RISK FACTORS FOR FAILED INDUCTION OF LABOUR IN TERM NULLIPAROUS WOMEN.

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ABBREVIATIONS

BMI	:	Body Mass Index
IOL	:	Induction Of Labor
WHO	:	World Health Organization
OR	:	Odds Ratio
PROM	:	Premature Rupture Of Membranes
GDM	:	Gestational Diabetes Mellitus
PPH	:	Postpartum Hemorrhage
CDC	:	Center For Disease Control
PGE1	:	Misoprostol
PGE2	:	Dinoprostone
NFHS	:	National Family Health Survey
CS	:	Cesarean Section
FGR	:	Fetal Growth Restriction
PPH	:	Post-Partum Hemorrhage
CPD	:	Cephalo-Pelvic Disproportion.
FHR	:	Fetal Heart Rate
IUD	:	Intrauterine Death
DTA	:	Deep Transverse Arrest
TVS	:	Trans Vaginal Ultrasound.

ABSTRACT

Risk factors for failed induction of labour in term nulliparous women -A hospital based study at the teaching hospital attached too KAHER's J N Medical College, Belagavi.

Objective

To determine the risk factors associated with failed induction of labour.

Materials and Methodology

A prospective observational study conducted on women admitted in the labour room andplanned for induction of labour in KAHER'S Dr. Prabhakar Kore Charitable Hospital, Belagavi, from January 2020 – June 2021. Induction of labour was performed according to the standard protocol of the hospital. Cases of failed induction were defined as failure to enter active phase of labour (4cms) after completing the induction protocol. Failed induction of labour group was analysed for risk factors in comparision to successful induction group.

Results

Total of 264 cases of induction of labour were studied, of whom 36 had a failed induction of labour (13.6%) and 129 had successful induction of labour (48.86%). Compared with the women in the successful induction group, women with failed induction were more likely to have a more delivery body mass index (BMI) (mean 26.86 versus 25.45, $P < 0.001$), less period of gestation (mean 38.49 versus 39.42, $P < 0.0152$), more maternal weight (mean 63.69 versus 69.27, $P < 0.0078$) and low pre induction modified Bishop's score (mean 1.97 versus 3.41, $P < 0.001$). From stepwise logistic regression, we observed that, Maternal weight and Pre induction Bishop's score had significant effect on failed induction (OR- 0.49).

Conclusion

Risk factors include BMI, maternal weight, pre induction modified Bishop's score and method of induction.

LIST OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

INTRODUCTION

Induction of labouris defined asInitiation of uterine contractions by any method for the purpose of vaginal delivery[1]. It was first described by Hippocrates (in 400 BC). Commendation byDr.Michael Robson: "The decision to induce labour is made if ending the pregnancy is considered more beneficial for the mother or the baby than awaiting spontaneous onset of labour, to obtain a safe vaginal delivery for mother and the baby with minimum interventions, complications and maximum satisfaction"[1]**.**It is a common obstetrical procedure, involving nearly 20% of all deliveries, and the rates are increasing[3]. "The WHO Global Survey on Maternal and Perinatal Health, conducted in 24 countries showed that 9.6% were delivered by labour induction[4]". Labor may be induced due to any medical or obstetric indications and is indicated only when the risk of waiting for spontaneous labor is higher than the risk present in inducing the labor [5].

The indications for IOL could be due to maternal or fetal causes, including post term pregnancies, Oligohydramnios, Hypertensive disorders of pregnancy, Intrauterine growth restriction, Intrauterine fetal death, GDM and PROM or termination of pregnancy due to medical disorder are the common indications of undergoing labour induction[6]. According to National Vital Statistics (CDC) rate of labour induction in 2012 is 23.3% with 90% increase in post-term births[7]. There are various methods available for induction of labor varying largely between different hospitals and the practitioners and consensus on the best method is still not achieved[8].The pharmacological approach utilizes PGE1/E2 and oxytocin. Misoprostol (PGE1 analogue), induces or accelerates the maturation of the cervix, also stimulating the myometrial activity. Dinoprostone (Prostaglandin E2 analogue) causes cervical changes such as collagen fibril dissolution and increased water content that leads to

cervical thinning and dilatation[6]. Oxytocin causes the uterine contractions[9]. Mechanical methods favouring induction include membrane stripping and Foley balloon catheter[6]. Bishop's score calculation is the current standard of care for deciding on the method of induction of labor. The Federation of Obstetric &Gynaecological Societies of India, recommends dinoprostone (gel/ vaginal pessary), misoprostol (vaginal/ oral), membrane sweeping and oxytocin for induction of labor in unfavourable cervix. In case of favourable cervix, oxytocin alone or in combination with amniotomy are indicated[10].

Induction is usually not just a single intervention but is a complex set of interventions and, as such, is challenging for both clinicians and mothers. As with any other intervention, induction of labour may also result in unwanted effects[11]. Increased risk of cesarean delivery is the most common complication of induction of labor[(12-14)]. Other complications like failed induction of labor, abnormal fetal heart rate patterns, uterine tachysystole, uterine rupture, postpartum hemorrhage, are noted[(15-17)].

Caesarean section is a surgical intervention which is carried out to ensure safety of mother and child, and induction of labour is the common procedure. Since 1985, the International Health Community has considered the ideal rate for caesarean sections to be between 10% and 15%. Since then, the Caesarean section rates have been become increasingly common in both developed and developing countries. Considering the global network an increase in the cesarean birth rates in India, were above the WHO recommended rate (>10–15%). South Asia including India showed an increase of 7.2 to 18.1% per year[18]. The 2015-16 NFHS found that

17% of live births in the five years before the survey were delivered by cesarean section.45% of the cesarean sections were decided on after the onset of labour pains, compared with 55% that were decided on before the onset of labour pains. Cesarean deliveries are more common among primigravida (24%) than the multigravida (2% to 16%). Since 2005-2006, the rate of cesarean section has doubled, from 9% to 17% in 2015-2016[19]. As per Robson classification, cesarean section is grouped into ten classes based on prior cesarean section, parity, spontaneous, induced or cesarean section, gestational age, fetal position and fetal number[20]. It has been observed that induction of labour, prelabour cesarean section, cesarean section in multiparous women with induction were the major contributors for the rise in cesarean section[21].

The rate of successful labor induction is higher, but nearly 20% of the patients experience failure of IOL, meaning they do not deliver vaginally and might need a cesarean section[22]. There are no defined criteria for failed IOL. Commonly used definitions are failure to deliver vaginally, failure to enter the active labor within 24 hrs, failure to achieve dilation, prolonged latent phase etc[23]. Because of this non-consensus in defining the failure of IOL, deciding to proceed to a CS after a failed labor also varies among obstetric practitioners. Several contributing factors increase the chance of failed IOL, including nulliparity, gestational age, maternal age,shorter maternal height, greater BMI, hypertension, diabetes mellitus, premature rupture of membranes (PROM), poor Bishop's score (<6), prolong latent phase of labour, macrosomic babies[24,25].

Multiple authors have used alternate methods like funneling, posterior cervical angle, cervical length and occiput position for predicting successful induction of labour.Besides elevated fetal fibronectin concentrations have been experimented for predicting labour induction. But high cost and poor predictions limits its usage[26].

Cervical Phosphorylated Insulin-Like Growth Factor-Binding Protein 1 is also a strong factor that predicts successful induction of labour and is similar to Bishop score[27].

The rate of nulliparous women to have CS after a failed IOL ranges from 19 to 42% depending on the hospital setting and the risk factors present in the study population [24,28]. In India, studies related to the failed IOL in nulliparous women are very scarce. However, Mehta et al. from the western part of India reported that the rate of CS in these women was 27%[29]. In contrast, a higher rate of 53% CS among the nullipara was noted in a study from a tertiary care hospital in Odisha[30].

It is suggested that the risk factors associated with failure of IOL can be utilized to predict the cesarean delivery in nulliparous women undergoing IOL, which can be used for the better management of IOL in this particular group. The risk factors depend on the population studied. Though few risk factors are common, some specific risk factors contribute more significantly to the failure of IOL in a particular population. It is imperative that each health care setting identifies the risk factors present in the population it treats, which will help design evidence-based protocols on IOL in a local environment. Understanding the risk factors will also aid the health care provider to counsel and prepare the women for induction.

In this context, the current study, was designed to identify the factors responsible for failed induction of labor in term nulliparous women and to know the incidence of failed induction of labor for better quality medical care promoting maternal and fetal health.

OBJECTIVES

Primary objective

To determine the risk factors associated with failed induction of labour.

Secondary objective

To determine the incidence of failed induction of labour.

