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Comprehensive Analysis of 1000 Labour Inductions with Vaginal Misoprostol

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Abstract

Objective: To study the efficacy of Prostaglandin E1 (PGE1), misoprostol, vaginally administered in induction of labour (IOL) for various indications.

Material and Method: During 8 months from Jan-Aug 2006, 1000 cases of labour induced with intravaginal misoprostol 25 mcg. fourth hourly, in term gestation and 50 mcg in some preterm gestations, were studied and a critical analysis of the caesarean rate, perinatal mortality, perinatal survival, induction - delivery interval, the number of doses required and complications like PPH, abruption, pyrexia and maternal deaths is reported. This is an observational study.

The indications for labour induction in 1000 were 1. Past EDD, N=-250, Term Gest., N=200, Preeclampsia, N=210, Prelabour rupture of membranes(PROM), N= 170, including term and preterm gestation, Eclampsia, N=60 induced with PGE1 of the total 118 eclampsia cases, Placental abruption, N=49 induced with misoprostol of the total 116 abruption admissions, fetal anomalies requiring induction were N=27, multifetal gestation were N=6, and extra 27 consecutive labour inductions for similar indications were included to make 1000 labour inductions.

Results: C. Section rate in1000 deliveries is 11.9%. Caesarean section rate in this study is 11.5% (past EDD, TG, PIH & PROM =99/857). In the very high risk obstetric patients (Eclampsia& Abruption N=109) it is 18% in this study. The number of deliveries after 37wks is 777/1000, the remaining being preterm. The complications like pyrexia, placental abruption, postpartum haemorrhage are very less. There were two maternal deaths in 1000 cases. One was a case of eclampsia, who was admitted with pyrexia in a semi-conscious state died due to probably cerebral haemorrhage. The second lady had PPH, atonic, went into DIC, could not be saved.

Discussion: Vaginal misoprostol is a boon for cervical ripening to improve Bishop score, especially in the very high risk obstetric cases , eclampsia and placental abruption where early delivery would save maternal lives.

Conclusion: Misoprostol 25mcg. vaginal placement to ripen the cervix and induce labour at term is an excellent method.

Keywords: Labour induction; PGE1; Vaginal Misoprostol

Introduction

In developed countries, up to 25% of all deliveries at term now involve induction of labor [1]. WHO general principles related to the practice of induction of labour should be strictly followed. Induction of labour should be performed only when there is a clear medical indication for it and the expected benefits outweigh its potential harms. Consideration must be given to the actual condition, wishes and preferences of each woman, with emphasis being placed on cervical status, the specific method of induction of labour and associated conditions such as parity and rupture of membranes. Induction of labour is recommended for women with prelabour rupture of membranes at term. Low-

dose vaginal misoprostol (25 µg, 6-hourly) is recommended for induction of labour [1]. Oral misoprostol (25 µg, 2-hourly) is also recommended for induction of labour [1].

Unpublished data from the WHO Global Survey on Maternal and Perinatal Health, which included 373 health-care facilities in 24 countries and nearly 300 000 deliveries, showed that 9.6% of the deliveries involved labour induction, highest in Sri Lanka, 35.5% [2]. Over the years, various professional societies have recommended the use of induction of labour in circumstances in which the risks of waiting for the onset of spontaneous labour are judged by clinicians to be greater than the risks associated with shortening the duration of pregnancy by induction. These include gestational age of 41 completed weeks or more, Pre-labor Rupture of Amniotic Membranes (PROM), hypertensive disorders, maternal medical complications, fetal death, fetal growth restriction, chorioamnionitis, multiple pregnancy, vaginal bleeding and other complications.

Fetal health surveillance should include a non-stress test and measurement of amniotic fluid volume every 3 to 4 days in post term pregnancies. Sweeping membranes may be offered to women at 38 to 41 week's gestation to potentially avoid post term pregnancy and promote spontaneous labour. Fetal membranes rupture prior to the onset of labour for reasons that are not well understood in approximately 8% of term pregnancies. It is important to confirm that PROM has occurred. It is estimated that 80% of women with PROM at term will begin to labour spontaneously within 12 hours, and 95% within 24 hours. PROM complicates approximately one-third of preterm labours (less than 37 week's gestation). Hypertensive Disorders of Pregnancy (HDP) are a primary cause of maternal and perinatal mortality and morbidity throughout the world. When induced for HDP, 27.3% were delivered by caesarean section, compared to 15.1% [3] among women induced for non-medical indications. PPH following induction or augmentation were reported to be 7.8% and 8.3% [3].

As per SOGC guidelines women should be offered induction of labour between 41+0 and 42+0 weeks as this intervention may reduce perinatal mortality and meconium aspiration syndrome without increasing the Caesarean section rate. (I-A) [4]. Women who chose to delay induction > 41+0 weeks should undergo twice-weekly assessment for fetal well-being. (I-A). It is not possible in Indian women from the lower socio-economic strata to come twice weekly for tests of fetal wellbeing. There are some local problems in India. If a woman comes with backache or tightening of abdomen at around her EDD, people expect that we admit the woman. The poverty of these people is such that they cannot go home and make a second trip to hospital. Three to four people accompany the woman coming from a village to help in any eventuality should need arise.

