Original Article

Efficacy of Oral Misoprostol in the Induction of Labor

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ABSTRACT

Objective: To determine the efficacy of oral mesoprostol in the induction of labor at term pregnancy
Study Design: Prospective observational
Place and Duration of Study: Obstetrics & Gynaecology Department, Rehman Medical Institute, Peshawar from 15thJune 2015 to 14thJune 2016.
Patients and Methods: All women received 50 ug of tablet misoprostol orally every 4 hours (max 6 doses). All the women were followed up regularly till 12 to 24 hours After the first course of 3 doses patients were given 24 rest and then re induced with patient consent. All the observations and therapeutic intervention were done under supervision of an expert obstetrician having minimum of five years of experience.
Results: In this study mean age was 27 years with SD ± 2.317. 43 percent patients were Primi gravida patients while 57% patients were multi gravida. The most common indication for induction was postdate pregnancies (41%) followed by PROM and oligohydramnios. 211(95%) patients delivered with 24 hours requiring only 3 doses of misoprostol. The efficacy of misoprostol was found to be 78% in induction of labor at term pregnancy.
Conclusion: The efficacy of misoprostol was 78% in induction of labor at term pregnancy.

Key Words: Efficacy, Oral misoprostol, Labour induction, Term pregnancy

Citation of article: Shams R, Noreen S, Nisa Q. Efficacy of Oral Misoprostol in the Induction of Labour. Med Forum 2020;31(1):120-123.

INTRODUCTION

Labor induction is frequent, lifesaving procedure in almost all obstetrical practice[1]. Labor induction is a procedure in which labor is started artificially before its spontaneous onset, to accomplish safe delivery of fetus and placenta[2]. According to WHO, global incidence of labor induction is 9.6% of total deliveries. with higher incidence in Asian and Latin American countries[3].Labour induction is indicated in number of case where continuation of pregnancy is hazardous to both fetus and mother[4]. Early induction of labor helps in decreasing risk of chorioamnionitis, decreases need for neonatal intensive care(NICU) admission especially in case of premature rupture of membrane(PROM).[5,6].
Favorable bishop scoring prior to oxytocin infusion and artificial rupture of membrane decreases failure rate of induction and risk of caesarean section.[7]

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Received: March, 2019
Accepted: September, 2019
Printed: January, 2020

If bishop score is less than 6 then cervix is considered unfavorable and its ripening is indicated. Number of different pharmacological and non-pharmacological methods are in use for cervical ripening and stimulation of regular uterine contractions .[8]
Prostaglandin E2 is considered as agent of a choice for labor induction but is expensive[9]. unstable at room temperature and only administered vaginaly.
Misoprostol in comparison is an inexpensive, effective and easy to administer synthetic prostaglandin E_1 analog.[10]. Additional advantage is that it can be administered vaginaly, orally and sublingually[11].It has been approved by FDA since 2002 for use in pregnancy.[12]
The present study is designed to determine the efficacy of oral misoprostol in the induction of labor at term. Efficacy is determined in terms of successful vaginal birth. Oral route was selected because it was previously used vaginaly in our unit, which requires multiple vaginal examination and is associated with maternal discomfort. Despite its chronic use and research, the efficacy is still debatable which varies from one population to another (54-94%). This study will give us local magnitude of efficacy of oral misoprostol in the induction of labor at term. The results of this study will be shared with other local obstetricians and if found to be significantly high, more research will be recommended specially RCTs to draw future guidelines in the augmentation of labor with misoprostol.

MATERIALS AND METHODS

This prospective descriptive study was conducted at Department of Obstetrics and Gynecology, Rehman Medical Institute, Peshawar. Over period of one year

(from 15 June 2015 to 15 June 2016), Total of 221 patients were observed .All women with term pregnancy (37-42 weeks of gestation), Singleton viable pregnancy (as determined US), with Cephalic Presentation were included while women with twin pregnancy ,previous cesarean delivery, and parity more than 6 were excluded. The study was conducted after approval form hospitals research and ethical board. All women meeting the inclusion criteria will be enrolled in the study through OPD. The purpose and benefits of the study will be explained to the patients and they will be assured that the study is done purely for data publication and research purpose and their confidentiality will be maintained, a written informed consent will be obtained from all patients. All women will be subjected to complete history taking and detailed physical and gynecological examination to detect and exclude confounders to exclude bias from the study results. All women will receive 50 ug of tablet misoprostol orally every 4 hours. The patients will be advised to remain in recumbent position for 30 minutes after oral administration of the drugs. All the women were followed up regularly till 12 to 24 hours after the first dose. All the observations and therapeutic intervention were done under supervision of an expert obstetrician having minimum of five years of experience. After first course of 3 doses of 50ug.patients were given 24-hour rest period and reinduction decided as per patient desire. Total of 6 doses were given. In various studies misoprostol solution are used but we are using 100ug tablet which is cut into equal half using tablet cutter. All data regarding parity, doses, indication for induction, mode of delivery and indication for cesarean deliveries were collected, stored and analyzed in SPSS version 23.