REVIEW OF LITERATURE

Induction of labour is the artificial initiation of labour before the spontaneous onset to deliver the feto – placental unit[1]. As per most studies the induction rate varies from 9 – 33%[31]. It is indicated when the risk of pregnancy continuation exceeds the risk associated with induced labour and delivery for both mother and fetus[1]. Labour is induced in 1 of 5 births for maternal reasons (Hypertensive disorders of pregnancy, GDM, Cardiac or Renal-diseases), Fetal reasons (FGR) or a combination (PROM, post term pregnancy)[32]. Labour induction without medical indication is termed as Elective induction and the rates are increasing rapidly as compared to induction as a whole[32].Induction when is done for appropriate reasons and by correct methods it is useful and benefits both mothers and newborns[1]. It is a medical intervention and might result in undesirable consequences like increased rates of cesarean delivery, PPH, fetal distress, prolonged labour, increased instrumental delivery, neonatal jaundice, immediate care of newborn and medical care cost[31]. The indication must be convincing, compelling, consented to and documented[33]. The need for induction and the procedure of labourinduction has to be explained to the patient[34]. The description of patient, associated comorbidities, membrane status, cervical condition, technique of induction of labour and associated regional facility in the terms of health workers, medicines and health equipment to be considered[34]. It should be done after taking an informed written consent. It should be carried out in a health care center where facilities for emergency cesarean delivery and management of difficulties is available and to be done under close monitoring. During labour induction mother and fetus must be

monitored and the labour progress should also be documented[5]. Prior to induction certain pre-requisites should be followed[34]:

- Detailed review of maternal history.
- Assessment for manifestation and to preclude any contraindication.
- Definitiveassessment of gestational age, presentation and estimated fetal weight.
- Maternal heart rate, BP, T, RR and data of obstetric examination should be noted.
- Estimation of baseline FHR.
- Maternal pelvic analysis and clinical consideration for possibility of CPD.
- Analysis of cervical condition by Modified Bishop scoring approach to prophesy the chance of induction successfulness.
- Reason for induction, gestational age and Modified Bishop Score should be tabulated at the time the verdict for labor induction is made.
- Informed written consent should be taken.

Post-term pregnancy, Oligoamnios, hypertension in pregnancy, fetal growth restriction, Intrauterine fetal death, GDM and PROM or termination of pregnancy due to medical disorder are the common indications of undergoing labour induction[11]. Thirty randomized controlled trials with studies on induction of labor were examined for maternal and fetal outcomes. They were found to be linked with few infants with Apgar score of less than 5 at 7 min, lesser perinatal death and lesser cesarean section[35]. Induction of labor is routinely practiced obstetric procedure where failed inductions and failure to progress in labor are contended to be important contributors of increased cesarean rates[33].

Methods of labor induction

Induction of labor is reported in the descriptions of Hippocrates. There are various methods of induction including pharmacological and mechanical methods. None of the induction method possess overall superiority considering obstetric, maternal and neonatal outcomes. Stripping of membranes is one of the best studied methods for labor induction following cervical ripening[36].

Mechanical methods.

Mechanical methods including balloon tipped catheters, amniotomy and laminaria which stimulate prostaglandins release that in turn initiates labor induction. Artificial rupture of the amniotic membranes results in prostaglandin release that result in labor within 6 hours. The success of amniotomy has been observed in 90% of women in term. Early amniotomy followed by cervical ripening reduces the time between induction and delivery and the method is not associated with the risk of cesarean delivery[37].On the contrary delayed amniotomy after 8 hours of oxytocin administration resulted in higher chances of cesarean delivery[38].PROBAAT-M meta-analysis study revealed that concomitant use of oxytocin and Foley catheter was effective in labor induction[39]. This mechanical method was found to be safer induction method in term women with unripe cervix compared to misoprostol[40]. The double balloon method was found to reduce failed inductions, decrease time interval between induction and delivery, increase cervical dilation and vaginal delivery compared to administration of pharmacological cervical ripening agents. Application of double balloon catheter enhanced the Bishop score and induction compared to Foley catheter in multiparous women, reduced time between induction delivery in

primiparous and multiparous pregnancies and reduced probability of cesarean section in primiparous women[41].

Pharmacological methods.

Prostaglandins:

They are group of 20 carbon polyunsaturated fatty acids with a common precursor called arachidonic acid. PGE1 (misoprostol) and PGE2 (dinoprostone) are clinically applied for induction of labor.Increased odds of cesarean delivery was observed with oral misoprostol (41%) compared to vaginal misoprostol (28%) among nulliparous women[42]. Prostaglandin was linked with higher relative risk in cesarean deliveries for non-reassuring fetal status in an unadjusted analysis of data, whereas propensity score analysis showed no relationship between prostaglandin usage and cesarean for non-reassuring fetal status[43]. Lower cesarean section(22%), shorter time between medicine delivering to the starting of labor, average span from drug administration to delivery, reduced need for oxytocin were better in the misoprostol insert group compared to dinoprostone insert group[44].

Oxytocin:

Oxytocin, a cyclic nonapeptide is synthesized in supraoptic and paraventricular nuclei. Parameters such as dosage, length of infusion, interval and frequency need to be optimized for successful labor induction[45]. Oxytocin have been shown to reduce admission to delivery time in nulliparous women with pre- labor rupture of membranes compared to buccal misoprostol [46] and prostaglandin E2[47]. Enhanced dosages (more than 11400 milliunits) have been linked with enhanced odds of cesarean delivery in primiparous women withfull-term, singleton and vertex presentation fetus[48]. Care should be taken to monitor oxytocin administration. Late term pregnant women (1,408) with Bishop's score of 0–3 and 4–6 groups were

vaginally administered dinoprostone and intravenous oxytocin for induction of labor. Lower cesarean rates are observed with dinoprostone (74.07%), compared to women administered with oxytocin (25.92%). No notable differentiation was seen in the groups with Bishop's scores (0-3 and 4-6)[49].

Chen et al[39]performed network and meta-analysis of 95 randomized clinical trials where 10.4% administered oral misoprostol, 25.4% administered vaginal misoprostol, intracervical dinoprostone (18.2%), vaginal dinoprostone (29.7%), and Foley catheter (16.3%) cases. Oral misoprostol reduced cesarean section deliveries in comparison to intracervical dinoprostone. The order of induction method in reducing cesarean section rates was oral misoprostol followed by vaginal misoprostol[39].

Nitric oxide donors and Propranolol have also been studied in relation to induction of labor.[50,55]

Assessment of cervix.

Prior to induction of labor, digital examination of the cervix as proposed by Bishop in the year 1964 predicts the induction success[33]. The initial scoring estimates 5 determinants - dilatation, effacement, position, consistency and station through scoring with a maximum score of 13 (Table 2)[33]. According to Modified Bishop Scoring, effacement is been replaced by cervical length in centimeters and another modification is the modifiers[34]. It still remains as the typical prediction method for cervical assessment which is subjective and shows high inter and intra – observer variability. More recently the ultrasound assessment of cervix and other parameters are known to be as better predictors than Bishop's score for induction success[56]. TVS measurements like cervical length, posterior cervical angle, cervical wedging and occipital position are used to predict the success of induction. Bishop's score is subjective and is more painful in comparison to TVS. Of the TVS measurements

cervical wedging and head position are not predictive of induction success whereas the cervical length and posterior cervical angle are the best parameters in prediction of induction success[56]. The use of such measurements in routine obstetric practice is not yet recommended.

Table 1: Bishop score

Score	Dilatation	Effacement	Station	Position of cervix	Cervical consistency
0	0cm	0-30(%)	-3	Posterior	Firm
1	1 – 2cms	40-50(%)	-2	Mid-position	Medium
2	3 – 4cms	60-70(%)	-1,0	Anterior	Soft
3	>/=5cms	≥80(%)	+1, +2		

Table 2: Modified Bishop Score.

Score	**Dilatation**	**Station**	**Position of cervix**	**Cervical consistency**	**Cervical length (cm)**	**Bishop Score Modifiers.**
0	0	-3	Posterior	Firm	> 4	**Add 1 point for:** -Pre- Eclampsia. -Each previous vaginal delivery. **Subtract 1 point for:** -Postdate pregnancy. -Nulliparity. -PPROM.
1	1-2	-2	Mid-position	Medium	3-4	
2	3-4	-1,0	Anterior	Soft	1-2	
3	5+	+1, +2			<1	

Defining failed induction of labor.

The outcome of labor induction will be either success or failure. However, induction fails in 20% of induced pregnancies. Criteria for failed labor induction have not yet been standardized[35]. Historical definitions of failed induction exhibits various end points like cesarean delivery, not achieving vaginal delivery within a specified

time, failure to achieve active phase of labor within specified time or following the induction protocol[57].

Concerns about IOL indications, management and outcomes are rising in proportion. Failed induction has been described several ways in the literature in both observational and randomized trials[58]. In clinical practice, the decision to proceed with cesarean delivery for failed labor induction is based on nonuniform criteria[58]. The differing definitions of failed induction obviously make difficult the comparison of induction protocols.Although the definition of labor induction is simple, the criteria to define successful and failed IOL have not been standardized and no consensus has been reached to date[23].

Hence as stated by Monique G. Lin et al.., to assess the validity of any proposed definition of failed labor induction or to create a new one, an understanding of Friedman's curve is important[23].

Table 3 :Defining failed induction of labour.

