Original Research Article

Analysis of indications of induction of labor and feto-maternal outcome in a tertiary care hospital

Shuchi Sharma, Reena Sharma*, Ankush Gautam

Department of Obstetrics and Gynecology, SLBS GMC, Mandi, Himachal Pradesh, India

*Correspondence:
Dr. Reena Sharma,
E-mail: dreenajay@gmail.com

ABSTRACT

Background: Induction of labor (IOL) is an intervention that artificially initiates uterine contractions leading to progressive dilatation and effacement of cervix and expulsion of fetus prior to spontaneous onset of labor. Aim of study was to study the indications of induction of labor and the feto-maternal outcome.
Methods: Women who underwent IOL beyond 28 weeks gestation with single cephalic presentation were included in the study over a period of one year.
Results: A total of 3887 women delivered in the hospital during the study period. 1107 (28.47%) pregnant women underwent induction of labor. Most common indication of induction of labor was post-date pregnancy 682 (61.60%). About 64.52% had vaginal delivery, 30.71% had caesarean section and 4.6% had instrumental delivery, 1.80% PPH, 0.45% puerperal sepsis and 2.16% wound sepsis. 97% neonates with APGAR score more than 7and 1.08% neonates were admitted to NICU. There were 0.27% fresh still births and 0.45% birth asphyxia.
Conclusions: Careful analysis of indication of induction of labor, selection of the patients, proper monitoring at the time of induction and strict partographic management of labor results in a healthy baby and mother.

Keywords: APGAR, IOL, NICU, puerperal sepsis

INTRODUCTION

Induction of labor (IOL) is an intervention that artificially initiates uterine contractions leading to progressive dilatation and effacement of cervix and expulsion of fetus prior to spontaneous onset of labor.[1] Globally labor is induced in about 20-30% of all deliveries for a variety of reasons.[2] IOL is usually considered when benefits of prompt vaginal delivery outweigh the risks of waiting for spontaneous onset of labor.[3-5] Most common indications of labor induction include post-dated pregnancies, premature rupture of membrane, hypertensive disorders, chorioamnionitis, intrauterine growth restriction, intrauterine fetal demise, intrahepatic cholestasis of pregnancy and maternal medical conditions.[6] The rates of induction of labor (IOL) are rising worldwide with currently almost every third labor being induced.[7-9] The increasing rates in IOL may be explained by increasing maternal age, obesity, and medical conditions as well as by improved fetal monitoring and management practices.[10] IOL is shown to improve perinatal outcomes without increasing the rate of caesarean deliveries.[11]

Aims of study were to observe the indications of induction of labor in tertiary care hospital and to study the feto-maternal outcome of induction of labor.

METHODS

This was a retrospective observational study of induction of labor conducted in the Department of Obstetrics and Gynecology, Shri Lal Bahadur Shastri medical college,

Mandi, Himachal Pradesh for period of one year from 1st January 2022 to 31st December 2022.

Inclusion criteria

All booked and unbooked cases of pregnant women who underwent induction of labor. All pregnant women with period of gestation more than 24 weeks were included.

Exclusion criteria

All pregnant women who had induction for medical termination of pregnancy upto 24 weeks and previous caesarean scar patients were excluded.

The detailed record of clinical history, gestational age, indications, methods of induction of labor along with maternal and perinatal outcomes were collected from hospital delivery register and case files. Age of the mother, occupation, place of residence, education level of the mother, socio economic status, booking status, POG, parity, BMI, previous history of stillbirth or abortion, type of complicated pregnancy, mode of delivery. APGAR score, birth weight of babies, complications resulting in the admission in NICU, association of fetal outcomes with the above mentioned variables if any recorded.

Statistical analysis

Data was entered in excel and analysed by using software SPSS 17.

RESULTS

A total of 3887 women delivered in the hospital during the study period. 1107 (28.47%) pregnant women underwent induction of labor. About 60% women belong to age group 25 to 30 years. 72% women were primigravida and 28% were multigravida. Maximum number of inductions of labor (61.60%) were done at gestational age more than 40 weeks.

Most common indication of induction of labor was post-date pregnancy 682 (61.60%) followed by pregnancy induced hypertension 99 (8.9%), premature rupture of membranes 77 (6.9%) intrauterine growth restriction 72 (IUGR) (6.50%), cholestasis of pregnancy (ICP) 72 (6.50%). Least incidence was of eclampsia and Rh incompatible pregnancy each having 5 (0.45%).

