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RESEARCH ARTICLE

COMPARATIVE STUDY OF COMBINED USE OF MISOPROSTOL AND FOLEYS CATHETER WITH MISOPROSTOL ALONE FOR INDUCTION OF LABOUR

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ABSTRACT

Background: Induction of labour is stimulation of uterine contractions before the spontaneous onset of labour anytime after fetal viability with or without ruptured membranes for the purpose of achieving vaginal delivery.
Objective: To compare transcervical Foleys catheter plus low dose vaginal misoprostol with low dose vaginal misoprostol alone for induction of labour.
Materials and Methods: A random group of sixty antenatal women with singleton pregnancy at term gestation with cephalic presentation with intact membranes were selected and divided into two groups. Combined intracervical Foleys catheter and low dose vaginal misoprostol was given for group A and low dose vaginal misoprostol alone was given for group B. Induction and delivery interval was taken as major outcome. Mode of delivery, NICU admissions and features of chorioamniotis were taken as secondary outcome. Data were analysed. Categorical values were done using Chi square test and Students 't' test for continuous variables.
Results: The mean induction and delivery time interval was shorter in combined group. There was no statistically significant difference in maternal and neonatal outcome between two groups.
Conclusion: Combined Foleys catheter and vaginal misoprostol results in shorter induction to delivery interval as compared to vaginal misoprostol alone for induction of labour.

INTRODUCTION

Induction of labour is stimulation of uterine contractions before the spontaneous onset of labour anytime after fetal viability with or without ruptured membranes for the purpose of achieving vaginal delivery.

Around 20% of all deliveries are preceded by labour induction. Prolonged pregnancy and maternal hypertension disorders being the major indication for the last 50-60 years.

Although there are many methods for induction of labour, there is no agreement in the choice of best and most proper method for induction. The study was aimed to provide the best method for shorter induction delivery time.

MATERIALS AND METHODS

This comparative study was conducted in the Department of Obstetrics and Gynecology, Rajah Muthiah Medical College and Hospital, Annamalai University, Chidambaram from JUNE 2016 to 2017

About sixty antenatal women with singleton viable fetus at term gestation (37-42 wks) with cephalic presentation and intact membranes and unfavourable cervix presenting in labour room for labour induction were randomly allocated to either intracervical Foleys catheter and low dose vaginal misoprostol or low dose vaginal misoprostol alone.

Antenatal women in the misoprostol group (Group A) received 25 micrograms of misoprostol vaginally every 4 hours for a maximum of 3 doses. Antenatal women in the combined group (Group B) received 25 micrograms of misoprostol vaginally every 4 hours for a maximum of 3 doses. In addition, a Foleys bulb was inserted digitally or by direct visualisation and bulb inflated with 30 ml sterile water for a maximum period of 12 hours.

Antenatal women with fetal malpresentations, previous cesarean delivery, multifetal gestation, intrauterine growth restriction, intrauterine fetal death, fetal anomalies were excluded in this study.

Induction to delivery time was taken as primary outcome. Mode of delivery, neonatal APGAR scores, neonatal intensive care unit admissions, chorioamniotis, meconium stained liquor were taken as secondary outcome.

Data was analysed using Chi square test and Students T test.

RESULTS

Table 1 Distribution of patients according to age

Age	Group A		Group B	
	N	%	N	%
20-25 yrs	11	36.7	19	63.3
26-30 yrs	16	53.3	11	36.7
31-34 yrs	3	10.0	0	0
Total	30	100	30	100

Above table shows maximum number of cases seen between 21-25 years in group B and 20-25 years in group A. Majority of the patients belong to the age group from 20-30 years. Differences observed were not statistically significant.

Table 2 Distribution of patients according to parity

PARITY	Group A		Group B		Total	
	N	%	N	%	N	%
Primigravida	13	43.3	15	50.0	28	46.7
Multigravida	14	46.7	9	30.0	23	38.3
Grandmulti	3	10.0	6	20.0	9	15.0
Total	30	100.0	30	100.0	60	100.0

The participants were compared based on the parity. The differences were not statistically significant.

Table 3 Distribution of patients according to the mode of delivery

MODE	Group A		Group B		Total	
	N	%	N	%	N	%
LSCS	3	10.0	4	13.3	7	11.7
NVD	27	90.0	26	86.7	53	88.3
Total	30	100.0	30	100.0	60	100.0

Majority of the patients from both groups had spontaneous vaginal delivery. Ceasarean section was done in 3 cases (10%) in group A and 4 cases (13.3%) in group B. The difference was not statistically significant.