Study	Year	Definition of Failed Induction.
Wing DA, Paul RH.[59]	1988	Failure to achieve dilation >/= 4 cm after trial of oxytocin to a maximum of 20 mU/min
Kadanali S, Kucukozhan T[60]	1996	Failure to achieve the active phase (uterine contractions causing progressive cervical dilation and effacement) after 12 h of oxytocin administration.
Ngai SW, Chan YM[61]	2000	Failure to enter the active phase (not specifically defined) of labor within 12 h after IOL was begun
Bartha JL, Comino-Delgado R[62]	2000	Failure to achieve the active phase (3 cm and completely effaced) after a maximum of 12 h of oxytocin administration
Hoffman RA, Fawcus JA.[63]	2001	Failure to enter the active phase (not specifically

		defined) of labor within 12 h after IOL was begun
Fisher SA, Mackenzie VP[64]	2001	Failure to deliver within 24 h of induction
Lo J, Alexander J[65]	2003	Adequate (>200MU) contractions for 2 h without cervical change
Shetty A, Livingstone I[66]	2004	Failure to enter the active phase of labor (Bishop score
Meyer M, Pflum J[67]	2005	Failed induction occurred when painful, regular contractions with cervical change were not achieved and the patient was delivered by cesarean with failed induction as the sole indication

After systematic review analysis done by Monique G. LIN and Dwight J. Rouse in 1998 including 9 studies, arrived at aconclusion of defining failed induction of labor on the basis that,induction of labor should maximize the number of women progressing to the active phase of labor (and ultimately delivering vaginally) while maintaining a low incidence of adverse maternal and neonatal outcomes. They proposed that failed labor induction can be defined as the inability to achieve a cervical dilatation of 4 cm and 90% effacement, or at least 5 cm (regardless of effacement) after a minimum of 12 to 18 hours of membrane rupture and oxytocin administration (with a goal of 250 MU or 5 contractions/10 min). This proposed definition considered the cervical dilation at which most women enter the active phase, the uterine activity necessary to effect transition to the active phase, and the length of time it takes most women to progress to the active phase.From Friedman's studiesinduction failure can be best characterized by the failure to transition from the latent to the active phase of labor as the duration of the active phase, is the same or shorter in induced compared to spontaneous labor.Therefore, progression to the active phase is areasonable benchmark by which to judge failure of induction[23].

In terms of IOL outcome, a variety of endpoints such as mode of delivery (vaginal delivery or cesarean section), vaginal delivery within a certain time interval or achievement of the active phase of labor exists and comparison between published studies becomes a complicated issue due to the existing heterogeneity in the literature. Hence a systematic review was done by Federico Migliorelli et al[68]., analyzing 7 studies.

Table 4 :Defining failed induction of labour.

Study	Year	Definition of Failed Induction.
Xenakis[69]	1993	Inability to achieve active phase of labor (cervical dilation ≤4 cm despite adequate exposure to cervical priming and oxytocin stimulation) after 15 h primiparas/12 h multiparas
Chandra[70]	2001	No vaginal delivery
Roman[71]	2004	Inability to achieve active phase of labor (cervical dilatation ≤5 cm despite adequate uterine contraction activity)
Yang[72]	2004	Inability to achieve active phase of labor (cervical dilation < 4cm despite regular contractions)after 48 hours.
Park[73]	2007	Inability to achieve active phase of labor (cervical dilatation of ≥4 cm within 12 h of initiating oxytocin) within 24 h of induction
Park[74]	2009	Inability to achieve active phase of labor (cervical dilatation of ≥4 cm within 12 h of initiating oxytocin) within 24 h of induction
Frederiks[75]	2012	No vaginal delivery

Federico Migliorelli et al., concluded that, the definition of failed IOL should be consistent with the IOL definition itself that is, achievement of the active phase of labor. Therefore, failed IOL should be defined as the inability to achieve active phase

of labor. Most of the existing literature is based on a very general outcome of failed induction, evaluating a final result such as the vaginal delivery, and therefore, adding confounding factors like failure to deliver vaginally can be due to CPD, Deep transverse arrest. Therefore, a generally accepted and adequate definition of failed IOL is an essential requisite to analyze and obtain solid results and conclusions[68].

The diagnosis of failed induction is still controversial in the clinical setting and there are different diagnostic criteria for different setting. In a systematic review and meta – analysis study done by AbenezerMelkie et al.[76], in Ethopia in the year 2021 analyzing 9 studies with study population of 2,861 concluded "Failed induction of labor as unable to get adequate uterine contraction and having of poor cervical changes after 6–8 h of oxytocin induction with the use of highest dose and drops for at least one hour".

In a study done by Taylor S. Freret, failed induction of labor was defined on the basis of Obstetric Care Consensus recommendation[57]:

1) Induction resulted in cesarean delivery for "failure to progress" or "failed induction" in the first stage of labor.
2) Last documented cervical dilatation was less than 6 cm.
3) Oxytocin was administered for at least 12 hours after rupture of membranes.

The incidence of failed induction was reported to be2% of inductions of labor among nulliparous women with singleton, full-term or late-term gestations. The lower failed induction rate was most likely due to the use of a standardized definition, compared with the heterogeneous definitions of failed induction used in prior studies, and a less conservative cervical dilatation cutoff (eg, 6 cm instead of 4 cm)[57].

There is no universal standard definition for failed induction of labor. Definition offered by NICHD, SMFM, FOGSI and ACOG respectively:

1. Cervical ripening with prostaglandins over a period ranging from a single dose to several doses or mechanical methods over 1-2 days prior to oxytocin administration[77].
2. Failure to generate regular contractions approximately every 3 minutes and cervical change after 24 hours of oxytocin[78].
3. Failure to achieve regular uterine contractions after one cycle of completion of cervical ripening consisting of
    a. Insertion of three intracervical PGE2 gel at 6th hourly intervals and 12 – 24 hours of oxytocin administration after rupture of membranes or
    b. One PGE2 pessary within 24 hours[79].
4. After ARM, failed IOL if regular contractions and cervical changes do not occur after 12 hours of oxytocin administration[80].

In summary, it is essential to diagnose failed induction of labor at an appropriate time in order to counsel the patients and to decide whether to continue the IOL or to perform a cesarean section based on the low probability of entering active phase of labour without increasing adverse outcomes.

Factors responsible for failed induction of labor

Failed induction was expected to be achieved in cases with prolonged latent phase in the first stage of labour, induction due to oxytocin alone, post term delivery, unfavorable Bishop score, hypertensive disorder of pregnancy and nulliparity. In a multi-center cross-sectional study donein Amhara, Ethiopia involving 484 pregnant women, failed induction was observed in 31.4% cases with 43.8% undergoing labor induction with vaginaldelivery, 24.8% had operative vaginal delivery and 31.4%

cesarean deliveries. The factors that contributed to failed induction of labor were hypertensive disorder of pregnancy (35.5%), premature rupture of membranes (34.5%), post-term pregnancies (16.3%), Bishop score of ≤5, nulliparity, Prolonged latent first stage of labor[61].In a retrospective cohort study of inductions in 406 nulliparous women with term singleton gestations, maternal age was not considered as an independent risk factor for cesarean delivery[82].

Maternal factors including BMI, age, parity and cervical assessment are important predictors for labor induction[83]. An increased induction of labor was observed in mothers with gestational diabetes mellitus compared to spontaneous labor[84]. Similarly nulliparous women (31.76%) were disposed to caesarean section followed by labor induction compared to parous women (10.49%)[85].

A retrospective cohort study conducted at United States of America with 14,409 women (gestation: 36 - 42 weeks) observed that labor induction was linked with 1.70 fold increase risk of cesarean section in primiparous women and a 1.49-fold likelihood in multiparous[86].

In a prospective observational pilot study involving 21 different Norwegian birth hospitals, induced pregnancieswith no previous vaginal delivery were categorized in 1. Primiparous,full-term,Cephalic, 2. prior cesarean delivery and 3. Robson-groups 6 to10. Women (1818) were subjected to different methods for induction of labor. Non progress of labour and failed inductions were indications for cesarean sections in nulliparous, term, cephalic pregnancies (11.1 - 40.6%), in previous cesarean section group (22. 7 - 67.5%). Various fetal reasons andbig baby were also correlated with failed induction of labor[87].

A prospective cohort study done at French maternity settings on induced women, the overall cesarean rate (21%),With increased cases in primiparous women with full-term, single gestation, cephalic presentation of the fetus. Three categories with varied gestation weeks (Group 1 (37-38), 2 (39-40) and 3 (≥41) gestation weeks) contributed to higher cesarean rates. Similarly lower Bishop score (<6) resulted in higher cesarean delivery rates, which was also dependent on the gestation week groups[88].

Nulliparity and Failure of induction of labor

Nulliparous women with more than 12 hrs of latent phase were found to have vaginal delivery with no complications (Simon et al., 2005, Rouse et al., 2011). No significant increase in perinatal complications and vaginal delivery was observed in 67% women with latent phase of 12-18 hrs followed by oxytocin initiation, cervical ripening, and rupture of membranes. An increase in chorioamnionitis was observed with longer latent phase[69]. But the report by Simon et al.[89], was contended for insufficient sample size.

