International Journal of Gynaecology and Obstetrics Research
www.gynaecologyjournal.in
E-ISSN: 2663-3612, P-ISSN: 2663-3604
Received Date: 26-02-2019; Accepted Date: 20-03-2019; Published: 22-04-2019
Volume 1; Issue 1; 2019; Page No. 06-09

A study of risk factors for the failed induction of labour

Dr. Shruthi Kallesh[1], Dr. Rajeshwari[2], Dr. Sreelatha S[3], Dr. Yashaswini[4], Dr Razia Begum[5]
[1-5] Department of obstetrics & Gynaecology, ESIC-MC & PGIMSR, Bangalore, Karnataka, India

Abstract
Aim: To study the factors influencing the failed induction of labour.
Methodology: This is a prospective observational study conducted at ESIC Medical College and PGIMSR, Rajajinagar, Bangalore. 100 woman who were induced with dinoprostone gel and who ended up with caesarian section were included in the study. Factors which might be responsible for the failed labor induction were assessed. Women who were taken up for caesarian section for fetal distress were excluded from the study.
Results: 100 women with failed labour induction were included in the study, and we found that majority of the women were primiparous (75%), in the age group of 25 to 29 years (61%), and we found that most common indication of doing IOL is post-dated pregnancy (30%). Unfavorable cervix with bishop's less than 5 was found in majority of the cases (28%). Other factors were gestational hypertension (19%), IUGR (10%), prolonged PROM (8%), gestational diabetes mellitus (8%), Rh negative pregnancy (3%).
Conclusion: Induction of labour is an important obstetric procedure. There is a need to develop a protocol for the same. The success of induction of labour is determined by many maternal and fetal factors, which must all be taken into account to avoid unnecessary cesarean sections.

Keywords: labour induction, dinoprostone gel, caesarian section, primiparous, Unfavorable cervix, gestational hypertension

Introduction

Induction of labor (IOL) is defined as the artificial initiation of labor before its spontaneous onset for the purpose of achieving a vaginal delivery [1]. Induction of labour (IOL) is one of the commonly performed obstetric procedure. Rate of Induction of labour has doubled in the past decade from 10 to 20%. In some institutions, the rate of IOL is as high as upto 40% [2].

Common indications for the induction of labour are borderline reduced amniotic fluid index (AFI), reduced foetal movements, small for gestational age foetus, mild pregnancy induced hypertension (PIH), favourable bishop score, impaired Glucose Tolerance at or after 36 weeks of pregnancy [3].

There are several methods for labor induction, most common methods especially with an unfavourable cervix include intra vaginal insertion of Dinoprostone (PGE2), prostaglandin E1 (PGE1) analogue Misoprostol or intra-cervical insertion of balloon catheter [4] However, in these categories of patients, the preferred method is vaginal prostaglandin (PGE). It induces or accelerates the maturation of the cervix, also stimulating the myometrial activity. Dinoprostone is an analog synthetic of PGE2 widely used in the form of a rapid-release vaginal gel and a controlled-release vaginal pessary [4].

Caughey justified the reasonable definition of failed induction by conceptualizing it as failure to achieve active labor and ultimate progress for successful delivery [5]. Roman and Young viewed the induction as a failure when the parturient did not enter into active phase of labor with cervical dilatation < 5cm, despite regular uterine contaction [6, 7].

Several factors are considered as predictors of induction failure such as Bishop's score < 6, nulliparity, gestational age < 41 weeks, maternal age > 30 years, pregnancy complicated by preeclampsia, premature rupture of membranes (PROM), isolated oligohydramnios, gestational diabetes, and hypertension [8]

Our study is aimed at studying the factors influencing the failed induction of labour.

Materials and Methods:

This is a prospective observational study conducted at ESIC Medical College and PGIMSR, Rajajinagar, Bangalore. 100 woman who were induced with dinoprostone gel and who ended up with caesarian section were included in the study. Data was collected regarding the maternal obstetrical parameters and pregnancy adverse conditions those contributed to failure of induction. The data pertaining to obstetric history were gravida status, gestational week, indication for the induction of labour, risk factors for failed induction of labour, bishop score after use of prostaglandin. Study was conducted for a period of 6 months. Factors which are responsible for the failed induction of labour were assessed. Women who were taken up for caesarian section for fetal distress were excluded from the study. Statistical analysis of data was carried out using SPSS statistical software.