Misoprostol can be considered a safe and effective agent for labour induction with intact membranes and on an inpatient basis. (I-A) Successful induction is defined as a vaginal delivery within 24 to 48 hours of induction of labour. Induction of labour is the artificial initiation of labour before its spontaneous onset to deliver the feto-placental unit. The rate reached a high of 23.7% in 2001-2002, decreased slightly to 21.8% in 2004-2005, and has since remained steady [4]. Perinatal Health Registry reveals a similar trend and rate, with post-term pregnancies (> 41+0 weeks) representing 34%, the largest group, of the total inductions [4]. SOGC considers induction of labour, the initiation of contractions in a pregnant woman who is not in labour to help her achieve a vaginal birth within 24 to 48 hours, as high priority in preeclampsia ≥ 37 weeks , significant maternal disease not responding to treatment, significant but stable antepartum hemorrhage, chorioamnionitis, suspected fetal compromise, term pre-labour rupture of membranes with maternal GBS colonization , logistical problems (history of rapid labour, distance to hospital). The author feels happy that SOGC made a mention of logistical problems, as an indication.

Bishop score of > 6 is predictive of a successful vaginal delivery. There is evidence that routine sweeping (stripping) of membranes promotes the onset of labour and that this simple technique decreases induction rates. It is believed that the technique results in an increase of local production of prostaglandins. A 2010 Cochrane review [5] concluded that vaginal misoprostol was also superior to other induction agents (vaginal prostaglandin, intracervical prostaglandin, and oxytocin), with less epidural use and fewer failures to achieve vaginal delivery within 24 hours, but more tachysystole with FHR changes. PGE1 and PGE2 both reduce CS rates even with an unfavorable cervix. The oral and vaginal routes have a similar reduction of CS rates. The oral route needs more oxytocin stimulation, but the vaginal route will have more tachysystole. All doses of misoprostol can cause uterine tachysystole.

A recent study in France in 2016, regarding labour induction practices, surveyed 94 maternity units, observed that in only 3 units misoprostol was being used for IOL. Calls for the need for guidelines in their country [6].

Material and Methods

During 8 months from Jan-Aug 2006, 1000 cases of labour induced with intravaginal PGE1, were studied and a critical analysis of the caesarean rate, perinatal mortality, perinatal survival, induction - delivery interval and complications like PPH, abruption, pyrexia and maternal deaths is presented.

The results for various indications are presented separately as it provides clarity. Observations (tables 1-6)

Indication	Number	Percent %
Pregnancy past dates	250	25
PIH	210	21
Term gestation	200	20
PROM	170	17
Eclampsia	60	6
Abruption	49	4.9
Cong. Fetal anomalies	27	2.7
Multi fetal gestation	6	0.6
Dextrocardia	1	0.1
Extra	27	2.7

Table 1: Indications for IOL in 1000 cases.

Indication	GA	No.	Vag Del	LSCS No.	LSCS %	PNM %
Past EDD	Term	250	222	28	11	2.4
Term Gest.	Term	200	178	22	11	2
Preeclampsia	>37wks-143	210	183	27	13	3.8
	<37wks-67					
PROM	>37wks-139	170	151	19	11	Nil
	<37wks-31					4
Eclampsia	>37wks-9	60	49	11	18	47
	33-36wks-21					
	29-32wks-15					
	22-28wks-15					
Abruptio placenta	>36wks-9	49	40	9	18	89.79
	32-36wks-16					
	28-32wks-11					
	20-28wks-13					
Fetal anomalies		27			Nil	
Extra		27		3	11	Nil

Table 2: C. Section & PNM Rates in PGE1 Induced Cases.

Indication	GA	No.	<12hrs	<24hrs	24-48 hrs
			%	%	%
Past EDD	Term	250	61	93	
Term Gest.	Term	200	53	83	
Preeclampsia	>37wks-143	210	58	89	
	<37wks-67				

PROM	>37wks-139	170	92	99	
	<37wks-31				
Eclampsia	>37wks-9	60	-	76	24
	33-36wks-21				
	29-32wks-15				
	22-28wks-15				
Abruptio placenta	>36wks-9	49	92	96	
	32-36wks-16				
	28-32wks-11				
	20-28wks-13				
Fetal anomalies		27		47	86
Extra		27			

Table 3: Induction Delivery Interval.

Indication-No. LSCS	FD	Failure to Progress	CPD	Oligoamnios	Un-D breech	Precious preg.	Abruption
Past EDD- 28/250	18	6	2	2			
Term Gest. -22/200	11	7	2		1	1	
PIH-27/210	13	12	1				1
PROM- 19/170	5	11	3				
Eclampsia-11/60	5	5	1				
Abruption-9/49		9					
Fetal Anom. -27 - Nil							
Extra-3/27	1	2					
TOTAL	53	52	9	2	1	1	1

Table 4: Indications for C. Sections 119/1000 - 11.9%.

C-Sections 119/1000 - 11.9%.

