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A Study of Maternal and Foetal Outcomes in Cases of Induction of Labour in a Tertiary Care Centre

Dr. Priyanka Phunde [α] & Dr. Tushar Palve [σ]

Abstract- The aim of the present study was to assess indications for induction, various methods of induction used, the mode of delivery and study of the maternal and foetal outcome. Inclusion criteria were singleton pregnancies with cephalic presentation. Multifetal pregnancies, pregnancies, previous caesarean sections were excluded. Indications, pre-induction Bishop scores, mode of delivery and adverse maternal and foetal outcomes were registered. Most common indications were post datism (57.78 %), premature rupture of membranes (22.22 %), oligohydramnios (13.33 %), Non reassuring foetal heart status (4.44 %), & PIH (2.22%). About 84 % of inductions were done at gestational age 37 weeks and more. Induction of labour resulted in normal vaginal delivery in 60% of cases.

I. Introduction

Induction of labour implies stimulation of contraction before the spontaneous onset of labour, with or without ruptured membranes[1]. The goal of induction is to achieve successful vaginal delivery as natural as possible. Induction of labour is considered when the expected benefits of shortening the duration of pregnancy outweigh the potential harms from continuation of pregnancy with no contraindications for vaginal delivery.[2,3]The rate of induction of labour is increasing. In United states, the incidence of labour induction increased 2.5 folds from 9.5 percent in 1991 to 23.8 percent in 2015.[1]

Indications for induction include post term pregnancy, premature rupture of membranes, gestational hypertension, oligohydramnios, abruption, non-reassuring foetal surveillance, significant foetal growth restriction, intrauterine death, maternal medical conditions like chronic hypertension, type I diabetes, renal disorders, significant pulmonary disease (ACOG2016).[4,5,6] Induction of labour in post term pregnancy has reduced likelihood of perinatal death[7,8]. Elective induction of labour is defined as induction without any medical indication in healthy pregnant women.[9,10,11] Some experts term it as non-medically indicated induction of labour.[12] The American College of Obstetricians and Gynaecologists suggests that labour may be induced for logistic reasons including risk of rapid labour, distance from hospital and psychosocial reasons but not before 39 weeks of gestation.

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Potential risks associated with induction of labour are increased rate of operative vaginal delivery, caesarean birth, uterine hyperstimulation, non-reactive NST, uterine rupture, mistaken dates leading to preterm deliveries, risk of cord prolapse with artificial rupture of membrane, maternal water intoxication syndrome.[13]. Cervical favourability is the most important factor determining the success of induction. The aim of the study was to assess and evaluate the indications for induction, method of induction used, success rate, maternal and foetal outcome in cases with induction of labour.

