

A prospective comparison of outcome of labour induction with vaginal misoprostol and intravenous oxytocin in term pre-labour rupture of membranes

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Abstract

Aim and Objectives: The aim of the present study was to assess the safety and efficacy of vaginally administered misoprostol 25mg with intravenous oxytocin for labor induction in term prelabour rupture of membranes.

The subjects with rupture of membranes without labor were assigned to receive either vaginally administered misoprostol 25 micrograms or intravenous oxytocin infusion this prospective study was conducted during February 2014 to January 2016 in the Department of Obstetrics and Gynecology of Regional Institute of Medical Sciences, Imphal, India.

Results and Observation: Of the 192 subjects 96 received intravaginal misoprostol and 96 received intravenous oxytocin. It was observed that the average interval from start of induction to delivery was about one hour shorter in misoprostol group (12.58 ± 4.08 hours vs 14.00 ± 3.31 hrs) than in oxytocin group ($P=0.05$). Vaginal delivery occurred in 82 misoprostol treated group and in 80 oxytocin treated group (85.4% vs 83.3%, $P=0.691$). Caesarean section was done in 14 of misoprostol treated subjects and in 16 oxytocin treated subjects (14.6% vs 16.7%) which is not statistically significant.

Conclusion: Vaginal administration of misoprostol is an effective alternative to oxytocin infusion for labor induction in women with prelabour rupture of the membranes at term.

Keywords: PROM, misoprostol, oxytocin, labour induction, vaginal administration

Introduction

Prelabour rupture of the fetal membranes (PROM) is defined as rupture prior to the onset of labor at term. This condition occurs in 5-10% of all pregnancies and 60% of cases of PROM occur in term patients and even at this gestational age, clinical management can be complicated at times ^[1].

Several studies have been performed evaluating the different methods of induction in term prelabour rupture of membranes comparing misoprostol and oxytocin regarding their efficacy in inducing labour, but so vast are the differences, that on the whole it is hardly possible to compare the results of different studies of similar character as the principle of dosage, route of administration differ from study to study.

The present study was undertaken in order to determine the safety and efficacy of intravaginal misoprostol in labour induction of term prelabour rupture of membranes compared to intravenous oxytocin. The results of this study were analyzed and compared with the results of other published studies.

Aims and Objectives

To assess the safety and efficacy of intravaginal Misoprostol in comparison with intravenous Oxytocin for induction of labour in women with term prelabour rupture of membranes.

Materials and Methods

This study is a prospective randomized study conducted during February 2014 to January 2016 in the Department of Obstetrics and Gynecology of Regional Institute of Medical Sciences, Imphal, India. 192 pregnant women admitted during the study period with term pregnancy with prelabour rupture of membranes, were included in the study.

Inclusion criteria

Primigravida with term PROM, Cephalic presentation, Women not in labour, No contraindication for vaginal delivery.

Exclusion criteria

Women in active labour, Medical contraindications for prostaglandins, Medical or Obstetrical contraindication to induction of labour.

Women, who fulfilled the eligibility criteria, were included in the study. The labour was induced with either vaginal misoprostol (25 µg) or IV oxytocin infusion. 96 cases each were enrolled in vaginal misoprostol group (Group 1) and intravenous oxytocin group (Group 2).

Once the patient was in active labour the progress of labour was assessed appropriate interventions were carried out when indications arose in both the groups.

Data was analyzed using Statistical Package of Social Sciences (SPSS) 21.0. Statistical significance was set at $P \leq 0.05$.

Results

Table 1: Period of Gestational Age Distribution

Group	Period of gestational age in weeks			Total N (%)	Mean
	37W-37W6D N (%)	38W-38W6D N (%)	39W-40W & above N (%)		
1	16(16.7%)	34(35.4%)	46(47.9%)	96(100%)	39.4±1.2 weeks
2	13(13.4%)	43(44.8%)	40(41.8%)	96(100%)	39.1±1.9 weeks

Table-1 shows the period of gestation distribution in the two groups. There were 16.7% between 37 weeks to 37 weeks 6 days, 35.4% between 38 weeks to 38 weeks 6 days and 47.9% between 39 weeks to 40 weeks in group 1 and 13.4%, 44.8% and 41.8% belonged respectively in group 2. Maximum number of patients were from the POG 39 weeks to 40 weeks and above and the least number of patients were from 37 weeks to 37 weeks 6 days. The mean gestational age in group 1 is 39.4±1.2 weeks and group 2 is 39.1±1.9 weeks is not statistically significant ($P=0.723$).

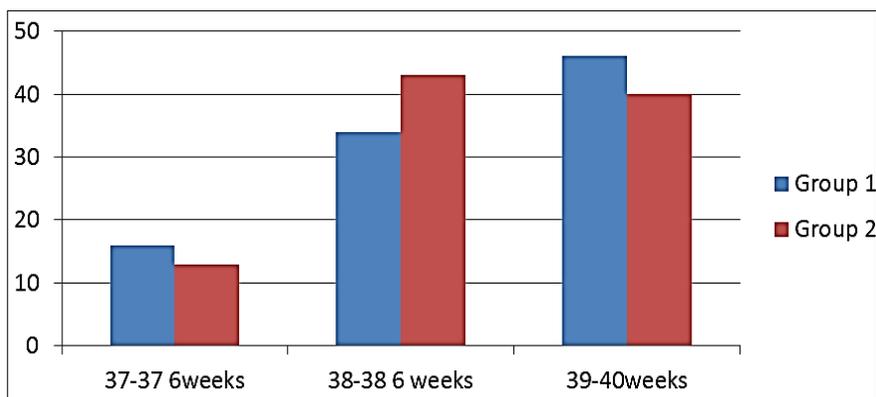


Fig 1: period of gestational age distribution

Group 1: Women received Misoprostol.