Indications	No.-119 11.90%	% of total deliveries
Fetal Distress	53	5.3
Failure to Progress	52	5.2
CPD	9	0.9
Oligoamnios	2	0.2
Un-Diagnosed	1	0.1
Breech Presentation		
Precious Preganancy	1	0.1
Abruption	1	0.1

Table 5: Indications for caesarean delivery in PGE1.

induced labours N=119/1000.

Authors	Place,Journal	No.cases/ group1 &2	Total no. Indications	Vag.Del. %	LSCS %	PNMR %	Conclusion
1.Gupta N, Mishra SL, Jain Shradha	Ajmer JOGI 2006	Gp A=100 PGE2 gel Gp B+100 Vag. Miso	Total=200 Past dates,HDP, Elective term, IUFD,PROM,fetal anomaly	68 +6=74 86 +2=88	26 12	1 2	Miso more effective than Dinoprostone gel
2. Kaima A. Frass,Alia A. 2009-2010	Yemen Saudi MedJ 2011	n=56 Miso 50µg 4-hourly vaginally.	Total=56 severe preeclampsia 56 controls 57	69.60%	30.3	1.8	Miso 50µg 4-hourly could reduce the cesarean section rate in this population.
3. Rakhi Rai, Sulabha Joshi	Nagpur PJMS 1/1/2017	N=100 Misoprostol 25 mcg x 6 hours, PGE2 gel group2 N=100	Total=200 Postdated, PIH, IUGR,GDM Oligohydramnios	86% 75%			Misoprostol is better, more cost-effective
4. Masom eh Rezaie1, , Fariba 2013-2014	Iran www.jcdr.net, 2016	N=31 -vag.25 mcg. Miso N=22 oral 100 mcg miso N=33 oral 50 mcg.miso	31+22+33= 86 41 weeks, post-term pregnant women		N1-25 N2-10 N3-15	1.7, 5.2, 15.0 (NICU admission)	oral misoprostol 100µg is more useful. Vag. miso-NICU=less
5. Aqueela Ayaz1, Shazia Saeed2 2004-2005	Pakistan MJMS 16(1): 35	N=44-Oral 50mcg.Miso N=44-Vaginal Miso	N=88 post date women	84% 77% (Within 24 hrs.)	7% 4%	NICU admissi 12% vs. 5%; p>0.05 PNM gp2=2%	50mg oral misoprostol has the potential to induce labor as safely and effectively as its vaginal route.

6. Bushra Iftikhar, Shehla M Baqai* 2006	Rawalpindi PakistanPak Armed Forces Med J 2016;	N1= 30, group A 50microg of Misoprostol N2-30, GroupB Prostaglandin E2	30+30 Total=60 Postdates,PE,GDM, PROM	80% 70%			Misoprostol is an effective agent
7.Singh Pushpa. Sweta, Indu 2014	PGIMER, New Delhi JOGI 2014	1.intracervical dinoprostone, 2.50 mcg. X4hrly misoprostol	Group 1- 192 Group2-137 N=329 Post-date,PIH, GDM,	1. 55.21 2. 65.69	43.23 32.85	NICU admission was 22.9 % And 22.6% Low Apgar score at 5 -min 4.7% & 1.5 %	misoprostol was more efficacious than dinoprostone gel for labor induction
7. Jindal Promila Avasthi Kumkum	Punjab, India JOGI 2011	1.misoprostol 50 mcg. Orally N=51 2.vaginally, four hourly, N=52	N=51 N=52 Total 103 HDP IUGR	74.51 92.15	25.49 vs. 9.62%,		Vaginal route of misoprostol is more effective than oral
8. Pratibha D. Deepa	Hyderabad 2006	25 mcg. Miso, vagina lx 4hrly	N=250 Past dates	222=88.8 %	28= 11.2%	2.40%	High vaginal del. Rate One had abruption.
+ Swathi G, Padmaja A	Hyderabad2006	Do	N = 200 Induction at term	89%	11%	2.00%	
+ Usha V.	Do	25 & 50 some cases	N =210 Preeclampsia Mild -178 Severe -32	182 = 86.6%	28 = 13.3%	3.8% Excluding Less than 1.5 kgs	Early severe Preeclampsia cause of PNMR
+ Varada	Do	25 Miso vag. 4 hrly	N= 170,PROM Term-139, preterm-31	89%	11%	4.00%	
+Malati P	Do	Miso,25,50,100 mcg depending on gest. Age. 4 hrly	N=60 induced/119 Eclampsia, Severe preeclampsia	49 = 82%	11 = 18%		
+ Nagasree MGS		PGE1 VAg. 4 hrs	N=49/116 Abruptio placenta	40 = 81.63%	9 = 18.36%		

Table 6: Comparative studies with conclusions.

Material, Observations

C. Section rate in1000 deliveries is 11.9%. C-Section rate in this study is 11.5% (past EDD, TG, PIH & PROM = 99/857). In the very high risk obstetric patients (Eclampsia& Abruption N=109) it is 18% in this study. The number of deliveries after 37wks is 777/1000, the remaining being preterm.