In nulliparous women at 6 to 18 hours of oxytocin initiation and rupture of membranes, there was a decline in latent phase (35.9% to 1.4%) and decreased number of vaginal deliveries (54.1% to 29.9%). For nulliparous women with more than 12 hrs of latent phase, an increase in rates of chorioamnionitis (12.1%), endometritis (3.6%) and NICU admission (8.7%) compared to 9 hrs latent phase (6.7%) in 9763 nulliparous women[90].

a study by Grobmann et al.,involving 10,677 pregnant women, the active phase reached within 15 hours in a vast majority (96.4%) of women. Longer latent

phase increased the chances of cesarean delivery, although vaginal delivery was achieved in more than 40% of women with latent phase more than 18 hrs. Longer latent phase was associated with postpartum hemorrhage and chorioamnionitis[91].

In a study with 234 nulliparous women 44% had failed induction of labor and were delivered by emergency cesarean section. Pregnancy induced hypertensive disorder and unfavorable cervical status were independent risk factors of failure of induction[92].

In a retrospective study of women with prostaglandin initiation for cervical ripening, the rate of failed of labor was observed to be 20% with cesarean section amounting to 14.2 %[93]. An association was reported between nulliparous, increased maternal age, earlier gestational age and failure in induction was observed[(94-96)]. Maternal indication was the primary risk factor in nulliparous women whereas it was maternal indication and hypertensive disorders linked with failed induction of labor and cesarean section in multiparous women[97]. Prior literature accounts for 20-30% failure in induction of labor and cesarean delivery rates accounts to 20 %[74]. Multiple studies associate the connection between nulliparity, advanced maternal age, earlier gestational age and failed induction of labor. Fetal indication was also found to be related with failed induction of labor in aanalysis of 343 nulliparous women[99].

Table 5: Risk factors for failed induction of labor

Parity	Risk factors	References
Nulliparous women	Increased latent phase period	*88*
Nulliparous women	Increased maternal age, pre-eclampsia, gestational age, Bishop score	24
Nulliparous women	Premature rupture of membranes and fetal macrosomia	99
Term Nulliparous women	Failed induction was of 28% in the double balloon category, against 13% in the prostaglandins category.	100
Nulliparous and Parous women	Decrease of parasagittal angle of progression foran unit increase in fetal head station	101
Nulliparous and Parous women	Failure to adhere to the recommendations for adequate induction was linked to mistaken diagnosis of failed induction.	102
Nulliparous women	Race, gestational age at delivery, maternal age, weight prior to pregnancy, maternal height, gestational weight gain, chronic hypertension, gestational and pregestational diabetes, cervical exam on admission (dilatation, effacement, and station), are predictors of successful induction	103
Nulliparous and Parous women	obese (BMI > 30)	104
Nulliparous women	Pregnancy induced hypertensive disorder and unfavorable cervical status	91
Nulliparous women	higher fetal middle cerebral artery pulsatility index, longer cervical length and higher estimated fetal weight	105
Nulliparous women	Increased maternal age, earlier gestational age	93-95
Nulliparous women	maternal indication and hypertensive disorders	96
Primiparous women	Obesity	106

In a retrospective study of nulliparous women (34+0 - 41+6 weeks) initiated with prostaglandin E2, 12.8% induced women were more than 35 years. No significant difference in failure induction of labor was observed in advanced maternal age but an increase in the rate of cesarean deliveries was observed[52].

In a retrospective study reviewing 325 singleton post-term pregnancies with unfavorable cervix (Bishop score <6), women were grouped into successful labor (who achieved cervical ripening within 24 hrs after dinoprostone insertion) and failure of labor. Comparison revealed that nulliparity (74 versus 56%), gestational age ≤41 (53.2 versus 33.9 %, history of curettage and dilatation (27.3 versus 10.5%) were significantly linked with failed induction of labor. A significantly higher Bishop score was observed in successful labor women compared to failed induction (3.6 versus 1.9). The other significant factors include consistency (74.0 versus 44.4%) and absence of cervix dilatation (59.7 versus 23.0%) that correlated with failure of cervical ripening[53].

A retrospective cohort study involving785 nulliparous women (singleton, term,cephalic) pregnancies observed that the risk factors associated with failed induction of labor include initial cervical dilation < 3 cm greater body mass index, shorter maternal height,older maternal age,older gestational age, greater pregnancy weight gain, diabetes mellitus and hypertension. A nomogram was constructed and validated with the data. This could be an ideal combination of risk factors for predicting failed induction of labor and cesarean delivery[41].

Univariate and multivariate analysis of all parameters generated from transabdominal and transperineal scans lead to the selection of potential predictorsof induction outcome in nulliparous women at term including maternal age, cervical length, angle of progression at rest and occiput posterior position[3]. A casecontrol study of induction of labor in nulliparous women (39 and 41 weeks of gestation) used cesarean delivery performed in early labor [< 6 cm dilatation] after at least 12 hours of oxytocin administration from membrane rupture as the criteria for failed induction of labor. 40% nulliparous women were induced with 2% failed induction of labor.

Women with a failed induction had ahigher BMI (≥ 40), shorter height and closed cervix on admission. Significant factors that were included in the multivariate model include BMI at delivery, height in inches and number of centimeters dilated on admission (2 or more)[107].

The frequency of obesity in US pregnant was observed to be approximately 23% with increasing class III obesity category. Obese category of pregnant women had 24.9% failed induction of labor compared to 17.2% of the nonobese singleton group. Numerous factors including maternal demographic characteristics (weight at delivery, maternal height), maternal complications (chronic hypertension and pregestational diabetes) and obstetric factors (parity, prior vaginal/cesarean delivery and gestational weight gain) either increased or decreased the overall risk of failure. Coexisting risk factors together with obesity increase the overall risk by 75%[81]. Primiparous women experienced failed induction of labor and had longer inter-pregnancy intervals, earlier gestational age and larger mean birth weights. Birth weight abnormalities (fetal macrosomia, smallforgestationalage, and largeforgestationalage) were significantly linked with failed induction of labor in women compared to successful inductions[81]. In a retrospective multicenter cohort study with 235 singleton, cephalic deliveries of women with a BMI > 40 kg/m^2. 62.5% of women vaginally delivered 37.5% by cesarean section. Higher frequency of nulliparity, low Bishop's score and weight gainwere independent risk factors for failed labor induction[10].

Hypertension linked complications affect around 10% of pregnancies, where preeclampsia occurs at 2-8% with a 4fold increased perinatal mortality risk. Induction of labor is recommended for preeclampsia at 37 weeks of gestation and an increased

(70%) cesarean section rates is also observed. A study involving 14,072 deliveries showed that 22.4% were labor induced. Preeclampsia group were found to be associated with higher weight, higher body mass index, earlier labor induction, lower birth weight, lower Bishop scores. Additionally cesarean section rate, longer induction to delivery period, lower vaginal births within 48 hrs and NICU admission was observed[82].

Two other factors that determine the success of induction of labor include adherence to published guidelines and prior information about of induction of labor among pregnant women. In a retrospective cohort review of singleton primary cesarean deliveries, 263 failed induction cases were observed with a 82% cases not adherent to the guidelines published by American College of Obstetricians and Gynecologists and the Society for Maternal-Fetal Medicine[11].

MATERIALS AND METHODS

MATERIALS AND METHODS:

a) Study design

An observational study.

b) Study setting

KAHER'S Dr.Prabhakar Kore Charitable Hospital, Belagavi.

c) Study period

January 2020 – June 2021.

e) Study Population

All pregnant women who are undergoing induction of labour.

f)Sample size

The minimum sample size formula based on prevalence is

$$n = \frac{z_\alpha^2 P(1-P)}{d^2}$$

where P is the percentage of prevalence and d is the percentage likely difference in the prevalence.

z_α is linked with the level of significance. For 5% level of the significance $z_\alpha = 1.96$.

Ref:

With P = 20% and d = 25% of P, the sample size is 246

g) Selection Criteria

Inclusion criteria:

Singleton pregnancy

Nulliparity

Gestational age of >/= 37weeks.

Live foetus with cephalic presentation

Exclusion criteria:

Twin gestation.

Multiparous women.

Intrauterine death.

Preterm.

STATISTICAL ANALYSIS:

Since the study is of observational study the plan of analysis will be as follows.

For the continuous quantitative variables mean and standard deviation will be calculated. For the purpose of comparison if the data is divided into two groups with respect to certain qualitative characteristic, the continuous variables will be compared using suitable tools of statistics like unpaired student's t test. Discrete variables will be represented by median. Suitable graphs will be used to depict the comparison.

The categorical data will be expressed in terms of rates, ratios and percentages. The association between the outcome, clinical and demographic characteristics will be tested using Chi-square test, test of proportion or Fisher's exact test.

When we compare two independent groups having quantitative values, generally student's unpaired t test is applied. For discrete variable nonparametric tests will be applied. Apart from the above suitable tools like ANOVA, correlation, regression etc., will be used according to the need.

For all the tests the value of p less than 5% (0.05) will be considered significant.