Quantative data were analysed with mean, median and standard deviation. Qualitative data (categorical) were analysed with percentages and frequencies. The significance in difference between the two groups were assessed with cross tables, Pearson's chi square test and Fishers exact test were applied where ever necessary

Results

Table 1: distribution of number of cases of failed induction with respect to parity

Parity	No. of cases
0	75
1	18
2	7

Out of 100 cases, 75 % were primigravidas and 25 % were multigravidas

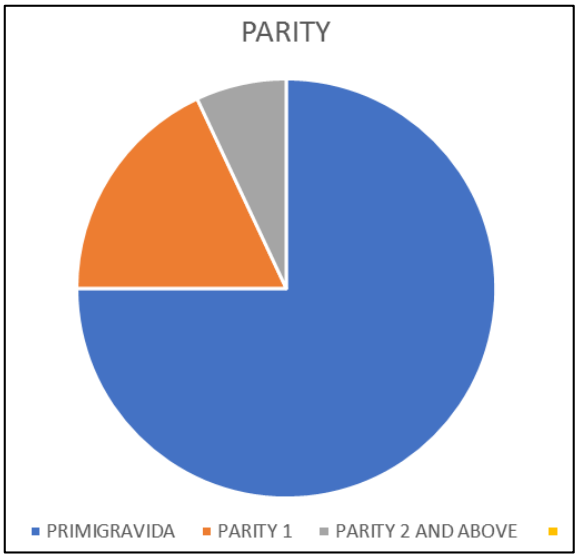

Fig 1

Table 2: distribution of number of cases of failed induction with respect to age

Age	No. of cases
14-19	3
20-24	32
25-29	61
30-34	3
35-39	1

In our study maximum number of failed inductions were seen in patients of age group 25 to 29.

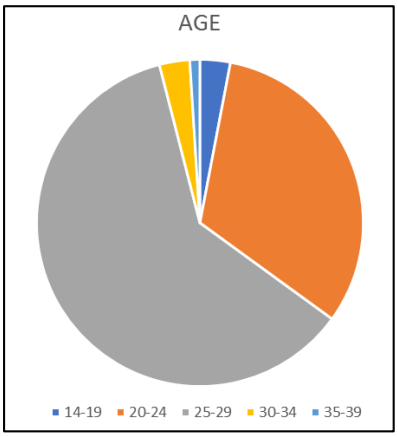

Fig 2

Table 3: Indications for Induction of labour

Indications for IOL	No of cases
Post dated pregnancy	30
Oligohydramnios	12
Gestational hypertension	20
Gestational diabetes mellitus	13
IUGR	10
Rh negative pregnancy	5
Prolonged PROM	6
Severe pre eclampsia	4

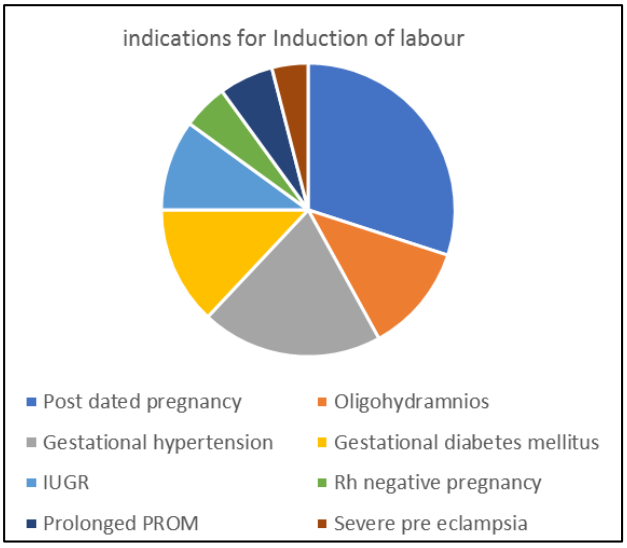

Fig 3

In the present study induction of labour was mainly done for post dated pregnancy in 30 percentage of the cases, for gestational hypertenstion in 20% cases, for severe preeclampsia in 4 % cases, for GDM in 13% cases, for oligohydramnios in 12 % of cases

Table 4: Risk factors associated with failed induction

Risk factors associated with failed induction	
Risk factors	**No. of cases**
Poor bishop's score	28
Gestational hypertension	19
PROM	11
Gestational hypertension + gestational diabetes mellitus	10
IUGR	18
Gestational diabetes mellitus	8
Isolated oligohydramnios	6

