



RETROSPECTRIVE STUDY OF MATERNAL AND FETAL OUTCOME OF INDUCTION OF LABOR AT A TERTIARY CARE CENTRE IN NORTHERN INDIA

Gynecology

Dr Mona Asnani	Assistant Professor, Department of Obstetrics and Gynaecology, KGMU, Lucknow
Dr Anjoo Agarwal*	Professor, Department of Obstetrics and Gynaecology, KGMU, Lucknow *Corresponding Author
Dr Renu Singh	Professor, Department of Obstetrics and Gynaecology, KGMU, Lucknow
Dr Mansi Gupta	Senior Resident, Department of Obstetrics and Gynaecology, KGMU, Lucknow

ABSTRACT

Background- Induction of labor is one of the commonest obstetric procedures performed but still it is a challenge to obstetrician.

Objective- The aim of our study was to evaluate different methods, indications, outcome of induced labor and its significance at a tertiary care centre in northern India

Design- This is a retrospective study of induced labor at department of obstetrics and gynaecology, King Georges medical University Lucknow between 1st January 2017 to 31st December 2017

Results- Of all the delivering patients in 12 % of patients labor was induced. 54.71 % patients of induced labor delivered vaginally and 45.28% patients undergone caesarean section. Maximum number of induction of labor was done at gestational age of 37-40 weeks. Most common indication of induction of labor was postdatism/ postmaturity (12.7%) followed by preeclampsia (12.5%). Most common method of induction of labor was with Misoprostol (40.4%). commonest indication of caesarean section among these patients was acute fetal distress.

Conclusion- Induction of labor should be done in high risk pregnancies where the maternal or fetal benefits of delivery outweigh the risk of continuation of pregnancy.

KEYWORDS

Introduction-

Induction of labor is to initiate labor by artificial means before spontaneous onset of true labor pains. (1,2) Induction of labor is indicated due to various maternal and fetal indications in which there is maternal or fetal benefit of termination of pregnancy rather than to continue the pregnancy. (1,2). One of the commonest indication for labor induction is postterm pregnancy and induction for this indication has been shown to reduce the likelihood of perinatal death (3,4). The rate of induction of labor varies in different locations but with apparently seems to be on rising trend overall.

Aims and objective-

The aim of our study was to evaluate different methods, indications, outcome of induced labor and its significance at a tertiary care centre in northern India.

Material and methods -

This is a retrospective study of induced labor at department of obstetrics and gynaecology, King Georges medical University Lucknow between 1st January 2017 to 31st December 2017.

Inclusion criteria

- All the patients who delivered at department of obstetrics and gynaecology, KGMU, where labor was induced irrespective of parity, gestational age, indication, outcome were included in the study

Exclusion Criteria

- Patients who delivered at department of obstetrics and gynaecology, KGMU who were in spontaneous labor.
- Patients who underwent elective caesarean sections
- Patients came to department of obstetrics and gynaecology, KGMU in any complication of labor like obstructed labor, ruptured uterus.

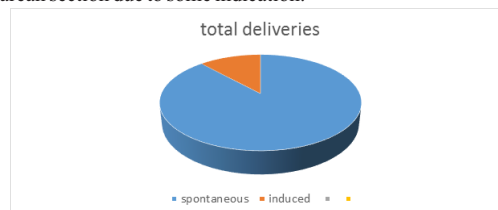
Methodology

Data of indications of induction of labor, gestational age, methods of induction and outcomes and reasons for failed induction were abstracted from hospital delivery register and personal case files.

Results-

A total of 9404 patients delivered at our centre in 2017. Out of them

around 12 % of patients labor was induced. 54.71 % patients of induced labor delivered vaginally and 45.28% patients undergone caesarean section due to some indication.



Maximum number of induction of labor was done at gestational age of 37-40 weeks, followed by 34-37 weeks, >40 weeks and <34 weeks.