METHODOLOGY

A prospective observational study was followed. All pregnant women admitted in the labor wards undergoing induction of labor were included in the study after meeting the inclusion criteria. Induction consent was taken prior to the induction. Labour induction was done according to the standard protocol followed in the hospital using Dinoprostone gel (3doses every 8^{th} hourly)and/or Tab.Misoprostol 25mcg (6 doses every 4^{th} hourly).Following induction the study group was divided into 3 groups depending upon outcome of the induction.

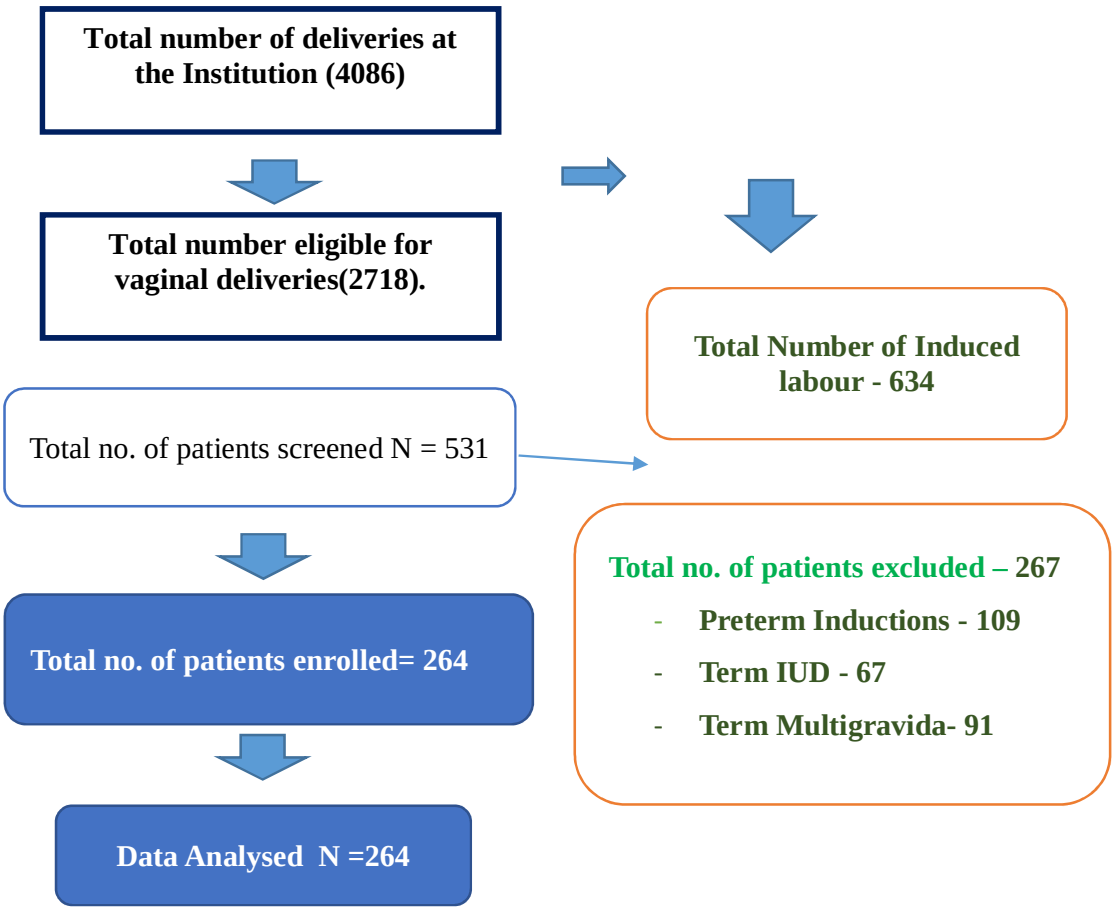
A – Failed Induction group(failure to enter active phase of labour(>/=4cms dilatation) after completion of induction protocol).

B – Successful Induction group(Entered active phase of labour.)

C – Underwent caesarean delivery in the latent phase before completion of induction of labour protocol. Risk factors for failed induction of labour were analysed.

RESULTS

In a total of 4086 deliveries during the study period, January 2020-June 2021, 264 patients were enrolled for the study.



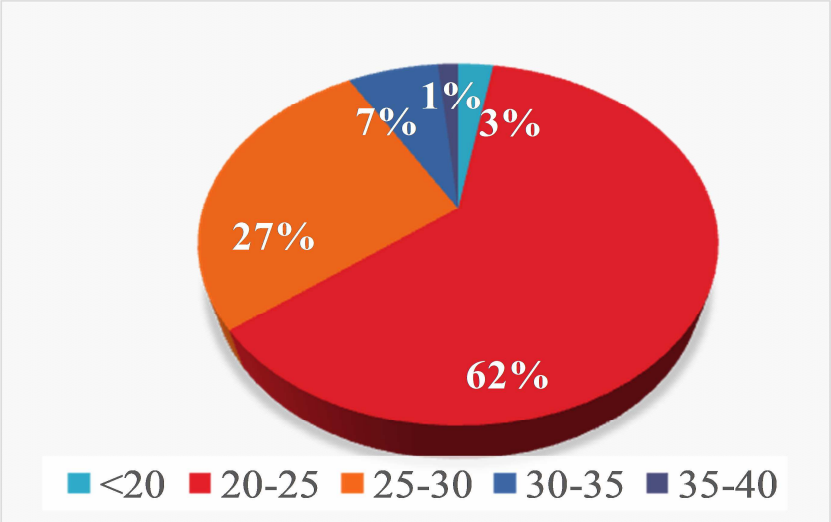
DISTRIBUTION BY AGE

The women recruited in the study were largely in the category of 20-25 years old (61.74%), followed by women of 26-30 years (27.27%). The rest of the study population belonged to 31-35 (6.82%), 36-40 (1.52%) and less than 20 years (2.65%) age group (Table 6, Figure 4).

Table 6. Distribution of the pregnant women based on maternal age

AGE IN YEARS	NUMBER(n=264)	PERCENTAGE (100%)
< 20	07	2.65
20-25	163	**61.74**
26-30	72	**27.27**
31-35	18	6.82
36-40	04	1.52

Figure 1: Distribution of the pregnant women based on maternal age



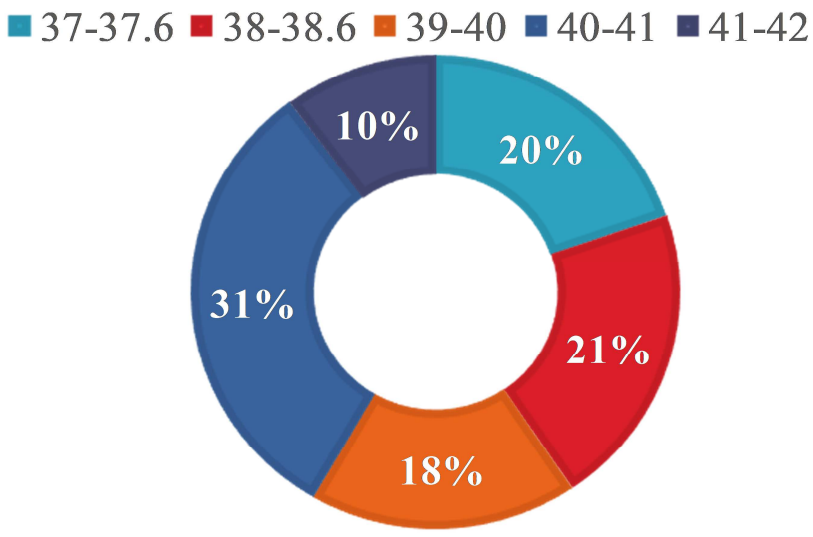
DISTRIBUTION BY GESTATIONAL AGE

Based on the gestational age of the women, larger percentage of women belonged to 40-46$^{0/6}$ weeks (31.4%), followed by 38 - 38$^{0/6}$ weeks (20.8%), 37 – 37 $^{0/6}$weeks (19.7%), 39 – 39$^{0/6}$ weeks (17.8%) and 41- 41$^{0/6}$ weeks (10.2%) (Table 7, Figure 5)

Table 7. Distribution of the pregnant women based on gestational age

POG	NUMBER(n=264)	PERCENTAGE(100%)
37 – 37 $^{0/6}$weeks	52	19.7
38 - 38$^{0/6}$ weeks	55	20.8
39 – 39$^{0/6}$ weeks	47	17.8
40 – 40$^{0/6}$ weeks	73	**31.4**
41- 41$^{0/6}$ weeks	37	10.2