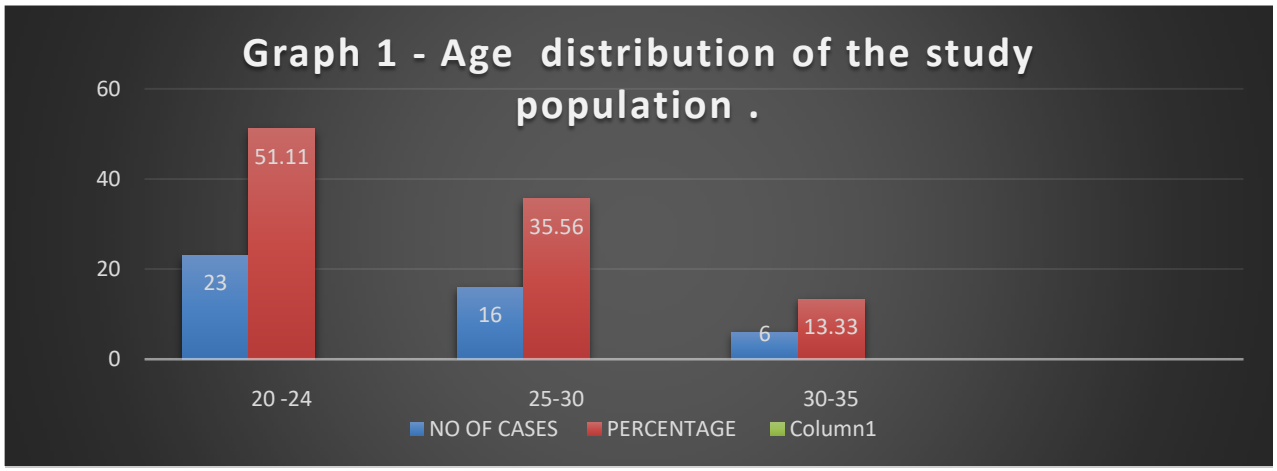
II. Aims and Objectives

Aim of this study is to assess the clinical profile of patients admitted for induction of labour, indications and different methods of induction used success rates among different methods used, maternal and foetal outcome and complications if any.

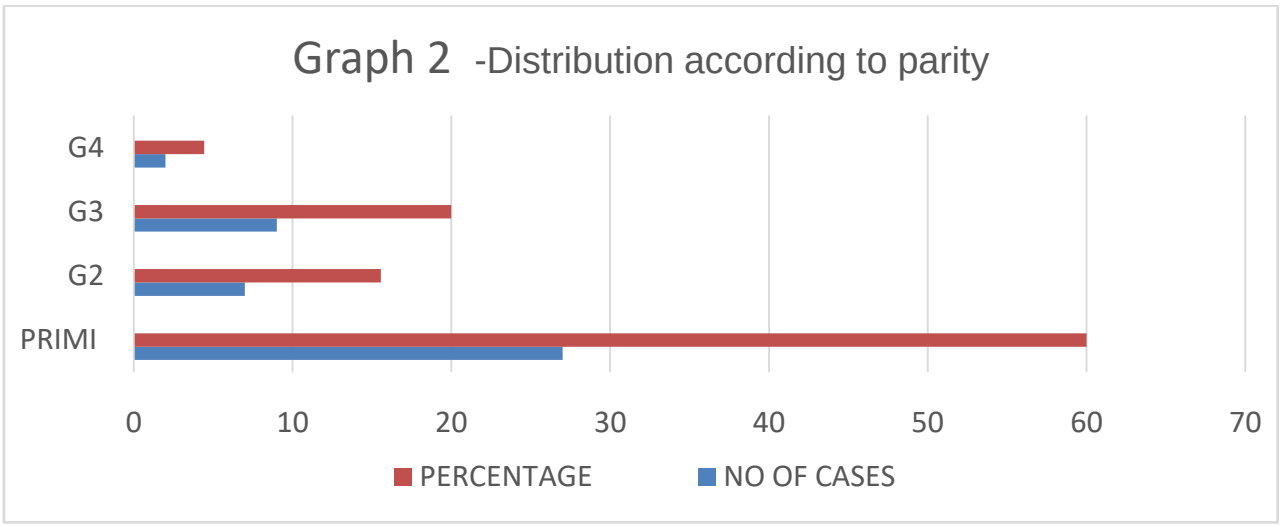
III. Material and Method

It is a retrospective study conducted over a period of 3 months from January 2020 to March 2020 in Department of Obstetrics and Gynaecology, at a tertiary care centre in Mumbai. We studied the clinical profile of the patients, indications for induction, different methods used, the success rates, mode of delivery, the maternal and foetal outcome in cases of induction, complications. Singleton pregnancies with cephalic presentation at or near term were included in this study. Multifetal pregnancies, malpresentations, transverse lie, previous caesarean sections were excluded. Indication for induction, contraindications, gestational age, cervical favourability (Bishop's score assessment), assessment of the pelvis, foetal size, presentation, membrane status (intact or ruptured) and foetal wellbeing, documentation of discussion of indication of induction and disclosure of risk factors were taken into consideration prior to induction.