Complication	No	%
Placental abruption	6	0.6
PPH	4	0.4
Maternal Deaths	2	0.2

Table 7: Labour induction with PGE1 complications in 1000 cases.

Maternal Deaths in Two Cases

Case -1: Unbooked primi with term gestation (live fetus) admitted with antepartum eclampsia, 4 convulsions, was irritable, semiconscious with pyrexia, (105^0F) B.P. 170/120, urine protein 3+. Stabilized with $MgSo_4$, Nifedipine, Paracetamol, Mannitol.

Labour induced with PGE1 25mg x 2doses. Had vaginal delivery 8 hrs after induction. She continued to be irritable, died 8 hrs after delivery due to cerebral haemorrhage.

Case -2: $G_2P_1L_1$ induced with PGE_1, 25µ gms 4 doses 3rd hrly. Delivered an alive 3.0kgs baby. Had atonic PPH, shock, DIC one and a half hours after delivery. Expired 10 hrs after delivery despite resuscitative measures with 6 units of blood and 6 units FFP.

250 Cases of Pregnancies Past EDD-Induction with PGE 1

Aim of the Study

To study the efficacy of vaginal PGE1 for Induction of Labour (IOL) in pregnancies past EDD in terms of number of vaginal deliveries, induction delivery interval, perinatal outcome and complications.

Material and Methods

Pregnancies 250, past their EDD were induced with 25 mcg. vaginal misoprostol over a period of eight months in the year 2006 from January to August at Modern Government Maternity Hospital, Osmania Medical College. There were 166 booked cases (66.4%). All booked cases had at least one scan at 18 to 20 weeks gestational age, apart from one pre-induction scan for confirmation of gestational age, fetal wellbeing and adequacy of liquor.

Bishop score was less than 6 in 204/250, 81.6% of cases. And more than 6 in 46/250, 18.4%. Labour induction was done with 25 mcg. PGE1, placed intravaginally, the number of doses varying from one to four at intervals of three hours. Oxytocin and artificial rupture of membranes (ARM) were used for augmentation of labour if needed once the woman sets into active labour. Oxytocin was used with a gap of 3 hours after the last dose of PGE1.

Criteria for Classification as Past EDD

- Expected Date of Delivery (EDD) was calculated based on the LMP when the woman was sure of her dates.
- In all other cases scan EDD was considered.
- Out of 250, 72.4% (181) were past EDD as per LMP.
- As per Ultrasonography (USG), 69 out of 250, 27.6% were past dates.
- Ultrasonography for confirmation of gestational age.

250 Cases of Pregnancies Past Edd-Induction with PGE1 (tables 8-13)

Ultrasonography for confirmation of gestational age.

Number of scans	Number of pts.	%
No prior usg.	29	11.6
1	106	42.4
2	103	41,2
3	10	4
4	2	0.8

Table 8: Number of scans the woman had prior to admission.

In 29 unbooked cases who had no prior USG the pre-induction scan was the only one. A pre-induction scan was done in all the cases.

Number of Doses	Primi	G2	G3	G4	Total	%
1	48	26	13	2	89	35.6
2	51	36	19	2	108	43.2
3	27	13	2	1	43	17.2
4	8	2	0	0	10	4
Total	134	77	34	5	250	
%	53.6	30.8	13.6			

Table 9: Dose parity wise distribution of cases N=250.

Number of Doses	Number of cases	Delivered Within 12 hrs.	%	Delivered Within 24 hrs.	%
1	83	71	85.54	82	98.79
2	98	61	62.24	92	93.87
3	35	3	8.57	29	82.85
4	6	-	-	4	66.6
Total	222	135	60.81	207	93.24

Table 10: Induction delivery interval - 222.

135 out of 222 = 60.81% delivered within 12 hours.

207 out of 222 = 93.24% delivered within 24 hours.

Mode of delivery	Number of cases	%
Vaginal	222	88.8
Caesarean	28	11.2

Table 11: Route of delivery.

Indication	Number
Fetal distress	18
Failed induction	4
Failure to progress	2
Cephalopelvic disproportion	2
PROM, oligoamines	2

Table 12: Indication for LSCS.

Perinatal Outcome: Average birth weight in our study was 2.88 kgs. The perinatal survival was 97.2%. Seven cases in this study had perinatal deaths. One of these had major congenital anomaly. The corrected perinatal mortality was 2.4% (6/250).

parity	No Doses	Ind-del Interval	ARM/Sp.rupture	Ind-ARM interval	Mode of delivery	Risk factors	Other findings	outcome
G1	2	10	ARM-MSL	9	LSCS			Expired in nursery
G1	2	20	ARM-Clear	13	Sp.vaginal.del		Hind waters-MSL	Expired imm. After birth
G1	1	7	Spont.rupture-clear	4	Sp.vag.del		Hindwaters-msl	Expired in nursery
G1	2	27	ARM-MSL	24	Sp.vag.del			Expired in NICU
G2	2	13	ARM -MSL	10	Vag. del	Abruption		
G2	2	11	ARM-MSL	10	LSCS	AFI-6		Expired in nursery

Table 13: Perinatal mortality in six cases.