Figure 2. Distribution of the pregnant women based on gestational age



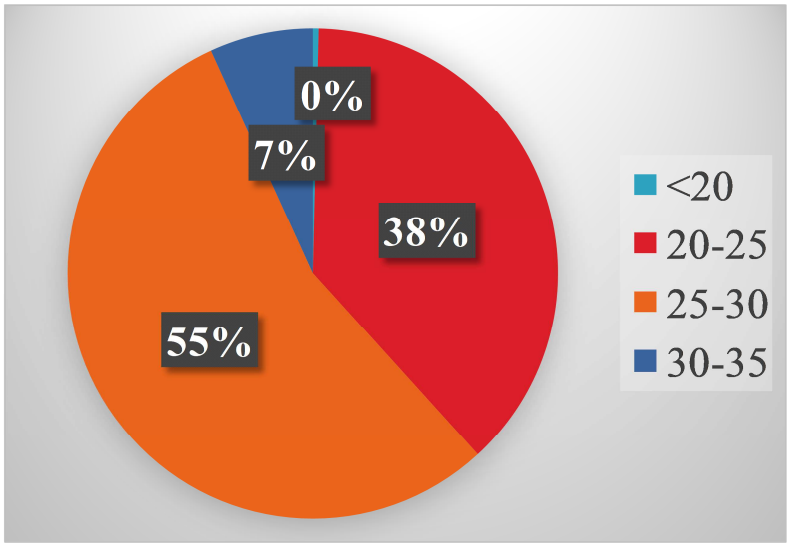
DISTRIBUTION BY BMI

The pregnant women in the study were grouped in five different categories of BMI. More than 50% of the study population belonged to 25-29.9 BMI category, followed by 20-24.9 BMI (37.88%), 30-35 BMI group (6.82%) and less than 20 BMI category (0.38%) (Table 8, Figure 6)

Table 3. Distribution of the pregnant women based on BMI category

BMI(kg/m^2)	NUMBER(n=264)	PERCENTAGE(100%)
< 20	1	0.38
20-24.9	100	**37.88**
25-29.9	145	**54.92**
30-35	18	6.82

Figure 6. Distribution of the pregnant women based on BMI category



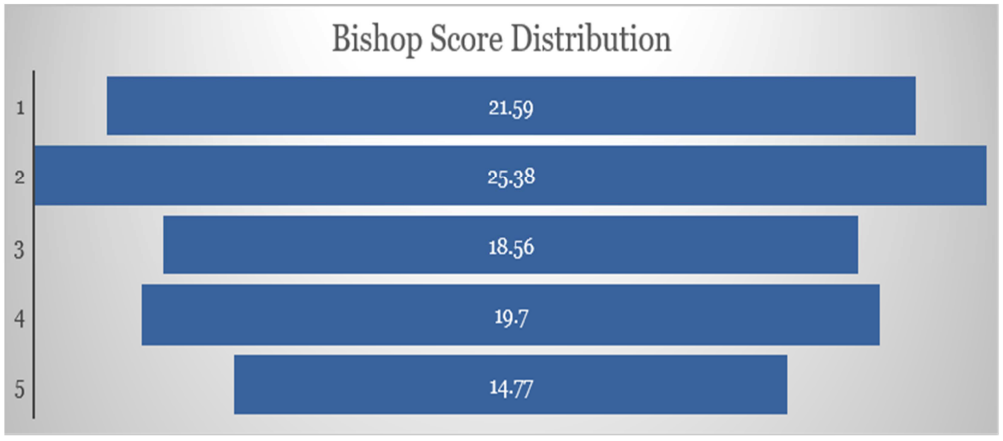
DISTRIBUTION BY PRE – INDUCTION MODIFIED BISHOP SCORE

Based on the pre-induction modified Bishop Score, the pregnant women were categorized in the Bishop score range 0 to 5. The percentage of women in theeach group was in the 14.77-25.38% range. Higher percentage of women had a pre-induction Bishop score of 2(25.38%) followed by women with pre-induction Bishop score 1 (21.59%) (Table 9, Figure 7)

Table 9. Distribution of the pregnant women based on Pre-induction modified Bishop Score

Pre-induction modified bishop score	Total number (264)	Percentage (100%)
1	57	21.59
2	67	**25.38**
3	49	18.56
4	52	19.70
5	39	14.77

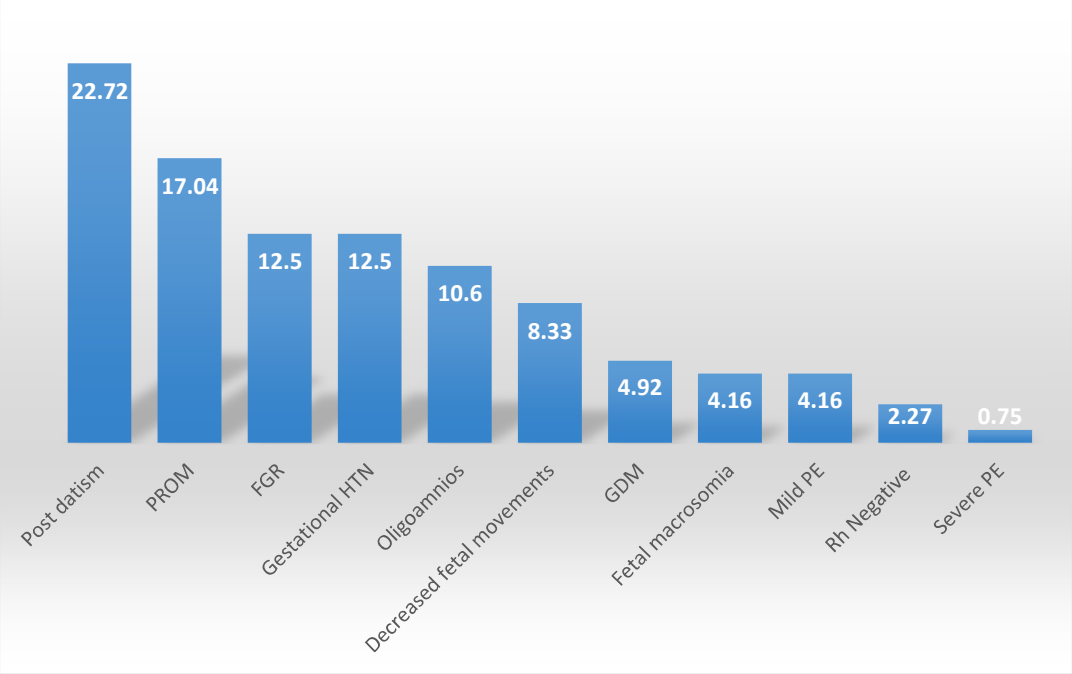
Figure 4. Distribution of the pregnant women based on Pre-induction modified Bishop Score



DISTRIBUTION BY INDICATIONS FOR INDUCTION.

Eleven factors that indicate inductions include Post-datism, FGR, PROM, Decreased fetal movements, Oligohydramnios, Gestational hypertension, Gestational diabetes mellitus, Rh negative, Fetal macrosomia, Mild and Severe Pre-eclampsia. Post-datism (22.72%), PROM (17.04%), gestational hypertension (12.5%) and FGR (12.5%) are the major indicators of the induction of labor (Figure 8).

Figure 5: Indications for induction of labour



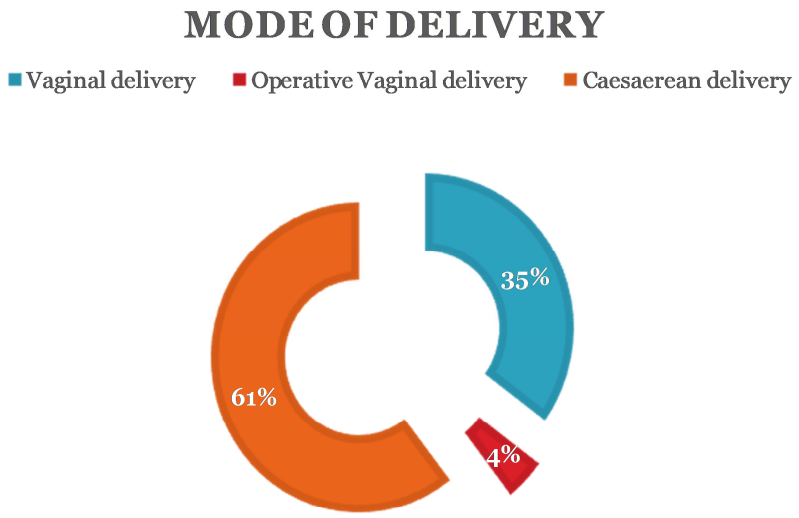
MODE OF DELIVERY

The women following the induction of labor, had either vaginal delivery (35.23%) or operative vaginal delivery (Ventouse) (3.79%) or Caesarean delivery (60.98%). Majority of the women delivered by cesarean section.

Table 10: Distribution based on the mode of delivery.