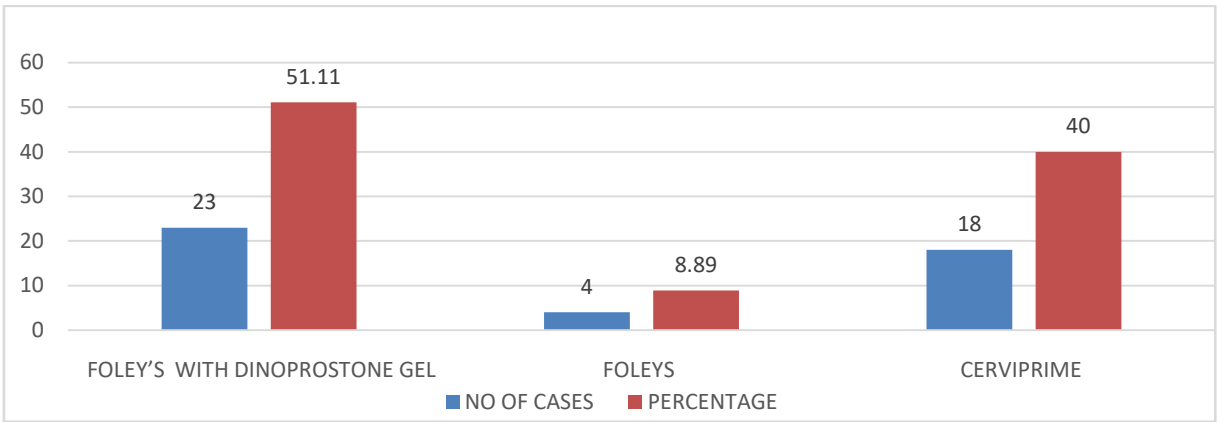
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In our study majority of cases of induction of labour were of 20 – 25 years of age (51.11%) followed by 25-30 years (35.56%) and 13.33 % cases between 30-35 years of age.



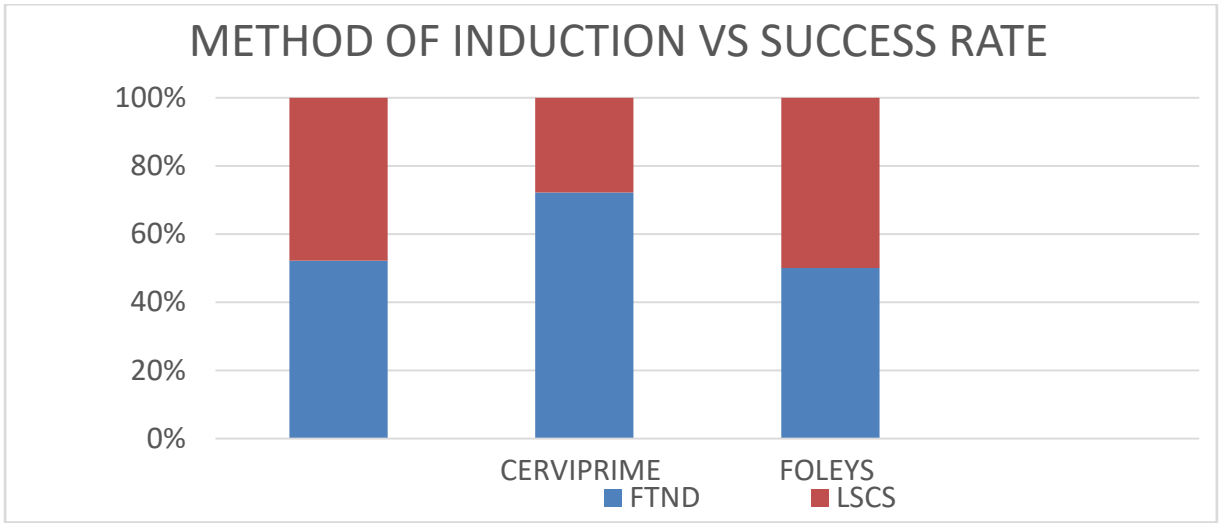
In this study 60 % of inductions were done in primigravida, followed by 20 % in third gravida, 15.56 % in 2nd gravida and 4.44 % in 4thgravida.



