Research Article

Comparing low dose vaginal misoprostol and dinoprostone gel for labour induction

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Abstract

Objectives: To compare the efficacy and induction of labour with dinoprostone gel and misoprostol tablet with respect to induction- delivery, interval, type of delivery, cost efficiency. To study the maternal and fetal outcome in both groups. **Method:** A prospective study of 100 patients admitted to labour ward with an indication for induction of labour. **Results:** There are equal number of patients in both the groups with similar gestational age bishops score of 4 to 6 prior to induction with majority of them having 6 score. Mean induction and delivery interval between both the groups is statistically and clinically significant. **Conclusion:** Misoprostol and dinoprostone are safe and effective for cervical ripining of labour induction. Misoprostol is cost effective, stable at room temperature. Induction delivery interval, requirement of oxytocine augmentation is less in misoprostol group. Vaginal delivery rate is high in misoprostol group.
Keywords: Misoprostol tablet, dinoprostone gel.

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Email: waydandesupriya@gmail.com
Received Date: 15/07/2015 Revised Date: 26/07/2015 Accepted Date: 29/07/2015

Access this article online

Quick Response Code:

Website: www.medpulse.in

DOI: 01 August 2015

INTRODUCTION

Induction of labour is an integral part of obstetrics practice. In modern obstetrics it is mainly attempted when continuation of pregnancy may harm either mother or foetus or both. Induction of labour traditionally has been done by oxytocin infusion but numerous studies have shown that it is unable to achieve equally gratifying results in unfavourable cervix. Various methods of induction and augmentation of labour were associated with a number of risks and complications. Karim introduced the use prostaglandins to induce labour. Dinoprostone is being used intracervically which is inconvenient method for induction. Recently an alternative prostaglandin PGE-1 analogue misoprostol has been used for cervical ripening and to induce labour. Misoprostol, a synthetic PGE-1 analogue was commercialized in 1987 for antiulcer, antisecretory and cytoprotective effects. Misoprostol was also effective as a cervical priming agent. It is now being tried orally, intravaginally and intracervically for induction of labour. Present study will be undertaken to assess the efficacy and safety of intravaginal misoprostol as compared to intracervical dinoprostone for induction and progress of labour and to assess maternal and foetal outcome.

MATERIALS AND METHOD

100 patients admitted to labour ward with an indication for induction of labour are the source of data. 50 patients with an indication for labour induction received 25 microgram intravaginal misoprostol tablet and repeated for maximum 4 doses every 6 hrs as needed. 50 patients with an indication for labour induction received 0.5 mg of intracervical dinoprostone gel and repeated for maximum of 4 doses every 6 hrs as needed. After drug administration patients were monitored for maternal vital signs, fetal heart rate and progress of labour. Oxytocin was started in the absence of adequate uterine contraction or for augmentation of labour in case of arrest of dilatation. Data collection included booked and unbooked case, maternal age, gestational age, Bishop's score at the time of induction, induction delivery interval, oxytocin augmentation, APGAR score of the baby, maternal and neonatal complications.

How to site this article: Supriya Waydande, Vidya Jadhav. Comparing low dose vaginal misoprostol and dinoprostone gel for labour induction. *MedPulse – International Medical Journal* August 2015; 2(8): 428-430. http://www.medpulse.in (accessed 02 August 2015).

OBSERVATIONS AND RESULTS

Table 1

	Misoprostol		Dinoprostone	
	No. of patients	Percentage	No. of patients	Percentage
Booked	36	72%	39	78%
Unbooked	14	28%	11	22%
Total	**50**	**100**	**50**	**100**

Table 2: Gestational age

	Misoprostol		Dinoprostone	
Gestational age	No. Of patients	Percentage	No. Of patients	Percentage
37 to 40 weeks	34	68%	35	70%
40 to 42 weeks	16	32%	15	30%
Total	**50**	**100**	**50**	**100**

Table 3: Mean induction delivery interval

Drug	Mean induction delivery interval in hours
Misoprostol	13.85±3.09
Dinoprostone	15.80±3.03

Table 4: Mode of delivery

	Misoprostol		Dinoprostone	
Mode of delivery	No. Of patients	Percentage	No. Of patients	Percentage
Vaginal delivery	44	88%	38	76%
Caesarean delivery	6	12%	12	24%
Total	**50**	**100**	**50**	**100**

Table 5: Indications for failed induction

	Misoprostol		Dinoprostone	
Indications	No. Of patients	Percentage	No. Of patients	Percentage
Fetal distress	5	10%	8	16%
Secondary arrest of dilatation	1	2%	4	8%
Total	**6**	**12%**	**12**	**24%**

Table 6: Effects on the mother

	Misoprostol		Dinoprostone	
Complications	No. Of patients	Percentage	No. Of patients	Percentage
Tachysystole	4	8%	2	4%
Hyperstimulation	4	8%	3	6%
Fever	1	2%	1	2%
Vomiting	2	4%	2	4%
Diarrhoea	1	2%	2	4%
Postpartum haemorrhage				
1)Traumatic	1	2%	2	4%
2)Atonic	2	4%	4	8%
Total	**15**	**30%**	**16**	**32%**

Table 7: APGAR score

APGAR score	Misoprostol	Dinoprostone
APGAR -1 min	7.5	7.5
APGAR-5 min	9.54	9.46

Table 8: NICU admission

	Misoprostol		Dinoprostone	
No. Of days	No. Of patients	Percentage	No. Of patients	Percentage
<6 days	3	72%	39	78%
>6 days	2	28%	11	22%
Total	**5**	**100**	**50**	**100**

DISCUSSION

In the present study 100 patients were studied with indications for induction of labour of which 50 patients received intracervical dinoprostone gel containing 0.5 mg 6 hrs as needed for maximum of 4 doses and 50 patients received intravaginal misoprostol tablet 25 mg every 6 hrs as needed for maximum 4 doses. The patients coming for delivery were randomly picked irrespective of their booked and unbooked status at our hospital. Misoprostol is more cost effective as compared to dinoprostone. Other patients characteristics are gestational age and bishop's score prior to induction had no more differences on both groups. The rate of vaginal delivery was 88% in misoprostol and 76% in the dinoprostone group. Induction delivery interval was shorter in misoprostol group composed to dinoprostone group 13.85 ± 3.09 and 15.80 ± 3.03 hrs respectively. This was statistically and clinically significant ($P<0.05$). All caesarean deliveries were considered 'failed induction' irrespective of the cause of the same. The incidence of thick meconium stained liquor was 8% and 6% in the misoprostol and dinoprostone groups respectively. The maternal side effects observed were tachy systole, hyperstimulation, vomiting, fever and PPH. The mean birth weight and mean APGAR scores in both the groups did not show any major difference. The incidence of NICU admission was 10% in misoprostol group and 12% in dinoprostone group.

CONCLUSION

Misoprostol and dinoprostone are safe and effective for cervical ripening and labour induction. Misoprostol is cost effective as compared to dinoprostone. Misoprostol is stable at room temperature whereas dinoprostone requires refrigination. Induction delivery interval is less in misoprostol grouo as compared to dinoprostone. Vaginal delivery rate is high in misoprostol group as compared to dinoprostone. APGAR score, maternal and fetal outcome was similar in both the groups.

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Source of Support: None Declared
Conflict of Interest: None Declared