Table 4 Induction vaginal delivery time

Group	N	Mean	Std. Deviation	Paired 't' test value	P value
Group A	27	10.2115	3.42970	2.551	0.014
Group B	26	7.6592	3.84977		

Induction delivery interval was seen to be shorter in the combined group (group B). The difference was statistically significant.

Table 5 Meconium stained liquor

Meconium Stained Liquor	Group A		Group B		Total	
	N	%	N	%	N	%
+	4	13.3	3	10.0	7	11.7
-	26	86.7	27	90.0	53	88.3
Total	30	100.0	30	100.0	60	100.0

Meconium stained liquor was seen in 13.3% in group A and 10.0% in group B. The difference was not statistically significant.

Table 6 APGAR scores

APGAR	Group	N	Mean	Std. Deviation	Paired 't' test value	P value
1 min APGAR scores	Group A	30	6.6000	0.72397	0.304	0.762
	Group B	30	6.6667	0.95893		
5 mins APGAR scores	Group A	30	7.8000	0.40684	1.027	0.309
	Group B	30	7.9333	0.58329		

The mean 1 min APGAR scores were found to be 6.6 ± 0.72 and 6.6 ± 0.95 and that of 5 mins APGAR scores were found to be 7.8 ± 0.40 and 7.9 ± 0.58 in group A and group B respectively. Differences were not statistically significant. No patients had pyrexia in both groups.

Table 7 NICU Admissions

NICU ADMISSION	Group A		Group B		Total	
	N	%	N	%	N	%
+	5	16.7	4	13.3	9	15.0
-	25	83.3	26	86.7	51	85.0
Total	30	100.0	30	100.0	60	100.0

Chi-Square Tests

	Value	Df	Sig.
Pearson Chi-Square	0.131	1	0.718

NICU admissions were observed in 5 neonates (16.7%) in group A and 4 neonates (13.3%) in group B. The difference was not statistically significant.

Table 8 No of doses of misoprostol required

Group	N	Mean	Std. Deviation	Paired 't' test value	P value
Group A	30	2.3333	0.60648	3.561	0.001
Group B	30	1.7667	0.62606		

DISCUSSION

We found that use of combination of Foleys bulb plus vaginal misoprostol for induction of labour shortened induction to delivery time by an average of 2.6 hours. No differences were observed in labour complications or adverse neonatal and maternal outcome.

The rate of spontaneous vaginal delivery was found to be 90% in misoprostol group and 86.7% in the combined group. This was comparable to Owlabi *et al* [4]. This was slightly lower when compared to the findings of Ekele and Isah[7].

One randomised trial[1] examining a combination of the Foleys bulb plus vaginal misoprostol compared with vaginal misoprostol alone for induction of labour found no differences in the total induction to delivery time. The study was small and appears to be underpowered. Whereas Kashin *et al*[2] found vaginal misoprostol alone to be faster than the combination of the Foleys bulb and vaginal misoprostol.

Two other randomized trials[8,9] using three arms compared vaginal misoprostol alone with Foleys bulb alone compared with combination of Foleys bulb plus vaginal misoprostol. Chung *et al*[3] reported no difference in induction to delivery time between the three groups. Contrary to our study, there was a statistically significant increase in tachysystole, terbutaline use and chorioamniotis with misoprostol alone when compared to the combination group.

The need for neonatal intensive care unit admissions for misoprostol alone was 16.7% compared to 13.3% in combined group. This was comparable to the findings by Owlabi *et al*[4] showed no difference in NICU admissions between two groups.

Casarean delivery rate found to be 10% in the misoprostol group and 13.3% in the combined group. The difference was not statistically significant. The findings were similar to Jindal *et al*[5,8,9], Vahid *et al*[6] Meconium stained liquour seen in 13.3% patients in misoprostal group and 10% of patients in combined group. There was no statistically significant difference in the neonatal APGAR scores in both groups.

The number of misoprostol doses required for group A (mean 2.33±0.60) and combined group (mean1.76±0.62). The difference was statistically significant (p value-0.001). Combined group requires minimum number of misoprostol.

In a study conducted by Gonen *et al*[10] higher bishop's score and higher parity were the factors found to be associated with higher success rate of induction of labour.

No differences were observed in the maternal and perinatal outcome.

CONCLUSION

Use of combined Foleys bulb and vaginal misoprostol results in shorter induction delivery interval when compared to vaginal misoprostol alone. Combined method requires minimum number of doses of misoprostol. There was no statistically significant difference in the maternal and neonatal outcome when these two methods were used for induction of labour.

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