Graph 3: Methods of induction used

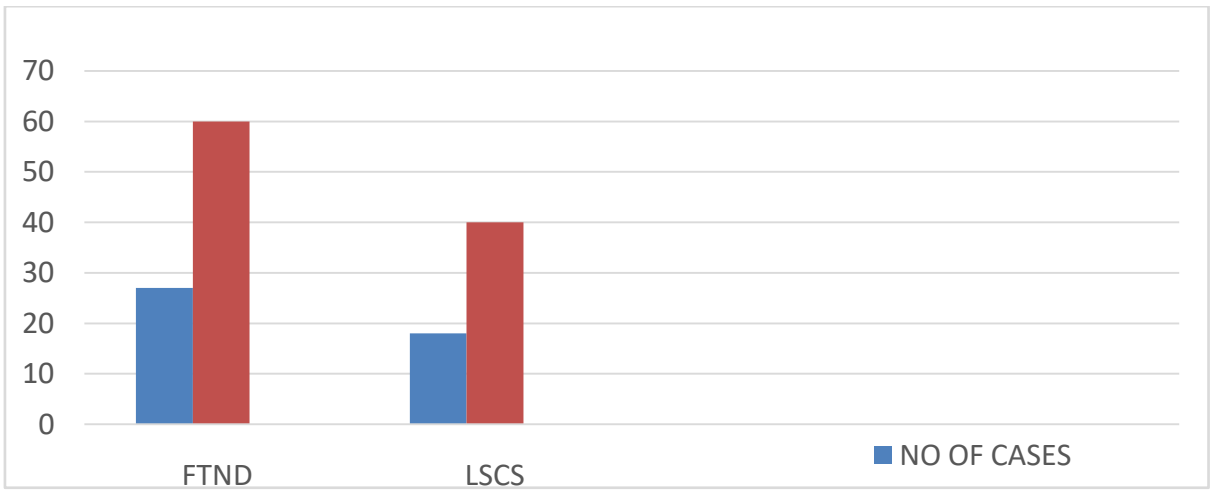
In our study 51.11 % inductions were done using transcervical insertion Foley's catheter followed by dinoprostone gel, while 40 % inductions were done using dinoprostone gel alone and remaining 8.89% cases were induced with Intracervical insertion of Foley's catheter.

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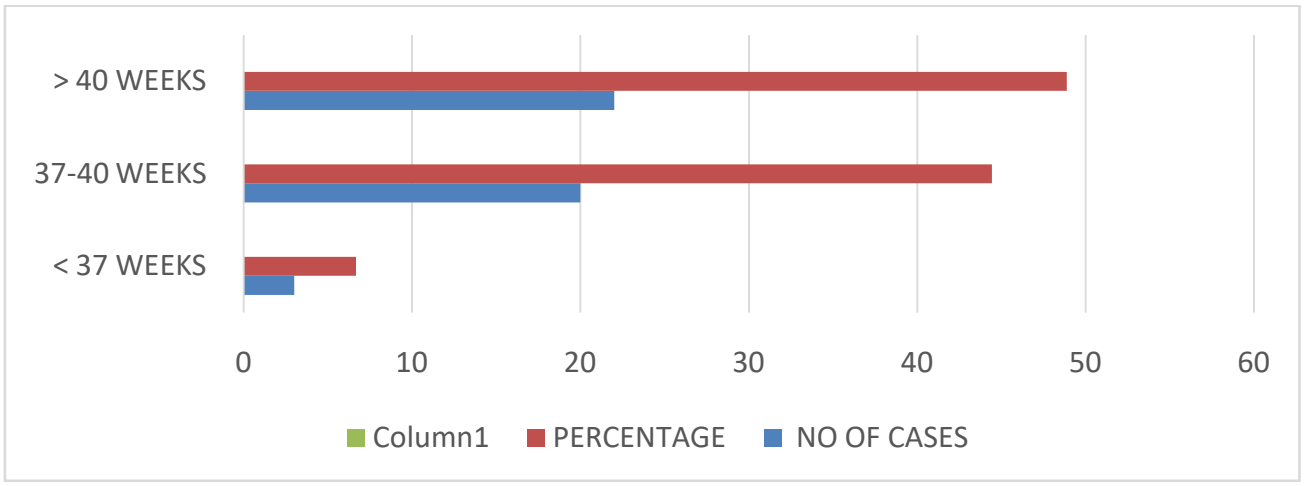
Graph 4: Method of induction v/s success rate