In our study Poor bishop's score is the major contributing factor seen in 28 % of the cases for the failed induction, next being gestational hypertension- 19%, IUGR- 18%, GDM in 8% and oligohydramnios in 6 % of cases

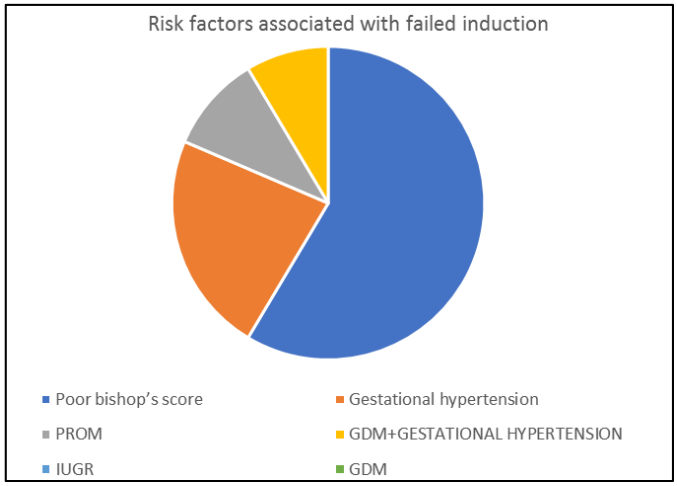

Fig 4

Discussion

IOL is one of the common procedure which is performed in all obstetrical settings. In 20% of pregnancies, labour induction is done for a variety of reasons, post term pregnancy being the most common indication. For various medical indications, induction is done at different gestational periods. Induction is done by the 39th week of gestation in patients being affected by gestational diabetes mellitus in order to reduce the risks associated with fetal macrosomia [9]. In patients with PROM (premature rupture of membranes) at term, labor is induced to prevent fetal infections [10]. Preterm pregnancies are induced mainly due to PROM, hypertensive disorders, foetal growth restriction, small for gestational age, or decreased foetal movement [10].

There is a 2 fold increased risk for caesarean delivery with induction of labour compared to spontaneous labour

Though induction is effective in bringing about good cervical dilatation, but sometimes it is failed to change the cervical consistency and results in failed induction.

Failed induction of labour is defined as a failure to generate regular contractions and cervical change for atleast 24 hours of oxytocin administration with artificial rupture of membranes if feasible in the absence of fetal heart rate abnormalities [11].

Many a time premature rupture of membrane, uterine inertia in postdates, IUD and oligohydramnious, other conditions like poor cervical consistency, pelvic contraction, maternal distress in pre eclampsia remain as the factors for caesarean section. Preeclampsia could determine fetal hypoxia resulting in reduced stress tolerance of labor [12].

Preterm women with a poor Bishop score are also one of the identified groups with high induction failure. Cervical condition at the start of induction is an important predictor, with the modified Bishop score being a widely used scoring system. Induction of labour results in high failure rate if the cervix is not ripe [13]. The most important element in Bishop score is dilatation although other elements like consistency, effacement, station and position are also important in predicting successful induction in both nulliparous and multiparous women [13].

Emilio reported oligohydramnious has poor prediction for successful vaginal delivery after induction of labour [14].

In the present research entitled a study of risk factors for the failed induction of labour 100 cases were studied. Several noteworthy factors have been observed. In our series of 100 cases we have observed that failed induction of labour is mainly seen in primigravidas in the age group of 25 to 29. Induction of labour was mainly done for post dated pregnancy in 30 percentage of the cases, for gestational hypertenstion in 20% cases, for severe preeclampsia in 4 % cases, for GDM in 13% cases, for oligohydramnios in 12 % of cases. Poor bishop's score is the major contributing factor seen in 28 % of the cases for the failed induction, next being gestational hypertension- 19%, IUGR- 18%, GDM in 8% and oligohydramnios in 6 % of cases.

Pravati Tripathy *et al.*, in their study on Prevalence and Predictors of Failed Induction found that the major reasons for cesarean section were poor progress, foetal distress, cephalo pelvic disproportion, oligohydramnios and meconeum staining[15]. The predictors of failure according to their study were gravida, number of doses and bishop score. Unfavourable bishops score accounted for 25 % of the cases of failed induction which is comparable to our study where it is 28 %. In their study induction was mainly done for failure to initiate pain or niggling pain and oligohydramnios where as in our study it was done for postdatism.