Table 1 Gestational age at time of induction of labor

Gestational Age At Induction	Number Of Inductions (n=1113)
<34 WEEKS	55
34- 37 WEEKS	180
37-40 WEEKS	736
>40 WEEKS	142

Most common method of induction of labor was with Misoprostol (40.4%) followed by intrauterine foies along with misoprostol (32.3%)

Table 2 Methods Of Induction Used

METHOD of induction used	Total inductions (n=1113)	Percentage
MISOPROSTOL	450	40.4%
ICF + MISOPROSTOL	425	38.18
ICF + SYNTOCINON	153	13.74
CERVIPRIME	20	1.7%
SYNTOCINON	45	4.04%
ARM + synto	20	1.7%

Most common indication of induction of labor was postdatism/ postmaturity (12.7%) followed by preeclampsia (12.5%), intrauterine fetal demise (11.6%), intrauterine growth restriction (9.1%),

cholestasis (7.9%) Gestational diabetes (7.1%), eclampsia (6.7%),

Table 3 Indication for Induction

Indication	Number (n=1113)	Percentage
40 wks and more	142	12.7%
Pre – eclampsia	140	12.5%
Eclampsia	75	6.7%
Intrauterine demise	130	11.6%
Gestational diabetes	80	7.1%
Intrauterine growth restriction	102	9.1%
Cholestasis	88	7.9%
PROM	95	8.5%
PPROM	52	4.6%
Antepartum haemorrhage	34	3.05%
Oligohydramnios	20	1.7%
OTHERS(Jaundice, decreased fetal movements , heart disease)	80	7.1%
Unknown	75	6.7%

Amongst all the induced patients who underwent caesarean section most common indication was acute fetal distress which was proved by abnormal fetal heart tracing followed by non progress of labor, failure of induction.

Table 4 Indication for LSCS in patients of induced labor

Indication	Number =504
Acute Fetal Distress (Abnormal fetal heart tracings)	192
NPOL	128
Failed induction	112

Table 6: Commonest indication of caesarean section with different methods of induction of labor

Indication of caesarean section~	ICF+ Misoprostol	ICF+ Oxytocin	Misoprostol	Cerviprime	Oxytocin	ARM + Oxytocin	Maximum
Failed induction	19	24	56	2	10	1	Misoprostol=50%
NPOL	41	10	72	3	2	0	Misoprostol=56.25%
AFD (MSL)	12	2	19	0	0	2	Misoprostol=54.28%
AFD(Abnormal fetal heart tracing)	79	12	83	1	8	9	Misoprostol=43.22%
CDMR	4	3	8	0	0	0	
DTA	1	2	4	0	0	0	
Maternal indication	2	1	4	0	0	0	
Drained out liquor	2	1	4	0	0	0	
Maximum	AFD(Abnormal FHS Tracing)=49.37%	Failed induction=42.85%	AFD(Abnormal FHS Tracing)=33.2%	NPOL=50%	Failed induction=50%	AFD(Abnormal FHS Tracing)=75%	

Amongst the induced patients 6.8% of the women required instrumental delivery.

Neonatal outcome

Of all 1113 patients induced 956 patients had livebirths(85.89%).

Of 157 still born babies 130 patients (82.80%) were unbooked and admitted to our hospital with intrauterine fetal demise. Only 27 patients (17.19%) had intrapartum still born , all of the cases were gestational age less than <28weeks.

While comparing induction to delivery interval oxytocin infusion, misoprostol and PG E2 gel , there was no statistically significant difference between all these methods.

Table 7 comparison of induction to delivery interval of different methods

Induction to delivery interval	ICF + misoprostol (n=265)	ICF+ syntocinon (n=97)	Cerviprimegel (n=14)	
<12 hours	50	31	3	
12-24 hours	120	40	6	X ² = 7.48 P= 0.118
>24 hours	95	26	5	

Discussion

In 1985, WHO consensus conference on Appropriate Use of Technology made 21 recommendation about the use of technology in

Acute Fetal Distress (MSL)	35
CDMR	15
DTA	7
Drained out liquor	7
Maternal indication (uncontrolled seizures in APE, deteriorating NYHA status in heart disease)	8

Caesarean section rate was highest in patients who were induced with misoprostol and it was lowest in patients who were induced with intracervical Dinoprostone gel.

Table 5 Failure Rate of induction of labor

Method of induction	Number of inductions	Number of caesarean sections	Percentage
Misoprostol	450	250	55.55%
Icf + Misoprostol	425	160	37.64%
Icf + Syntocinon	153	56	36.60%
Cerviprime	20	6	30%
Syntocinon	45	20	44.44%
ARM + synto	20	12	60%

Most common indication of caesarean in misoprostol induced patients was acute fetal distress (shown by abnormal fetal heart tracing). In Oxytocin induced patients the commonest indication of caesarean was failure of induction. Commonest indication in dinoprostone gel induced patients was non progress of labor.