In our study, it was observed that the success rate of induction of labour in the form of vaginal delivery was maximum with intracervical dinoprostone gel (PGE2) gel instillation (72.22 %). Transcervical Foley's catheter insertion followed by dinoprostone gel instillation resulted in normal vaginal delivery in 52.17 % cases. Whereas 50% cases induced with transcervical Foley's catheter insertion resulted in normal vaginal delivery.



Graph 5: Success rate of induction of labour

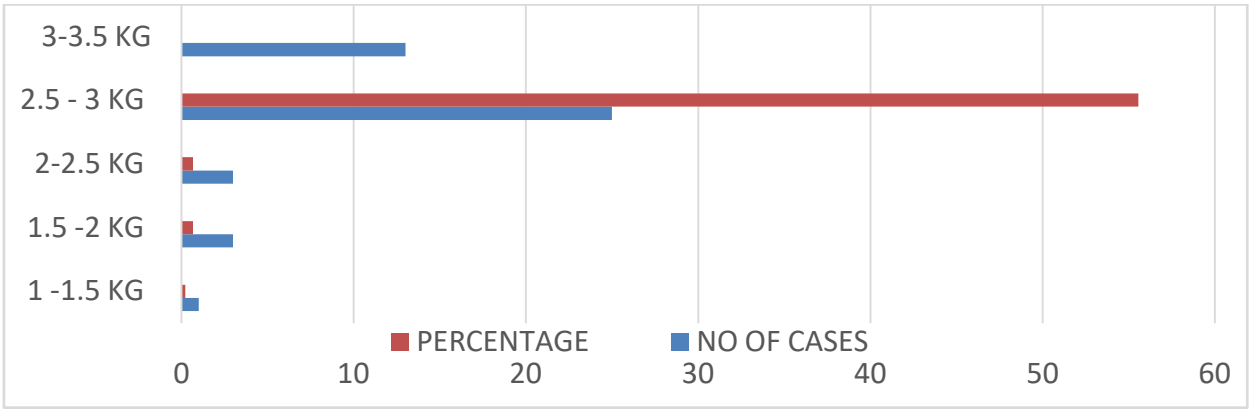
In this study it was observed that 60 % cases delivered vaginally and rest 40 % required caesarean section.