Mode of delivery	Number(n-264)	Percentage(100%)
Vaginal delivery	**93**	**35.23%**
Operative vaginal delivery(Ventouse)	**10**	**3.79%**
Cesarean delivery	**161**	**60.98%**

Figure 6: Distribution based on the mode of delivery



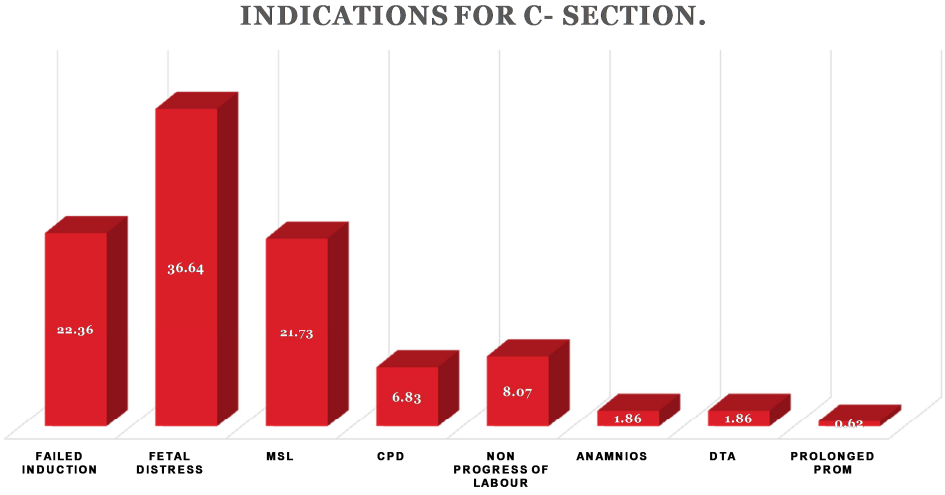
INDICATIONS FOR CAESAREAN SECTION.

Different indications of Caesarean section include failed induction, Fetal distress, Meconium-stained liquor, CPD, Non progress of labor, Anamnios, DTA and Prolonged PROM. The three major indications of Caesarean section include Fetal distress (36.64%), Failed induction (22.36%) and Meconium-stained liquor (21.73%). (Table 11, Figure 10).

Table 11: Indications for Caesarean section

Indication for Caesarean section	Number of subjects (%)
Failed induction	**36 (22.36%)**
Foetal distress	**59 (36.64%)**
Meconium-stained liquor	**35 (21.73%)**
CPD	**11 (6.83%)**
Non progress of labour	**13 (8.07%)**
Anamnios	**3(1.86%)**
DTA	**3(1.86%)**
Prolonged PROM	**1(0.62%)**

Figure 7: Indications for Caesarean section



OUTCOME ANALYSIS

The outcome of induction of labor was analysed and were divided into three categories, successful induction was observed in 48.86% of cases and failed induction in 13.63% of cases. Caesarean delivery with predetermined induction status was observed in 99 cases (37.5%). (Table 12)

Table 12: Outcome of induction

Outcome of induction	Number (264)	Percentage (100%)
Failed Induction	**36**	**13.63**
Successful induction	**129**	**48.86**
Caesarean delivery with predetermined induction status.	**99**	**37.50**

Characteristics between 2 groups by Age Distribution

Comparison between group A (failed induction) and group B (successful induction) on the basis of maternal age indicated that in both groups (group A: 58.33% and group B: 62.79%) higher percentage of women belong to the age group of 20-25 years (Table 13).

Table 13: Characteristics of failed (group A) and successful induction (group B) based on maternal age.

	Failed induction		Successful Induction	
AGE	**NUMBER**	**PERCENTAGE**	**NUMBER**	**PERCENTAGE**
<20	**0**	**0.00**	**6**	**4.65**
20-25	**21**	**58.33**	**81**	**62.79**
26-30	**10**	**27.78**	**34**	**26.36**
31-35	**4**	**11.11**	**6**	**4.65**
36-40	**1**	**2.78**	**2**	**1.55**
TOTAL	**36**	**100**	**129**	**100**

Characteristics between 2 groups by Gestational age

Larger percentage of the pregnant women was in less than 40 weeks of gestational age in both the groups (77.78% in group A and 53.49% in group B) (Table14).

Table 14: Characteristics of failed (group A) and successful induction (group B) based on gestational age.

	Failed induction		Successful Induction	
POG	**NUMBER**	**PERCENTAGE**	**NUMBER**	**PERCENTAGE**
37-39$^{0/6}$weeks	**28**	**77.78**	**69**	**53.49**
40-41$^{0/6}$weeks	**8**	**22.22**	**60**	**46.51**
TOTAL	**36**	**100**	**129**	**100**

Characteristics between 2 groups by BMI

Higher percentage (49.61%) of women in the successful induction group belonged to 20-24.9 BMI range, whereas 72.22% of women who had failed induction belonged to 25-29.9 BMI category (Table 15).

Table 15: Characteristics of failed (group A) and successful induction (group B) based on BMI.

	Failed induction		Successful Induction	
BMI	**NUMBER**	**PERCENTAGE**	**NUMBER**	**PERCENTAGE**
<20	**0**	**0**	**1**	**0.78**
20-24.9	**4**	**11.11**	**64**	**49.61**
25-29.9	**26**	**72.22**	**59**	**45.74**
30-35	**6**	**16.67**	**5**	**3.88**
TOTAL	**36**	**100**	**129**	**100.00**

Characteristics between 2 groups by Pre – Induction Modified Bishop Score

Most of the successfully induced women had a preinduction modified Bishop score of 4 (27.03%) and women was had failed induction had pre-induction of Bishop score of 1 (40.63%) (Table 16).

Table 16: Characteristics of failed (group A) and successful induction (group B) based on pre-induction modified Bishop score.

Pre induction modified Bishop score	Failed induction	Successful Induction
1	**13(40.63%)**	**12(10.81%)**
2	**11(34.38%)**	**22(19.8%)**
3	**4(12.5%)**	**24(21.62%)**
4	**4(12.5%)**	30(27.03%)
5	**0**	**23(20.72%)**

Characteristics between 2 groups by method of induction

Larger percentage of group A (80.56%) and group B (52.71%) underwent both PGE1 plus PGE2 mode of induction, whereas PGE1 mode of induction was adopted in 19.44% (7 cases) of group A and 24.03% (31 cases) in group B patients. PGE2 was adopted in none of the group A cases and in 23.26% (30 cases) of group B (Table 17).

Table 17: Characteristics of failed (group A) and successful induction (group B) based on mode of induction.

Method of induction	Failed induction	Successful Induction
PGE1	7(19.44%)	31(24.03%)
PGE1+PGE2	29(80.56%)	68(52.71%)
PGE2	0	30(23.26%)

Characteristics between 2 groups by birth weight.

In both the group larger percentage of birthweights were between 2.5-2.9kg, successful induction group(47.29%) and failed induction group(52.78%).(Table-18).

Table 18: Characteristics of failed induction group(Group-A) and successful induction group(Group-B) based on birth weights.

Birth weight(kg)	Successful induction	Failed induction
1-1.49	0(0%)	1(2.78%)
1.5-1.9	3(2.33%)	2(5.56%)
2-2.4	16(12.40%)	0(0%)
2.5-2.9	61(47.29%)	**19(52.78%)**
3-3.4	37(28.68%)	10(27.78%)
3.5-3.9	10(7.75%)	3(8.33%)
4-4.5	2(1.55%)	1(2.78%)

Characteristics between 2 groups by APGAR scores at 1 minute and 5 minutes:

In both the group larger percentage of babies were with APGAR score 6 at 1 minute of birth (Table-19) and APGAR score 8 at 5 minutes of birth(Table – 20) respectively.

Table 19: Characteristics of failed induction group (Group-A) and successful induction group(Group-B) based on APGAR scores.

APGAR at 1 minute	Successful induction	Failed induction
5	6(4.6%)	2(5.5%)
6	74(57.36%)	22(61.11%)
7	43(33.33%)	10(27.77%)
8	4(3.1%)	2(5.5%)

Table 20: Characteristics of failed induction group(Group-A) and successful induction group(Group-B) based on APGAR scores.

APGAR at 5 minutes	Successful induction	Failed induction
7	26(20.1%)	10(27.7%)
8	78(60.4%)	20(55.55%)
9	27(20.9%)	6(16.66%)

Characteristics between 2 groups by Mode of Delivery

In the successfully induced group 69.77% (90 cases) had vaginal delivery, 6.98% (9 cases) had operative vaginal delivery (Ventouse). Failed inductions resulted in 100% Caesarean delivery and in 23.26% (30 cases) of successful induction group (Table 21).

Table 21: Characteristics of failed (group A) and successful induction (group B) based on mode of delivery.

Mode of delivery	Failed Induction	Successful Induction
Vaginal delivery	0	90(69.77%)
Operativevaginal delivery(Ventouse)	0	9(6.98%)
Cesarean delivery	36(100%)	30(23.26%)

Comparison of different parameters in both the groups

Different parameters including age, gestational age, height, weight and BMI, pre induction modified bishop score, PGE1 of Group A (failed induction) and group B (successful induction) is given in Table 18. The mean age of group A was 24.69±3.73 years and group B was 23.75±3.44. The mean gestational age of group A was 38.66±1.37 weeks and that of successfully induced women was 39.42±1.29. The mean weight of both groups (A&B) was 63.56±7.0 and 59.72±5.63 respectively. Similarly, the mean height of group A and B was 152.53±3.66 and 153.91±3.88 cm respectively. The mean BMI of group A was 27.33±2.64 and group B was 25.22±2.29. The mean preinduction modified Bishop score of group A and B was 1.89±1.801 and 3.35±1.29 respectively. The mean PGE1 of failed induction group was 5.64± 1.22 and successful induction group was 2.21± 1.65.The birth weight of the infant was 2.85±0.54 in group A and 2.84±0.42 in group B pregnant women. The mean Apgar score of the infant at 1minute was 6.72 in group A and 6.7 in group B pregnant women. The mean Apgar score of the infant at 5minutes was 7.8 in group A and 8.6 in group B pregnant women.

