted more complications for the mother and baby. In our study, we included 100 patients of primigravida with cephalic presentation and their gestational ages were > 38 weeks. Mean age of the patients who received misoprostol was 27.12±3.62 years and who received oxytocin mean age was 27.12±3.62 years. Many of other studies shows similarity in which average age of patients was 25 years.[11,12]

In this study, we found that indication of induction of labor such as Post-term pregnancy, RH –ve mother, oligohydromnios and foetal indications. From all of these indications of induction of labor the post-term pregnancy was the most common indication found in 80% in misoprostol group and 78% in oxytocin treated patient. These results shows similarity to many of previous studiesstudies in which post-term pregnancy was the most frequent cause of induction of labor.[13,14]

In present study, no significant difference was found regarding induction to delivery interval in both groups 1 and 2 (7.36±1.58 hours and 7.88±1.69 hours) p-value >0.05. A study conducted by Shabana et al[15] reported that the time intervals from induction to delivery were significantly shorter in the misoprostol group than in the oxytocin group (6.59±1.91 and 9.30±2.58 h, respectively; *P*<0.001). Another study by Tripathi et al[16] reported no significant difference was observed regarding time duration from induction to delivery between misprostol and oxytocin group.

In our study, according to the neonatal outcome, 4 (8%) and 5 (10%) patients in group 1 and 2 had Apgar score < 7 at 5 minutes. In group 1 mean birth weight was 3.46±1.55 kg and in group 2 mean birth weight was 3.28±1.14 kg. In group 1 and 2, 3 (6%) and 5 (10%) patients were admitted to NICU, no significant difference was observed regarding neonatal outcomes between both groups. These results were comparable to some previous studies in which no significant difference was reported regarding neonatal outcomes between misoprostol and oxytocin group.[17,18]

CONCLUSION

Both misoprostol orally and oxytocin IV were effective and safe treatment method for induction of labor in post-term pregnant women. No significant difference was observed regarding time interval from induction to delivery between both medications.

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