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Original Research Article

Use of 25 MCG for early induction of labour in active management of labour –Study of 100 cases in private setup

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ABSTRACT

Background: Induced labour is one in which pregnancy is terminated artificially, any time after fetal viability is attained by a method that aims to secure vaginal delivery. It is one of the important procedures in obstetrics. The key factor for a successful induction is the cervical status, consistency and dilatation which is determined by the Bishop's score. Prostaglandins are more effective in cases of unfavourable cervix or in the pregnancies remote from the term. Misoprostol, a prostaglandin E1 analogue is relatively inexpensive, can be easily stored at room temperature and has fewer systemic adverse effects. [1] It has rapid absorption both orally and vaginally.

Objective: To determine the efficacy and safety of vaginally administered misoprostol for third trimester cervical ripening or induction of labour in a study conducted on 100 patients in Mahaveer Hospital, Scientific Research Institute, Surendranagar, Gujarat.

Materials and Methods: This was prospective study conducted in private setup from October 2020 to February 2021. Study population comprised of 100 subsequent pregnant women who required induction of labour were recruited after applying inclusion and exclusion criteria. The progress of labour was charted on the partograph. The mean induction delivery interval, mode of delivery, maternal and neonatal outcome and complications were observed.

1. Introduction

In today's obstetrics, induction of labour is one of the most important procedures. This procedure is widely performed when continuation of pregnancy is hazardous to the mother and fetus [2] it is the artificial initiation of uterine contraction before its spontaneous onset for purpose of delivery of the fetoplacental unit. The success of labour induction largely depends on the cervical status or bishop's score at the time of induction of labou. A successful induction of labour refers to the vaginal delivery of the healthy baby, in acceptable time with minimum maternal side effect.

Misoprostol is a prostaglandin E1 analogue. It is a new agent for pre induction cervical ripening and uterotonic properties. [3] It is economical, stable at room temperature with very few side effects and can be easily administered through oral, sublingual, vaginal, buccal or rectal route. [4] Most clinical trials have used 25 microgram every six hours intravaginally. [5]

1.1. Bishop score

Bishop scoring system is based on digital cervical examination of the patient with a zero (0) point minimum and 13 point maximum. This system uses cervical dilation, it's position, effacement, consistency, and fetal station. Cervical dilation, effacement, and station are given 0 to 3 points, while cervical position and consistency are given o to 2 points. [6,7]

Bishop score of 8 or greater is considered to be favourable for induction, or chances of vaginal delivery with

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Score	Dilation (cm)	Position of cervix	Effacement (%)	Station (-3 to +3)	Cervical consistency
0	Closed	Posterior	0-30	-3	Firm
1	1-2	Mid position	40-50	-2	Medium
2	3-4	Anterior	60-70	-1, 0	Soft
3	5-6	–	80	+1, +2	–

induction is similar to spontaneous labour. A score 6 or less is considered to be unfavourable if an induction is indicated cervical ripening agents may be utilized.

2. Materials and Methods

This was prospective comparative study conducted in Scientific Research Institute, Surendranagar, Gujarat from October 2020 to February 2021. Study population comprised of 100 subsequent pregnant women.

Tablet 25 microgram misoprostol per vaginally used every 4 hourly for maximum of five doses.

Here is the table showing inclusion and exclusion criteria below:

2.1. Inclusion criteria

1. Singleton pregnancy
2. Full term
3. Adequate pelvis
4. Bishop score less than 6
5. Uterine contraction absent
6. Reactive non stress test
7. Previous LSCS or uterine scar
8. Multiparity (1^{st} baby vertex presentation)

2.2. Exclusion criteria

1. Malpresentation
2. Previous 2 caesarean section
3. Cephalopelvic disproportion
4. Non- reactive non stress test
5. Placenta previa
6. Vaginal delivery: contraindicated

Detailed history taken, followed by general physical examination was done. Obstetrical examination included lie, presentation, fundal height, fetal heart sound, per vaginal examination for assessing bishop's score and pelvis. Antenatal USG and blood investigations were done to ensure gestational age. Duration, intensity and frequency of uterine contraction were observed. Study population was examined and vaginal misoprostol was placed in posterior fornix after moistening with saline. Per vaginal examination done every 4 hourly to note the changes in the cervical status. To minimize the infection unnecessarily, per vaginal examination is avoided. Before each successive dose of misoprostol fetal heart monitoring was done and induction continued only if fetal heart rate normal. Progress of labour charted on partograph. Induction was discontinued when the adequate uterine contraction rated as at least 3 contraction/10 min each of 40sec duration. All patients were augmented with 2.5 Unit of Oxytocin in second stage of labour, another 2.5 Unit of oxytocin was given in third stage of labour. A further induction suspended in cases of tachysystole, hyper tonus or hyper stimulation or non-reactive CTG not corrected by primary measures. If the patient did not enter active labour four hour after last dose the induction was considered to have failed and caesarean section was performed.

3. Result

Vaginal misoprostol: one small study shows that the use of misoprostol results in more effective cervical ripening and induction of labour and to reduce rate of caesarean section by increasing rate of vaginal delivery compared to it.