Emilio Giugliano *et al.*, in their study on The Risk Factors for Failure of Labor Induction found that Maternal age was one independent significant variable determining the risk of cesarean delivery. Patients affected by mild preeclampsia had a three times higher risk for cesarean section[14]. Most common indication according to their study is postdatism which is same as our study. Even the risk factors according to their study matches with the risk factors found in our study.

The success of labor induction is determined by many maternal and fetal variables which must all be taken into consideration in order to avoid unnecessary CS. Therefore, labor induction requires an overall assessment of maternal–fetal status.

Conclusion

In the present study an attempt has been made to study the risk factors associated with failed induction of labour. IOL is done for several indications, incidence being 20%. Our results suggest that there is a temporal increase in the incidence of c section due to failed induction and the risk factors for the same are Poor bishop's score, gestational hypertension, IUGR- 18%, GDM and

oligohydramnios. Induction of labour is an important obstetric procedure. There is a need to develop a protocol for the same. The success of induction of labour is determined by many maternal factors, which must all be taken into account to avoid unnecessary cesarean sections.

References

1. SOGC. Clinical practice guidelines, 2001, Available at http://old.sogc.org/clinical-practice-guidelines
2. Osaheni LL, Azubuike KO, Chukwuemeka AI, Chikezie NO, Leonard OA. Obstetric Outcome and Significance of Labour Induction in a Health Resource Poor Setting, Obstetrics and Gynecology International. 2014; 419621:5.
3. Tenore JL. Methods for cervical ripening and induction of labor. Am Fam Phys. 2003; 67(10):2123-8.
4. Mozurkewich EL, Chilimigras JL, Berman DR, Perni UC, Romero VC, King VJ, Keeton KL BMC Pregnancy Childbirth. 2011; 27:11-84.
5. Caughey AB, Sundaram V, Kaimal AJ, Gienger A, Cheng YW, McDonald KM, et al. Systematic review: elective induction of labor versus expectant management of pregnancy, Ann Intern Med. 2009; 151:252-263, W53-63. 3.
6. Yang SH, Roh CR, Kim JH. Transvaginal ultrasonography for cervical assessment before induction of labor, J Ultrasound Med. 2004; 23:375-382.
7. Roman H, Verspyck E, Vercoustre L, Degre S, Col JY, Firmin JM, Caron P, Marpeau L, Does ultrasound examination when the cervix is unfavorable improve the prediction of failed labor induction? Ultrasound Obstet Gynecol. 2004; 23:357-362.
8. Park KH, Hong JS, Ko JK, Cho YK, Lee CM, Choi H, Kim BRJ Obstet Gynaecol Res. 2006; 32(5):482-8.
9. Cheng YW, Sparks TN, Laros RK Jr, Nicholson JM, Caughey ABBJOG. 2012; 119(4):402-9.
10. Jackson GL, Rawiki P, Sendelbach D, Manning MD, Engle WDPediatr Infect Dis J. 2012; 31(1):89-90.
11. Spong CY, *et al.* preventing the first cesaerean delivery: summary of a joint Eunice Kennedy shriver national institute of child health and human development, society for maternal fetal medicine, and American college of obstetricians and gynaecologists workshop. obstet gynecol. 2012; 120:1181-93.
12. Reslan OM, Khalil RA. Molecular and vascular targets in the pathogenesis and management of the hypertension associated with preeclampsia. Cardiovasc Hematol Agents Med Chem. 2010; 8:204-226. doi: 10.2174/ 18715251079248123 4
13. Park KH, Hong JS, Shin DM, Kang WS. Predictors of failed induction in parous women at term; role of previous obstetric history, digital examination and sonographic measurement of cervical length. J Ostet Gynaec Res. 2009; 35:301-6.
14. Giugliano, Emilio, et al. The risk factors for failure of labor induction: a cohort study Journal of obstetrics and gynaecology of India. 2013; 64(2):111-5.
15. tripathy P, Pati T, Baby P, Mohapatra S. Prevalence and Predictors of Failed Induction. International Journal of Pharmaceutical Sciences Review and Research. 2016; 39(2):189-194