RESULTS

The mean age was 27±2.317 years (Table 1). Ninety-five (43%) patients were primri gravida while 126 (57%) patients were multi gravida. Regarding indication 90 (41%) patients had post date pregnancy, 43 (19%) patients had PROM, 22 (10%) patients had oligohydramnios, 8 (4%) patients had obstetric cholestasis, 9(4%) patients had decrease fetal moments, 7(3%) patients had pre-eclampsia, 5 (2%) patients had fetal anomalies, 4 (2%) patients had intra uterine fetal demise, 12 (5%) patients had PIH, 6 (3%) patients had GDM, 1 (0.45%) patient had Previous history of IUFD, 2(0.90%) patients had precious pregnancy, 2(0.90%) patients had RH incompability, one patient had twice and 2(0.90%) patients had Multi gravida with breach. (Tables 2-3). Fifty-seven (26%) patients had single dose of mesoprostol, 65(29%) patients had 2 doses of mesoprostol, 89(40%) patients had 3 doses of mesoprostol, 6(3%) patients had 4 doses of mesoprostol while 4(2%) patients had 5 doses of mesoprostol (Table 4). 138(62%) patients had delivery interval <12 hours while 83(38%) patients had delivery interval >12 hours (Table 5). 172(78%) patients had NVD while 49(22%) patients had caesarean section (Table 6). Indication of cesarean section among 49 patients was analyzed as 22(45%) patients had fetal distress, 4(8%) patients had fail induction while 23(47%) patients had labour dystocia. The efficacy of misoprostol was found to be 78% in induction of labor at term pregnancy.

Table No.1: Age distribution (n=221)

Age (years)	No.	%
18-25	27	12.0
26-35	159	72.0
36-45	35	16.0
Mean±SD	27±2.317	

Table No.2: Frequency of gravida (n=221)

Gravida	No.	%
Primi gravid	95	43.0
Multi gravid	126	57.0

Table No.3. Frequency of indications (n=221)

Indications	No.	%
Post date pregnancy	90	41.0
PROM	43	19.0
Oligohydramnios	22	10.0
Obstetric cholestasis	8	4.0
Decrease foetal movements	9	4.0
Pre-eclampsia	7	3.0
Foetal anomalies	5	2.0
Intra uterine fetal demise	4	2.0
PIH	12	5.0
GDM	6	3.0
Previous history of IUFD	1	0.5
Precious pregnancy	2	0.9
RH incompability	2	0.9
Twin	1	0.5
Multi gravida with breach	2	0.9

Table No.4: Total number of doses given (n=221)

Doses	No.	%
1	57	26.0
2	65	29.0
3	89	40.0
4	6	3.0
5	4	2.0

Table No.5: Induction of delivery interval (n=221)

Delivery Interval (hours)	No.	%
<12	138	62.0
>12	83	38.0

Table No.6: Mode of delivery (n=221)

Mode of delivery	No.	%
Normal vaginal delivery	172	78.0
Cesarean section	49	22.0

Table No.7: Indication of cesarean section (n=49)

Indication of cesarean section	No.	%
Fetal distress	22	45.0
Fail induction	4	8.0
Labour dystocia	23	47.0

Table No.8: Frequency of Efficacy (n=221)

Efficacy	No.	%
Effective	172	78.0
Not Effective	49	22.0

DISCUSSION

Since widely increasing trend of induction of labour it is necessary to know the safest and inexpensive pharmacological agent especially for low resource setting. The purpose for choosing misoprostol oral administration was its low cost, stability at room temperature and requirement for minimal vaginal examination.

In present study the most common indication for induction was post date pregnancies followed by PROM and in 95% of cases no more than 3 doses (single course) of misoprostol were required. This was similar to study by Marilyn[13] conducted in New Guinea, where 91% required single course and most common indication was postdate pregnancies.

In study by Syed[14]. 99% induced patients delivered within 24 hours and 78% were vaginal deliveries. Our study shows 95% deliveries in less than 24 hours. Our study shows that the efficacy (successful vaginal delivery) of oral misoprostol was 78% in the induction of labor at term pregnancy.

Similar results were observed in another study conducted by Rouzi AA et al[15] in which the efficacy of oral misoprostol in induction of labor was 77.1%. Our study correlates with another study conducted by Husain S et al[16] in which the efficacy of oral misoprostol in induction of labor was 71.3%. Similar findings were observed by Aalami-Harandi R et al[17] in which the efficacy of oral misoprostol in induction of labor was 79.7%.Results of studies by Munzar Z et al[18] and Sadaf M et al[19]showed lower efficacy of only 54% and 48% respectively .

CONCLUSION

The efficacy of oral misoprostol is 78% in the induction of labor at term pregnancy.

Author's Contribution:

Concept & Design of Study:	Roeda Shams
Drafting:	Sarwat Noreen
Data Analysis:	Qamar-un-Nisa
Revisiting Critically:	Roeda Shams, Sarwat Noreen
Final Approval of version:	Roeda Shams

Conflict of Interest: The study has no conflict of interest to declare by any author.

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