Table 1: Demographic distribution of study populations

Characteristics	Group (n=100)
Maternal age, years	20-30 years
Parity	
a) Primi	64 (64%)
b) Multi	36 (36%)

Table 2 shows the demographic variables of the study group with regards to maternal age and parity. In our study we included 100 pregnant women group in which 64 (64%) women are nulliparous among age group of 20-30 years.

Table 2: Primary outcome variables

Mode of delivery	
Vaginal delivery	68 (68%)
Lscs	12(12%)
Instrumental delivery (vaccum/ outlet forceps)	20 (20%)
Induction to delivery interval	
Induction – vaginal delivery interval hours within 12 hours	64 (64%)
Vaginal delivery within 24 hours	36 (36%)

Table 2 shows comparison of primary outcomes, spontaneous vaginal delivery (68%) and instrumental vaginal delivery (20%) in sum vaginal delivery rate is higher (88%) than caesarean section (12%). There was less induction to delivery interval in vaginal group compared to caesarean section, and among the vaginal delivery group,

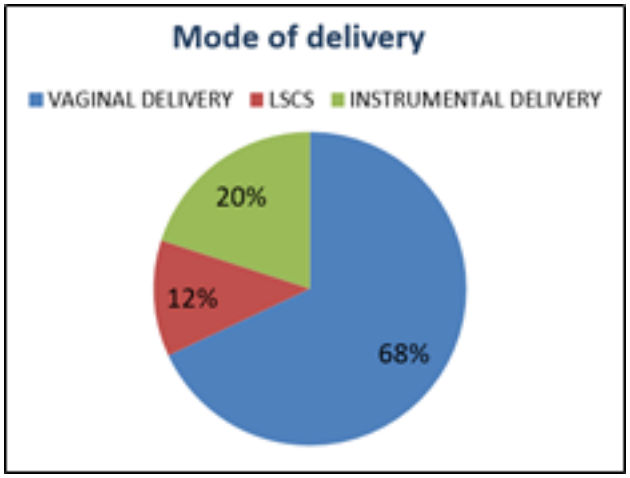

Fig. 1:

comparision done according to interval within 12 hours and within 24 hours vaginal delivery after induction.

Table 3: Secondary outcome variables

No. of doses	
1	6 (6%)
2	10 (10%)
>2	84 (84%)

The secondary outcomes are given in Table 4.

84 patients among 100 (84%) require more than 2 doses of misoprostol to effect delivery. Very few side events were encountered during our study.

3.1. Neonatal outcome

Table 4: NICU admission: 10 (10%)

Indications for NICU admission	
Meconium stained liquor	6(60%)
Delayed cry	2(20%)
Fetal distress	2(20%)
Total	10

4. Discussion

Misoprostol 25 microgram for induction of labour has been quite promising. Misoprostol administered vaginally is as effective as conventional methods for induction of labour at term. Distribution according to demographic characteristic in our study population was almost similar to study by J Anice SK et al., Rehman et al., and Shetty et al.[8–10]

This study shows that women who receive misoprostol vaginally experience faster induction to delivery.[11] Time taken for induction to vaginal delivery was significantly less in vaginal group as demonstrated by J Anice et al. and Jindal

Table 5:

Outcome	**Route**	**Rehman et al (50mcg PO vs. 25mcg PV)**	**J Anice et al (50mcg PO vs. PV)**	**Jindal et al (50mcg PO vs. PV)**	**Present study (25 mcg PV)**
Vaginal delivery	Oral	58%	83.3%	74.5%	–
	Vaginal (25mcg)	64%	76.8%	90.38%	68 (68%)
Vaginal instrumental	Vaginal (25mcg)	–	–	–	20 (20%)
Caesarean section	Oral	30%	16%	25.49%	–
	Vaginal	29%	19%	9.62%	12 (12%)
Induction to vaginal delivery interval, hours	Oral	21.22+2.4	27.3(18.8)	16.47	–
	Vaginal	20.15+++3.1	19.(11.9)	9.79	12.3 to 20.4 hrs.
Oxytocin administration	Oral	27.27%	78%	–	–
	Vaginal	23.6%	50%	–	–
	Intravenous	–	–		88 (88%)

et al., because vaginal misoprostol is absorbed quickly and removed slowly from body which makes it available to act for a longer time as compared to oral resulting in rapid progression of labour.[12]

There is wide clinical experience with this agent and a large number of published reports supporting its safety and efficacy when used appropriately. Vaginal misoprostol significantly reduces the time interval from induction to delivery and increases chances of vaginal delivery.

5. Conclusion

As per 2013 SOCG guidelines which stated that misoprostol is safe and effective agent for induction in labour with intact membrane for impatients. This is somewhat confirmed with our study with more recent data, as analysed we concluded that misoprostol appears to be efficacious and safe for cervical ripening and labour induction. Vaginal misoprostol tablet is most effective in achieving vaginal births relatively rapidly. Misoprostol is considered as a safe agent for labour induction by world health organization (WHO). As per 2011 WHO guidelines WHO recommended misoprostol for induction of labour except in those with previous 2 LSCS (lower segment caesarean section). We have to assess patient's safety data and monitoring requirements, to ensure safe and better outcomes for pregnant women fetuses and neonates with use of misoprostol in induction of labour.

6. Source of Funding

None.

7. Conflict of Interest

None.

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