Graph 6: Gestational age at the time of induction

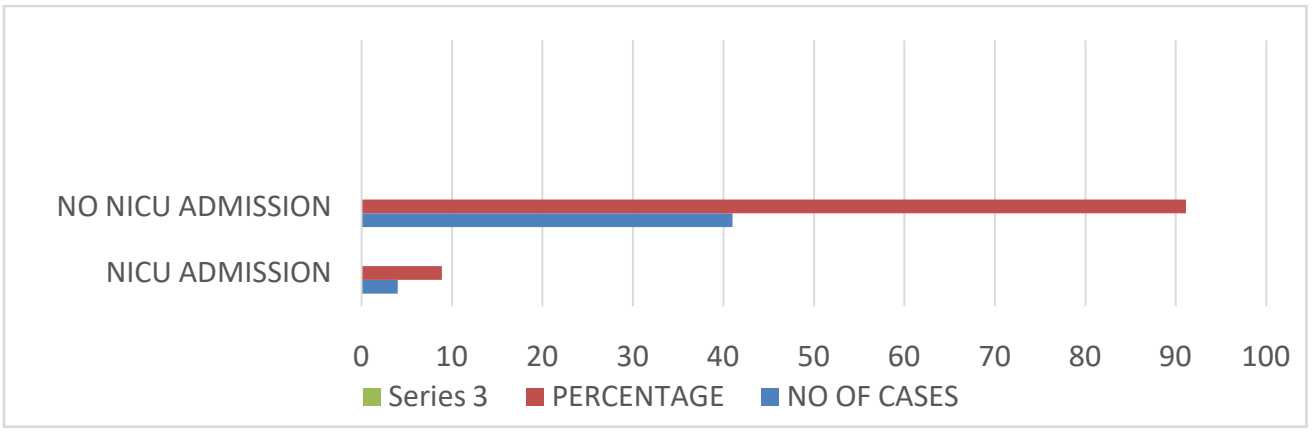
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In our study, majority of inductions were done at gestational age > 40 weeks (48.89%) with cause of induction being post-dated pregnancy, PIH, oligo another 44.44 % cases were induced at gestational age of 37 to 40 weeks and 6.67 % cases were induced at < 37 weeks. Thus almost 93.33 % cases were induced at full term gestation.



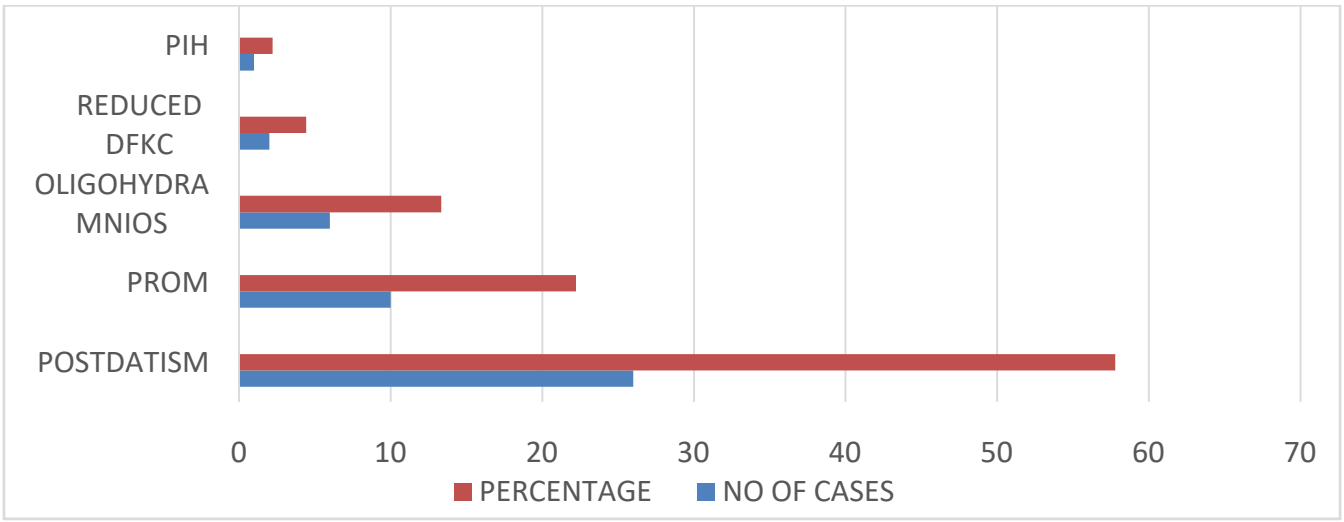
Graph 7: Birth weight

In our study, out of 45,25 babies had birth weight between 2.5 to 3 kg, followed by 13 babies had birth weight between 3 to 3.5 kg,3 babies had birth weight 2 to 2.5 kg another 3 had birth weight 1.5 to 2 kg only 0.22 % had birth weight < 1.5 kg.