About 49.6% inductions were done with dinoprostone gel, 40.65% with misoprostol tablet and only in 9.6% mifepristone followed by misoprostol was done.

Among 1107 inductions 64.52% had vaginal delivery, 30.71% had caesarean section and 4.6% had instrumental delivery.

Table 1: Age distribution.

Age distribution		N=1107
	<20 years	66 (6)
Age	20-25 years	88 (8)
	25-30 years	665 (60)
	>30 years	288 (26)
Gestational age	<34weeks	34 (3.07)
	34-37weeks	50 (4.5)
	37-39weeks	341 (30.80)
	>40weeks	682 (61.60)
Parity		
	Primigravida	797 (72)
	Multigravida	310 (28)

Table 2: Indication of induction.

Indication of induction	N (1107)	Percentage
Post dated pregnancy	682	61.60
Term prom	77	6.9
Pregnancy induced hypertension	99	8.9
Preterm prom	10	0.9
IUGR	72	6.50
ICP	72	6.50
Severe PIH	11	0.99
Decreased fetal movements	12	1.08
Oligohydramnios	12	1.08
GDM	30	2.71
Eclampsia	5	0.45
Antepartum IUD	8	0.72
Rh isoimmunisation	5	0.45
Previous antepartum IUD	12	1.08

Table 3: Method of induction.

Method of induction	N=1107	Percentage
Dinoprostone gel	550	49.6
Misoprostol	450	40.65
Mifepristone followed by misoprostol	107	9.6

Table 4: Mode of delivery.

Mode of delivery	N=1107	Percentage
Vaginal delivery	715	64.52
Caesarean section	340	30.71
Instrumental delivery	52	4.6

In our study we observed about 25% cases of prolonged labour, 1.80% postpartum hemorrhage (PPH), 0.45% puerperal sepsis and 2.16% wound sepsis.

There were 97% neonates with APGAR score more than 7 and 1.08% neonates were admitted to NICU. There were 0.27% fresh still births and 0.45% birth asphyxia.

Table 5: Maternal complications.

Maternal complications	N=1107	Percentage
Prolonged labor	280	25
PPH	20	1.80
Puerperal sepsis	5	0.45
Wound sepsis	24	2.16

Table 6: Neonatal outcome.

Neonatal outcome	N=1107	Percentage
Normal APGAR	1079	97
Fresh stillbirth	3	0.27
Admission to NICU	20	1.08
Birth asphyxia	5	0.45

DISCUSSION

In our study 1107 (28.47%) pregnant women underwent induction of labor and as compared to 32.5% in the study by Tanwar et al.[12] About 72% women were primigravida in our study and 60% women of age group 25 to 30 years. Maximum number of inductions of labor were done at gestational age more than 40 weeks. Lamichhane et al found that most of the induced age group was in between 20-30 years of age with primigravida 62%.[13] In our study the most common indication for induction of labour was post date pregnancy (61.60%) and the second common indication was pregnancy induced hypertension (8.9%). In the study by Yosef et al, the most commonly reported cause of induction was preeclampsia (41.6%).[14] In our tertiary care hospital about 49.6% inductions were done with dinoprostone gel comparable to 48.2% women in study by Panicker S.[15] We observed that 64.52% had vaginal delivery, 30.71% caesarean section and 4.6% instrumental delivery. According to the study by Kumar et al, 67% women achieved spontaneous vaginal delivery and 18% underwent caesarean section.[16] In Cochrane review, there is a clear reduction in perinatal death with a policy of labor induction at or beyond 37 weeks compared with expectant manage, lower caesarean rates without increasing rates of operative vaginal births, NICU admissions.[17] We observed about 25% cases of prolonged labor, 1.80% PPH, 0.45% puerperal sepsis and 2.16% wound sepsis. In study by Kazi et al postpartum hemorrhage was observed in 18.21%, hospital stay more than seven days was in 17%, birth asphyxia was in 14.9%, Apgar score <7 was in (16%).[18] In our study 1.08% neonates were admitted to NICU, 0.27% fresh still births and 0.45% birth asphyxia.

CONCLUSION

Induction of labor has very essential role in high risk pregnancies to prevent the maternal and fetal mortality. The specialist team of senior obstetricians is required for decision making of induction of labor. Careful analysis of indication of induction of labor, selection of the patients, proper monitoring at the time of induction and strict partographic management of labour results in a healthy baby and mother.

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