Complications

- One case out of 250 had abruption. Placenta was found to be one third separated after delivery.
- There were no cases of rupture uterus, hyperstimulation, post-partum hemorrhage.

Conclusions: 250 Cases of Pregnancies Past EDD-Induction with PGE1

In conclusion induction with 25mcg of prostaglandin E1 in pregnancy past EDD is safe, cost effective, efficient, with less complications as exemplified by our study.

Labour Induction with Misoprostol (PGE1) in Preeclampsia

Aim: 210 Cases of PIH requiring labour induction managed at GMH, Nayapul using PGE1 from Jan 2006 to Aug 2006 to evaluate the efficiency and safety of low dose PGE1, 25 ug 4th hourly. ACOG approved low dose 25 ug, vaginally 4th hrly dose, 6 doses. Parity, PIH severity, antihypertensive used, no. of doses of PGE1, induction delivery interval, labour outcome, perinatal & maternal morbidity and mortality were analyzed. (tables 14-26)

Inclusion Criteria	Exclusion Criteria
Single Fetus	Non-vertex
Vertex Presentation	Previous LSCS
CPD Ruled Out	
No disease of Lung, Liver, Kidney	Multiple pregnancies
No Glaucoma	Uterine Anomalies
No Epilepsy	Fetal Distress

Table 14: Selection Criteria.

<19 Yrs	7%
20-25 Yrs	78%
26-30 Yrs	14%
>30 Yrs	0%

Table 15: Age distribution of women.

Primi	**136**	**64%**
G2	49	23%
G3	15	7.10%
G4	7	3.30%
G5	2	0.95%
G6	1	0.47%

Table 16: Parity- Wise Distribution.

Weeks of Gestation	%
<30 Wks	6
30-36 Wks	27.33
>37 Wks	66.6

Table 17: Term of gestation when IOL was planned. Preeclampsia N.

Bishop Score	No. cases Total-210	%
<6	173	82.66
>6	37	17.33

Table 18: Bishops Score in 210 PreEclampsia.

Mild PIH	178 cases	84.76%
Severe PIH	32 cases	15.23%

Table 19: Severity of PIH (preeclampsia) No.

Drug	No cases total 210
1. Cap. Nifedepine	210
2. Nifedepine+ Methyl Dopa	12
3. Labetalol+ Alpha Methyl dopa+Nifidepine	1
4. Mag. SO4	9

Table 20: Drugs used to control hypertension.

Parity	0-6 hrs	7-12 hrs	13-18 hrs	19-24 hrs	25-36 hrs	37-48 hrs
Primi	23	34	25	16	8	7
G2	13	18	5	4	2	2
G3	6	7	1		1	
G4	2	1	3		1	
G5		1	1			
G6		1				

Table 21: Induction Delivery Interval in relation to parity.

Induction Delivery Interval

<12 hrs 58% cases delivered, <24 hrs 89% cases delivered.

Mode of Delivery	Total No	%
Vaginal	182	86.6
Spontaneous	122	
Forceps	50	
Vacuum	10	
Caesarean Section	28	13.3

Table 22: Mode of Delivery in 210 Preeclampsia

Indication	No.	% of 28
Failed Induction	14	50
Fetal Distress	10	35.7
Abruption	1	3.55
Deep Tr. Arrest	1	3.55
Imminent Eclampsia	2	7.14

Table 23: Indications for Caesarean Section in 28 (Primes 23 + Multis 5).

Dose No	Primi	G2	G3	G4	G5	G6
1	33	20	5	3	1	1
2	45	17	7	4	1	
3	25	7	3			
4	8					
5	1					
6	1					

Table 24: Parity wise Doses.

Perinatal Outcome	No.Cases	%
Perinatal Survival	195	92.85%
NICU Admissions	10	4.76%
Perinatal Mortality	15	7.15%
Less than 1.5 kgs	7/15	
Corrected Perinatal Mortality	8/15	3.8

Table 25: Perinatal Outcome, Total No of cases 210.

Complication	No.
Pyrexia	8
Eclampsia	2
Imminent	9
Abruption	1
PPH	2
Severe anaemia	2
Wound gaping	2

Table 26: Complications in 210 Preeclampsia IOL with PGE1.

Conclusion: Even in high risk cases with unresponsive cervix, PGE1 is safe and can be used. We had a vaginal delivery rate of 87% and a PNMR 3.8%, NICU admission was needed in 4.7%. Mild PPH occurred in two cases. There was no hyperstimulation causing perinatal mortality. PGE1 is a promising, highly effective, well tolerated inexpensive and convenient agent for labour induction.

25 Micrograms Pge1 Its Efficacy in Induction at Term

Aim: The response to intra-vaginal 25µg PGE1, 3 - 4 hourly for induction of labour in 200 women at term managed at Government maternity hospital, Nayapul, Hyderabad from January to August 2006 is presented in terms of 1) Vaginal delivery rate, 2) Caesarean section rate, 3) Induction - delivery interval, 4) Perinatal outcome and 5) Complications.

Material and Methods: Material - 200 women at term, drug - intravaginal 25 µg PGE 1, 3-4 hourly, up to a maximum of 3 doses in one day.