Graph 8: NICU admission

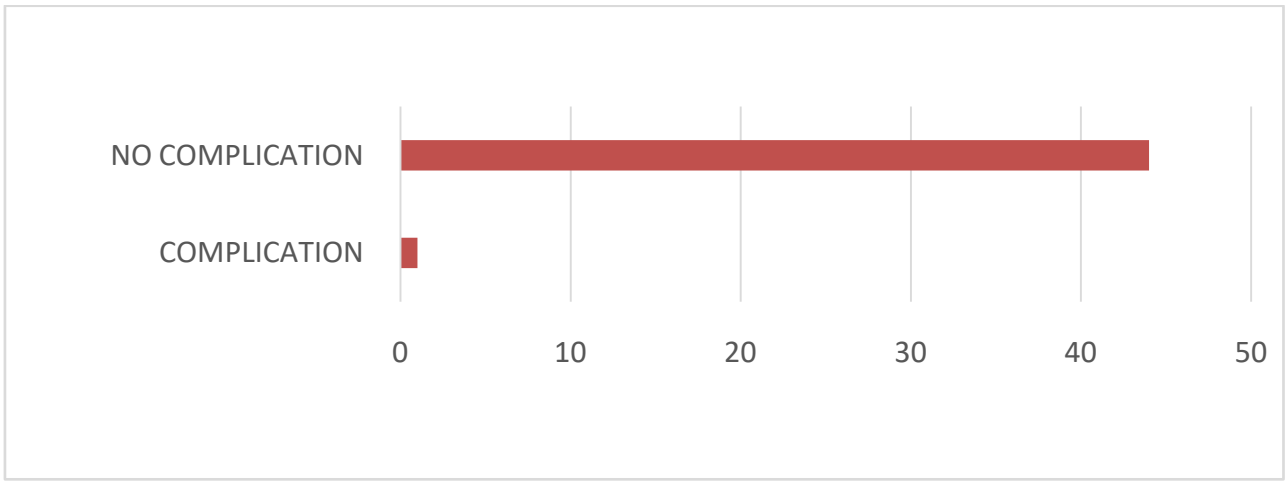
In our study only 4 babies (8.89%) required NICU admission, 3 babies in view of PROM and 1 in view of MSAF with respiratory distress. Rest 41 babies did not require NICU admission.



Graph 9: Indications for induction of labour

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Most common indications were post dated pregnancies (57.78 %), premature rupture of membranes (22.22 %), oligohydramnios (13.33 %), nonreassuring foetal heart status (4.44 %), PIH (2.22%).



Graph 10: Maternal complications

In our study only one patient had postpartum haemorrhage. no maternal complication was seen in remaining 44 cases.

IV. Discussion

Most common indication for induction of labour in present study were post-dated pregnancy (57.78 %) Similar findings were observed i.e. 44.5 % in a study 'Outcome of Induction of Labour: A Prospective Study' in Nepal and 45.8% in a study "Outcome and significance of labour induction in a health resource poor setting" in Nigeria. In the present study, premature rupture of membrane (PROM) is the second most common indication of induction (22.22 %), followed by oligohydramnios (13.33).

In our study 51.11 % inductions were done using transcervical insertion Foley's catheter followed by dinoprostone gel, while 40 % inductions were done using dinoprostone gel alone and remaining 8.89% cases were induced with Intracervical insertion of Foley's catheter.

In our study 60 % cases delivered vaginally and rest 40 % required caesarean section. Lamichhane et al in their study observed that 67.7% patients delivered vaginally and 32.3% underwent caesarean section. They found that most common indication for caesarean section was for failure of induction 44% followed by foetal distress 29% and meconium stained liquor in early stage of labour which was about 17% , least common being arrest of descent and dilatation in active stage of labour around 8.7% . In that study out of 67.7 % vaginal delivery, 4.86% had instrumental vaginal deliveries. Patterson J et al in Australia reported that 30.4% nulliparous women delivered by caesarean in his study. In a study, Throsell M et al showed that among induced women, 42% nulliparous and 14% multiparous women delivered by caesarean section.