We evaluated the different methods of induction in relation to indication of caesarean section. Acute fetal distress was maximally associated with misoprostol. failure of induction and Non progress of labor were also maximally found in misoprostol induced patients.

childbirth. The conference was called because of increase in routine use of technology and concluded that international induction rate for postterm should be no more than 10%. (5)

The goal of labour induction is to achieve a successful vaginal delivery. Although induction exposes the women to higher risk of caesarean section than spontaneous labour. Factors that have been seen to influence the success of induction of labor include Bishop score, parity, BMI, maternal age, estimated fetal weight and diabetes. Process of induction requires intervention by a skilled birth attendant to avoid undue morbidity.

In our study the rate of induction was 12% of all the deliveries. According to ACOG committee on practical bulletins 2009 and National institute of health and clinical excellence 2008 incidence of induction of labour is 1 in 5 births due to maternal or fetal indication (6,7) In an Indian setting according to Kaur P et al incidence of induction of labour was 13.86%. (8)

Commonest indication in our study was postdatism (12.7%) followed by preeclampsia (12.5%) and Intrauterine fetal demise (11.6%). Kaur et al also reported postdatism (29.72%) as commonest indication followed by hypertensive disorders of pregnancy (28.77%). (8) Boulvain et al also reported the two as commonest indications for IOL. (9)

Most common method of induction of labor was with Misoprostol (40.4%) followed by intracervical foleys followed by

misoprostol(32.3%) in our study.

Successful vaginal delivery occurred in patients induced with Intracervical Dinoprostone gel(70%) however the number of patients were very less.(14 out of 20).Kaur P et al reported that successful vaginal delivery was highest when medical and surgical methods are used in combination.(91.31%)(8)

In our study 54.71 %patients of induced labor delivered vaginally and 45.28% patients undergone caesarean section due to some indication. Kaur et al reported 86.32 of all induced patients delivered vaginally(8) .Boulvain et al reported 87.88%vaginal delivery rate in induced patients which is quite higher than our study.(9)

In our study Caesarean delivery rate was highest in patients induced with artificial rupture of membrane along with oxytocin followed by misoprostol.

Commonest reason for failure of induction in misoprostol group was acute fetal distress accounting for 33.2% as compared to 39.2% as reported by Lawani et al . in their study also fetal distress was commonest indication in misoprostol group.(10)

In our study commonest indication in oxytocin group was failed induction (50%) According to Lawani et al , In oxytocin (along with sweeping) group commonst indication was prolonged labor(78.9%) (10)

Conclusion-

Induction of labor should be done in high risk pregnancies where the maternal or fetal benefits of delivery overweigh the risk of continuation of pregnancy. But we should also remember that there are associated failures and complications also which can be significantly reduced with proper patient selection and fetomaternal monitoring.

REFERENCES

1. SOGC Clinical practice guidelines, 2001.
2. J. L. Tenore, "Methods for cervical ripening and induction of labor," American Family Physician, vol. 67, no. 10, pp. 2123–2128.
3. M. E. Hannah, W. J. Hannah, J. Hellmann, S. Hewson, R. Milner, A. Willan, "Induction of labor as compared with serial antenatal monitoring in post- term pregnancy: a randomized controlled trial," The New England Journal of Medicine, vol. 326, no. 24, pp. 1587–1592.
4. P. Crowley, "Interventions for preventing or improving the outcome of delivery at or beyond term (Cochrane Review)," in The Cochrane Library, Oxford, UK, 2000
5. World Health Organization Regional Office for Europe (1985). Joint Interregional Conference on Appropriate Technology for Birth. WHO: Fortaleza, Brazil
6. ACOG Committee on Practice Bulletins — Obstetrics. ACOG Practice Bulletin no 107: induction of labor. Obstet Gynecol 2009; 114:386–97 [PubMed]
7. Induction of labour [clinical guideline 70]. London (UK): National Institute for Health and Clinical Excellence; 2008
8. kaur p, kaur m, kaur k, manjit mk, goel P, A Study of Outcome of Induction of Labor: Medical Versus Surgical Indian, Journal of Clinical Practice, Vol. 24, No. 7, 2013, 651-654.
9. Boulvain M, Fraser WD, Marcoux S, Fontaine JY, Bazin S, Pinault JJ, et al. Does sweeping of the membranes reduce the need for formal induction of labor? A randomized controlled trial. Br J Obstet Gynecol 1998; 105:34-40.
10. Lawani O L, Onyebuchi A K, Iyoke C K, Okafo C N, Ajah L O. Obstetric Outcome and Significance of Labour Induction in a Health Resource Poor Setting. Obstetrics and Gynecology International. Vol 2014, 1-5.