Indications for Induction

- 152 women (76%) were admitted in prodromal labour.
- 38 women (19%) were induced on their expected date.
- Other reasons were: Oligohydramnios - 4 (2%), IUGR - 6 (3%)

Bishop Score: In our study, 1.85% of women had a bishop score of <6. 2.15% of women had a score of > 6.

ACOG Criteria for Gestational Dating :

Fetal heart rate Documented for 20 weeks with a fetoscope or 30 weeks with a doppler evaluation. Pregnancy test It has been 36 weeks since a positive serum or urine HCG pregnancy test, performed by a reliable laboratory, Ultra-sonography* Ultrasound measurement of the crown rump length, obtained between 6 & 12 weeks, indicates gestation of at least 39 weeks. 2. *Scan between 13 & 20 weeks confirms the clinical history and physical examination gestational age of at least 39 weeks. (tables 27- 29)

PGE1 NO OF DOSES	G1	G2	G3	G4	TOTAL	%	VAG.DEL.	LSCS
1	59	22	11	-	92	46%	88	4
2	49	13	3	1	66	33%	58	8
3	28	7	1	-	36	18%	28	8
4	4	1	1	-	6	3%	4	2
TOTAL	140	43	16	1	200		178	22
%	70	21.5	8	0.5		100	89	11

Table 27: Induction at term with PGE1 25mcg. - 200 cases Number of doses needed in relation to gravida status.

We have not done admission test for any of the cases.

We have used intermittent auscultation with feto-scope for monitoring.

NO OF DOSES	< 6 hrs	6-12 hrs	12-18 hrs	18-24 hrs	24-48 hrs	>48 hrs
1	38	34	8	8	-	-
2	-	22	14	10	12	-
3	-	1	6	5	13	3
4	-	-	-	1	3	-

Table 28: Induction Delivery Interval 178 Cases.

No. Women	%	Hours
38	21	6
95	53	12
147	83	24

Table29: Induction delivery interval.

- 38 women (21%) delivered vaginally within 6 hours.
- 95 women (53%) delivered vaginally within 12 hours.
- 147 women (83%) delivered vaginally within 24 hours

Perinatal Outcome: Perinatal mortality rate was 2%. There were four neonatal deaths - three after vaginal delivery and one after LSCS.

Case 1: Primigravida with term gestation with induction - delivery interval of 11 hrs. MSL was present. Delivered a 2.5 kgs baby with low APGAR

Case 2: Primigravida with term gestation with induction - delivery interval of 14 hrs. Outlet forceps delivery of a 3.1 kgs baby with low APGAR.

Case 3: Primigravida with term gestation with I-D interval of 32 Hrs. Outlet forceps delivery of a deeply asphyxiated baby of wt. 2.5 kgs with cord once tightly round the neck.

Case 4: Primi with term gestation. Emergency LSCS was done for fetal distress. Delivered a deeply asphyxiated baby of weight 2.75 kgs.

Complication: Three cases had PPH (around 600-700 ml). None of them needed blood transfusion. (table 30)

Birth wt. (Kgs)	2.1-2.5	2.6-3	3.1-3.5	3.6-4	4.1-4.5
No.	53	104	37	5	1
%	26.5	52%	18.50%		

Table 30: Birth Weight in 200 cases.

Indian average birth weight is 2.70 kgs. The average birth weight in our study was 2.772 kgs.

Conclusions: With a vaginal delivery rate of 89%, LSCS rate of 11%, 83% vaginal delivery rate within 24hrs and no significant complications, we conclude that 25µg PGE1 is an efficient agent for cervical ripening and labour induction at term.

Prelabour Rupture of Membranes (PROM), Induction of Labour with PGE1 -170 Cases

Aim: In this study we present 170 cases of PROM induced with intravaginal 25 mcg PGE1 third hourly, at the Institute of Obstetrics and Gynecology G.M.H, Nayapul, Hyderabad during a period of eight months, between Jan 2006 - Aug.2006

Material and Methods: Labour was induced in 170 cases of PROM with unfavorable cervix with 25 mcg of PGE1 along with syntocinon acceleration in needed cases. Preterm PROM was-31/170 - 18% and term PROM were 139/170 - 82%. Primes were

99/170 58.23%, Mullites - 71/170 = 41.77%. Un booked cases were 96 - 56%, booked cases were 74 - 44%. Bishop's score was less than 6 in 95.3%, more than 6 in 4.7%. (Tables 31- 38)

Gestational period	No.	%
Preterm PROM	31	18
Term PROM	139	82

Table 31: Number of cases in relation to term of gestation.

Weeks of gestation	No	. %
Less than 28 weeks	3	1.76
28 to 32 wks	9	5.29
32 to 36 wks	19	11.17
37 to 40 wks	139	81.76

Table 32: Weeks of gestation, No. of cases.

Gravida	Total No	Vaginal deliveries	LSCS no
Primi	99	83	16
G2	45	44	1
G3	22	21	1
G4	4	3	1
Total %	170	151=89%	19=11%

Table 33: PROM 170 Vaginal / Abdominal delivery in relation to Gravida status.