Group 2: Women received oxytocin.

Y-axis: Percentage.

Table 2: Induction delivery interval

Group	Induction Delivery Interval
Group 1(N=82)	762±251 mins
Group 2(N=80)	821±197 mins

P=0.046

Table-2 shows the mean induction to delivery interval in both the groups. From the table it is observed that the mean induction to delivery interval in both the groups excluding the caesarean section. It is observed from the above table that induction to delivery interval is shorter in intravaginal misoprostol group (762±251 minutes) than intravenous oxytocin group (821±197 minutes) which is statistically significant with P value < 0.05.

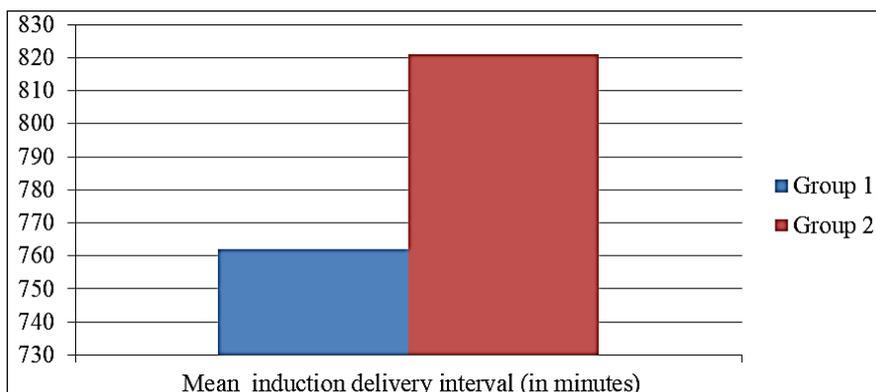


Fig 2: Induction delivery interval

Group 1: Women received Misoprostol.

Group 2: Women received oxytocin.

Y-axis: In minutes.

Table 3: Mode of delivery

Group	Vaginal Delivery N (%)	LSCS N (%)	Total N (%)
1	82(85.4%)	14(14.6%)	96(100%)
2	80(83.3%)	16(16.7%)	96(100%)

X²=0.158; d.f=1; P=0.691

This Table-3 shows the mode of delivery in group 1 and group 2. The vaginal delivery was 85.4% and caesarean section was 14.6% in group 1 and the vaginal delivery was 83.3% and caesarean section was 16.7% in group 2. It is observed from the test value that though there is variation in the number of vaginal delivery and caesarean section between both intravaginal misoprostol and intravenous oxytocin group, this variation is statistically insignificant giving a P-value >0.005 .

Table 4: Oxytocin use in group 1 patients

Oxytocin use needed	N (%)
Yes	27(28%)
No	69 (72%)

This table shows that 28% of patients in group 1 required oxytocin use to attain adequate uterine contraction for labour.

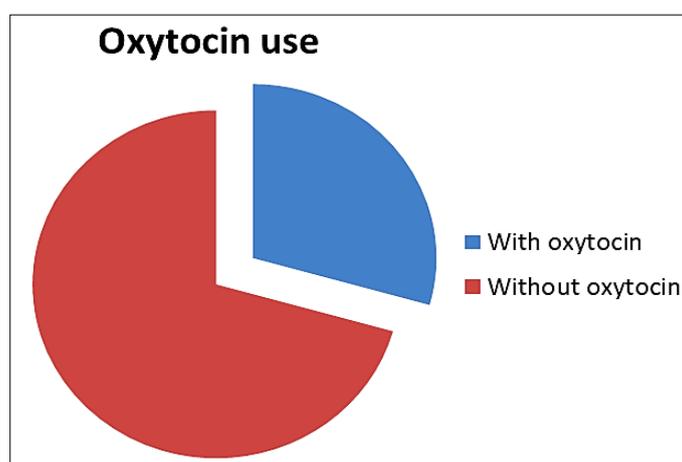


Fig 4: Oxytocin Use in Group 1 Patients

Oxytocin use in misoprostol treated subjects for augmentation of labour.

Conclusion

Oxytocin has been used for decades in induction of term PROM. Misoprostol is emerging as a better inducing agent. Intravaginal administration of misoprostol 25 micrograms induces labour safely and effectively in patients with term PROM. In our present study comparing the same with intravenous oxytocin, intravaginal misoprostol is associated with shorter induction to delivery interval, with rate of uterine contraction abnormalities and the rate of maternal and neonatal complications similar among both the groups. Misoprostol is being cost effective, easy to store and with ease of administration. In the developing countries like India, intravaginal misoprostol should be considered as the primary initial treatment modality in the protocol of management of term pre-labour rupture of membranes.

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