In our study, it was observed that the success rate of induction of labour in the form of vaginal delivery was maximum with transcervical Dinoprostone (PGE2) gel instillation (72.22 %). Transcervical Foley's catheter insertion followed by dinoprostone gel instillation resulted in normal vaginal delivery in 52.17 % cases. Whereas 50% cases induced with transcervical Foley's catheter insertion resulted in normal vaginal delivery.

In our study majority of cases of induction of labour were of 20 – 25 years of age (51.11 %) followed by 25-30 years (35.56%) and 13.33 % cases between 30-35 years of age. Lamicchane et al in their study observed that the maximum patients belonged to 20 - 30 years of age.

In this study 60 % of inductions were done in primigravida, followed by 20 % in third gravida, 15.56 % in 2nd gravida and 4.44 % in 4th gravida. Similar findings were observed in a study by Patil et al prolonged pregnancy occurred more frequently in primigravida than in multigravida. About 69% cases belonged to primigravida and 31% cases belonged to multigravida.

In our study, majority of inductions were done at gestational age > 40 weeks (48.89%) with another 44.44 % cases were induced at gestational age of 37 to 40 weeks and 6.67 % cases were induced at < 37 weeks. Thus almost 93.33 % cases were induced at full term gestation.

In our study, out of 45, 25 babies (55.55) had birth weight between 2.5 to 3 kg, followed by 13 babies (28.89%) had birth weight between 3 to 3.5 kg, 3 babies (6.66%) had birth weight 2 to 2.5 kg another 3 (6.66%) had birth weight 1.5 to 2 kg only 0.22 % had birth weight < 1.5 kg. In a similar study by Lamichanne et al it was found that 88.76% of babies birth weight was in between 2.5 -3.5kg. In the same way 4.6% of babies weighed less than 2.5 kg and 26% of babies weighed more than 3.5kg, which showed that there is less chances of

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complications due to foetal macrosomia, as most of the baby delivered were of average size. Lawani O et al reported that 80.5 % of babies delivered were in between 2.5kg -3.9 kg.

In our study there was no evidence of foetal mortality. Only 4 babies (8.89%) out of 45 required NICU admission, 3 babies in view of PROM and 1 in view of MSAF with respiratory distress. Rest 41 babies did not require NICU admission. In a similar study by Heimstad R et al in 20075.5% of born babies needed NICU admission. Gelisen O et al. in 2007 reported 4.3% of babies required NICU among induced patients. Nielsen P et al. in 2005 reported that there was no need of NICU admission of baby in induced group. In a similar study 99.7% of baby born were born alive. 2.07% were admitted in ward or NICU for observation or other interventions. Among these admitted babies, 0.51% of babies expired during treatment at ward or NICU. Compared with expectant management, elective induction of labour between 37 to 41 weeks of gestation periods associated with reduced perinatal mortality. Rates of admissions to a neonatal

In our study only one patient had postpartum haemorrhage. no maternal complication was seen in remaining 44 cases. Patil et al in their study of maternal and perinatal outcome in induction of labour at 40 weeks and 41 weeks of gestation observed that maternal morbidity like increased rate of caesarean section, PPH, perineal tear, sepsis and cervical tear are more common in 41-week group in compare to 40-week group.

V. Conclusion

In our study, it was observed that the success rate of induction of labour in the form of vaginal delivery was maximum with transcervical dinoprostone (PGE2) gel instillation (72.22 %). Transcervical foley's catheter insertion followed by dinoprostone gel was successful in 52.17 % cases. 50% cases induced with transcervical Foley's catheter insertion resulted in normal vaginal delivery. So induction of labour with dinoprostone gel used alone or with foleys catheter resulted in successful delivery. There was no significant increase in the cesarian section rates with any of the methods. And overall maternal and perinatal mortality and morbidity was reduced with timely induction for indicated cases.

Labour induction should be done if the benefits of termination of pregnancy overweighs that of continuation of pregnancy. Pregnancy and labour is a natural process and we should allow its natural course until and unless the indication for induction is justified.

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