Vaginal deliveries in 151 = 89% and LSCS in 19 = 11%

No. Doses	Primi	G2	G3	G4	Total
1	52	29	10	3	94
2	25	10	6	-	41
3	6	5	5	-	16
Total	83	44	21	3	151

Table 34: Number of doses of PGE1 25 mcg. In relation to parity.

Number of doses 25 mcg.	No. of cases	%
1	94	62
2	41	27
3	16	11

Table 35: Number of doses needed for vaginal delivery in 151.

With one dose of 25 mcg of PGE1 64.5% of patients responded with oxytocin acceleration in needed cases.

PGE1 Doses 25 mcg.	12 hrs.	24 hrs.	More than 24 hrs.
1	92	3	1
2	35	4	1
3	12	3	-
Total %	139 -92%	10	2

Table 36: PROM PGE1 Induction Delivery Interval in Vaginal Deliveries in 151.

Indications for LSCS	No.
Fetal distress	5
Failure to progress	11
Big baby with CPD	3

Table 37: Indications for LSCS

Among 19 cases of L.S.C.S. 16 were primigravidae

Details	No	Survival %
Term PROM	139	100
Preterm PROM	31	77.42
IUD at admission*	1	
Neonatal deaths**	6	
Total 170 - PNM	7	4.11
NICU admissions	19	11%

Table 38: Perinatal outcomes in 170

*IUD - 850 gms, **Neonatal Deaths - 5-<1.3 Kgs, 1 - 2Kgs, Mean birth weight of NND - 1.4 Kg

All term PROM 139/170 - 100% survival. Total perinatal mortality 4% in 170 cases of PROM, all in preterm.

Conclusion: PGE_1 is effective for cervical ripening and inducing labour in PROM cases as seen in our study with 100% perinatal survival in term PROM and LSCS rate of 11%. In our study we did not have PPH or hyperstimulation. Hence low dose PGE1 is efficient & cost effective as an inducing agent. 98.6% of patients delivered within 24 hrs vaginally.

Induction of Labour with PGE1 in - 60 High Risk Cases of Eclampsia and Severe Pre-Eclampsia on Magnesium Sulfate JAN 2006 to AUG 2006

Aim: To ascertain the safety and efficacy of vaginal PGE1 for induction in eclampsia. We have efficient antihypertensives and anticonvulsants, search is for an efficient labour inducing agent. WHO guidelines recommend using misoprostol for induction of labour in highly selected situations such as severe preeclampsia or eclampsia when the cervix is unfavorable and safe C-section is not immediately available or the fetus is too premature to survive. Earlier the delivery better it is for the mother and the fetus. (figure 1)

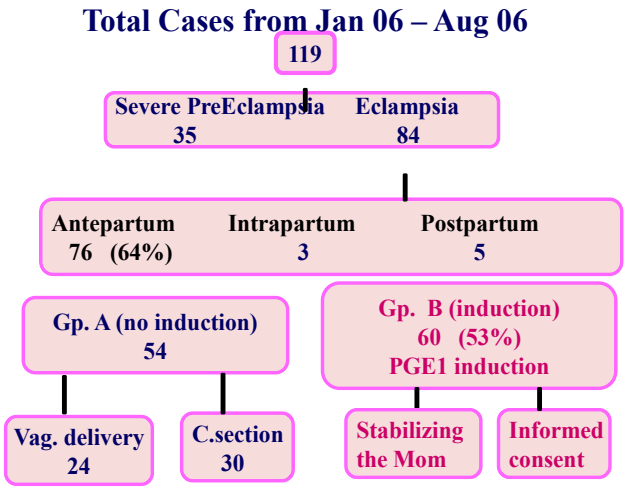

Figure 1: Type of eclampsia, Induction with PGE1 in 60 cases.

Monitoring of FHR & Uterine activity ½ hr of placement of the tablet (peak levels at 46 minutes). Dosage repeated if required at 4-6 hrs intervals. Oxytocin started if required 4-6 hrs of the last dose. Tocolytics kept ready (Terbutaline, Ritodrine, Nitroglycerine). Backup for C-section, blood transfusion and neonatologist kept ready. (tables 39-44, figure-2)

Primes	G2 (A1/L1)	G3 (A2/L2)	G4 P3/L3)
44 73%	8 13%	7 12%	1 2%

Table 39: Parity.

G. Age	Antepartum Eclampsia 33	%
At > 28 wks	29/33	88%
< 28 wks	4/33	12%

Table 40: Time of onset of Eclampsia.

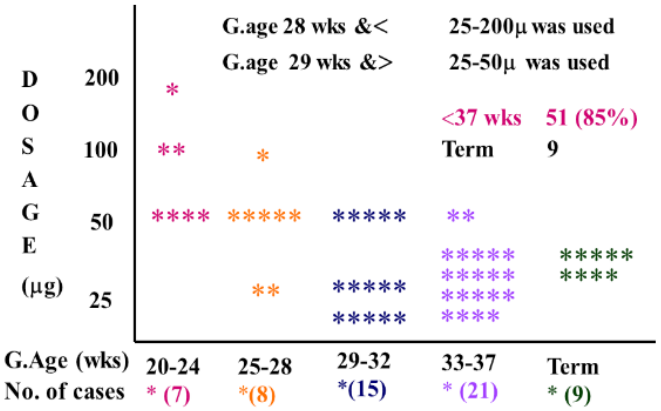

Figure 2: Number of doses in relation to gestational age.

Gestational age	No.	Vaginal Del.-49	LSCS -11
Less than 30 weeks	23	23	
More than 30 wks.	37	26	11
Foetal distress			5
Failure to progress			6

Table 41: Mode of delivery N=60, In relation to gestational age.

Vaginal delivery -49=82%, LSCS - 11 =18%

Vaginal delivery.	Birth Wt.	No.	Survival	%
49/60	1.5 kg &<	28	5	18
	1.6 kg &>	21	16	76
C-section	1.5 kg &<	Nil		
11/60	1.6 kg &>	11	10	90
Total Perinatal survival		60	31	52

Table 42: Perinatal outcome in vaginal delivery and LSCS in eclampsia and severe preeclampsia.

Induction delivery interval	No.	%
Less than 24 hrs.	37	76
More than 24 hrs.	12	24

Table 43: Induction delivery interval in vaginal deliveries -49.

Sl.no.	Complication	No.	%
1	Pyrexia (100-102°F)	4	7
2	Abruption blood transfusion	4 2	7
3	Admitted with anemia	4	7
4	Maternal death Cerebral Hemorrhage	1	1.66

Table 44: Complications and Maternal Mortality in 60.

Maternal Death: Unbooked primi at term gestation (live fetus) admitted with antepartum eclampsia, APE, had four convulsions, was irritable, semiconscious with pyrexia (105°F) B.P. 170/120 mm of Hg., proteinuria -3+. Stabilized with $MgSO_4$, Nifedipine, Paracetamol, Mannitol. Labour induced with PGE1 25mg x 2 doses. Delivered vaginally 8 hrs of induction continued to be irritable, died 8 hrs later due to cerebral hemorrhage.

Conclusion: Safe, Ideal inducing agent even in Eclampsia, with total vaginal delivery rate of 49/60 (82%), induction delivery < 24 hrs in 37/49 - (76%). Perinatal survival with birth wt.1.6 kg and > 26/32 (81%).

Discussion

Labour inductions have increased steadily worldwide, with overall rates in many countries now exceeding 20% of all births. The network meta-analysis [7] finds that misoprostol may be the best prostaglandin for labour induction. Titrated low dose oral solution seems to be the safest in terms of risk of caesarean section, while vaginal misoprostol tablets (≥ 50 μg) are the most effective in achieving vaginal delivery within 24 hours of induction [8].

Oral misoprostol for the induction of labour is safer than vaginal misoprostol and has the lowest rate of caesarean section. Oral misoprostol 20-25 mcg is as effective as vaginal misoprostol. Suggested to use 20-25 mcg oral solution of misoprostol [9]. It is only recently that commercially available 25-mcg tablets have become available (Cipla, India; Azanta A/S, Denmark), but these are not yet widely available. We have requested Cipla to provide 25 mcg. tab. and they have promptly complied with our request, way back in 2006. With oral misoprostol sustained uterine activity is achieved in 90 minutes and the duration of action is approximately 2 hours.

Misoprostol is absorbed faster orally than vaginally, with higher serum peak level, but vaginally absorbed serum levels are more prolonged. Its oral use may be convenient but high doses could cause uterine hyperstimulation and uterine rupture. Vaginal use of lower doses may cause less hyperstimulation. Vaginal misoprostol is associated with locally mediated effects [10]. Even if fetal distress or uterine hyperstimulation is observed, the vaginal tablet can be removed if still undissolved.

Misoprostol for induction of labor in women with severe preeclampsia at or near-term N= 56, vaginal delivery was achieved in 69.6% in the study group. Misoprostol when given intravaginally in 50 mcg 4-hourly dosing regimen is an effective agent for ripening the cervix in this group of women [11].

Our caesarean rate of 11.9% in 1000 labour inductions is an exemplary achievement. We say this as it includes abruption and eclampsia cases also. The c. section rate without these two conditions was 11.5% [99/857]. Hence we recommend 25 mcg. vaginal misoprostol for labour induction. Once a decision is made to induce labour, we would do sweeping of the membranes after the pre induction USG for fetal wellbeing . Some women would set into spontaneous labour. Induction with misoprostol 25 mcg. vaginal, would start early the next day. Sweeping of the membranes when it could be done prior to medical induction, may improve the success rates. Once the Bishop score improves, when inserting the next dose of vaginal misoprostol we proceed to do some degree of sweeping of the membranes careful not to provoke excessive show.

Vaginal misoprostol is a boon for cervical ripening to improve Bishop score. Especially in the very high risk obstetric cases, eclampsia and placental abruption where early delivery would save maternal lives. The impact of prostaglandin induction in reducing the c.section rates needs to be assessed.

Conclusion: Misoprostol 25 mcg. vaginal placement to ripen the cervix and induce labour at term is an excellent method.

Conflict of Interest: None.

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