(Table 22).

A highly significant association (P value 0.0046) between two groups was found in terms of gestational age. With respect to the BMI categorization of pregnant women included in the study, high significance was observed between group A and group B (P value < 0.001). Pre-induction modified Bishop score was found be highly significant between two groups (P value <0.001). Highly significant association between group A and group B was found in terms of method of induction of labor (P<0.001). Birth weight was not found to have significant association between two groups (P=0.5199). Agar score at 1minute and 5minutes of birth were not found to

have significant association between two groups (P=0.7021 and P=0.5568).With respect to PGE2, there is no significant difference with induction status.

Table 22: Comparison of different parameters of failed (group A) and successful induction (group B).

PARAMETER	FAILED INDUCTION	SUCCESSFUL INDUCTION	P VALUE
AGE	24.69±3.73	23.75±3.44	**0.168**^{MW}
POG	38.66±1.37	39.42±1.29	**0.0046**^{MW}
HEIGHT	152.53±3.66	153.91±3.88	**0.1051**^{MW}
WEIGHT	63.56±7.0	59.72±5.63	**0.0015**^{MW}
BMI	27.33±2.64	25.22±2.29	**< 0.001**^{MW}
PRE –INDUCTION BISHOP SCORE	1.89±1.01	3.35±1.29	**<0.001**^{MW}
PGE1	5.64±1.22	2.21±1.65	**<0.001**
PGE2	2.17 ± 1.34	1.78 ± 1.16	0.0697^{MW}
BIRTH WEIGHT	**2.85±0.54**	**2.84±0.42**	**0.5199**
APGAR SCORE AT 1MIN	6.72	**6.7**	**0.7021**
APGAR SCORE AT 5MIN	7.8	8.6	**0.5568**

From logistic regression, we observe that, Weight, Pre induction modified Bishop score have significant effect on failed induction. With unit increase in weight, the odds of failed induction increase by 1.21. With unit increase in Pre induction modified Bishop score, the odds of failed induction decrease by 0.39. With unit increase in PGE1, the odds of failed induction increase by 4.56(Table-23).

Tabe-23: Logistic Regression to Find the Risk Factors of Failed Induction

Parameter	Estimate	P value	Odds Ratio(95% CI)
INTERCEPT	**-14.9289**	**0.2013**	**-**
Gestational Age	**-0.0435**	**0.8794**	**0.96(0.54 -1.69)**
Weight	**0.1946**	**0.0290**	**1.2(1.03-1.48)**
BMI	**-0.0242**	**0.8461**	**0.98(0.68-1.19)**
Pre induction Modified Bishop score	**-0.9535**	**0.0061**	**0.39(0.18-0.72)**
PGE1	**1.5169**	**<0.001**	**4.56(2.77-8.89)**

DISCUSSION

Induction of labour involves nearly 20% of all deliveries, of which it is nearly associated with two-fold increased risk for caesarean delivery compared to spontaneous labour. Since 1985, the International health community has considered the ideal rate for caesarean section to be between 10% and 15%. In our study, the induction rate was 15.5%. Of the total induced 264 deliveries that were enrolled in the study, the incidence of vaginal and caesarean deliveries were 39% and 69% respectively. Different indications for Caesarean section include failed induction, foetal distress, Meconium-stained liquor, CPD, Non-progress of labor, Anamnios, DTA and prolonged PROM. The three major indicators of Caesarean section include foetal distress (36.64%), failed induction (22.36%) and meconium-stained liquor (21.73%). In a Cohort study including 13,753 deliveries, the rate of induction was 19.4%, Of which 29.4% had cesarean delivery. Non re-assuring fetal heart rate was the most common indication for cesarean section accounting to 36.4%.

Maternal factors including BMI, age, parity and cervical assessment are important predictors for labor induction. In a Swedish study involving 1,176,131 births, increased BMI (12.42% for BMI≥30.0 compared to 8.40% for BMI: 20.0-24.9) and increased maternal age (10.36% for age≥35 compared to 7.80% for 20-24 age group) enhanced probabilities for caesarean section followed by labor induction. Similarly nulliparous women (31.76%) were disposed to caesarean section followed by labor induction compared to parous women (10.49%)[84]. A retrospective cohort study conducted at United States of America with 14,409 women (gestation: 36 - 42 weeks) observed that labor induction was linked with 1.70 fold increase risk of cesarean delivery in primiparous women and a 1.49-fold risk in multiparous[85].

In our study, incidence of failed induction of labor was found to be 13.6%."This is lesser than the studies done in Nigeria (24.1%), WHO survey in African and Asian countries (20%), southwest Ethiopia (21.4%), and Israel (21.6%)[20,108,109,110], 19.4%[24], 59.3%[101], 37%[14], 44%[103], 29.9%[94], 35.2%[111].This detection is more than some studies done in Italy (8.6%)[105], Boston (2%)[111].This difference might be due to certain factors like different criteria used to diagnose failed induction of labour, Indications for labour induction, Parity and method of induction. In our study, the criteria used to define failed induction of labour was "Failure to achieve active phase of labour (4cms of cervical dilatation) after completion of induction protocol", compared to criteria defined in other studies. Oxytocin infusion, ARM were commonly used methods in the other studies, while in our study, Misoprostol or Dinoprostone gel or in combination of both were used in common practice.

In this study, there was a significant association between gestational age, weight, BMI and preinduction Bishop Score with the induction status was observed.

The current study exhibited that, there was no significant correlation noted between maternal age and induction status.In a randomized trial of induction of labor in 619 women aged35 years or above, no notable differences in the rate of cesarean section was observed. Similarly, no maternal or infant mortality/morbidity or adverse neonatal or maternal outcomes was observed[112]. But some studied associate the risk of perinatal mortality, multiple complications in > 35 years older women which can be reduced by inducing the patients before the due date. Still birth has been found to be higher in women with advanced age compared to younger women. Thus induction of labor at pre-due date has the ability to prevent still births[46]. Increased rates of induction are observed with increase in age where it is 39% in 40-44 year old women

and 58% in women ≥ 45 years old. In contrary, there are several studies showed that maternal age more than 30 years is correlated with higher rate of cesarean section. Mothers with age more than 30 years were found to be at risk for failed induction of labor.

Gestational age was found to have negative correlation with the failed induction. Timing of labor induction is very crucial, where early induction leads to its failure and delayed induction increases fetal and maternal morbidity (Roos et al., 2010). Pregnancies beyond 41 weeks are linked with unfavourable results, therefore WHO recommends labor induction in women with 41weeks of gestation. In a cohort study with 248 nulliparous women, gestational age was found to significant negative correlation with the failed induction of labour ($P<0.03$)[24]. This finding is similar to some other studies[24,93,94,95].In contrary to this,a study done in Ethopia showed that the odds of failed induction was 6.57 times more probable in women with advanced gestation than others. This finding is similar with the study conducted in Aga-Khan university Hospital[25,113]

This study also showed significant positive correlation of weight and BMI with the induction status. From logistic regression, we observe that, with unit increase in weight, the odds of failed induction increase by 1.21.This was supported by many reports including a systematic review and meta-analysis of 10 different observational studies. Ellis et al.,[114] observed that Caesarean section following induction of labor was common among obese women compared to normal weight women. It has been reported that more than 50% women who gave birth were obese (24.8%) or overweight (25.6%) as per BMI classification[115]. Additionally pregnancy related problems such as and diabetes and gestational hypertension, still birth and fetal macrosomia were associated in obese women going through the induction of labor[116].

Unsuccessful or failed induction of labor in pregnant women was associated with higher BMI, was observed in cohort study involving 80,887 cases where a BMI of 40 kg/m^2 had a higher (29%) risk of failed labor induction in comparison to normal weight women (13% risk)[117].

Teefey et al.,[118] observed that nulliparity (55%), BMI of 40-49.9 (81.8%), BMI of 50-59.9 (14.5%) and BMI of more than 60 (3.7%) were included in the study with an overall Caesarean section rate of 49.1%. Increase in BMI is associated with increased Caesarean delivery, where BMI of 40-49.9, 50-59.9 and ≥60 had a Caesarean delivery of 46%, 63% and 69% respectively.

The current study revealed that, there was no significant correlation noted between maternal height and the induction status. This detection is in parallel with the study conducted in a cohort of 400 women in Austraila[28]. Some studies showed significant association,A retrospective cohort study involving 785 nulliparous (singleton, term, cephalic) pregnancies observed that the risk factors associated with failed induction of labor include shorter maternal height[89,94].

Pre induction modified Bishop score had significant effect on failed induction. Poor Bishop's score is associated with increased risk of failed induction. With unit increase in Pre induction modified Bishop score, the odds of failed induction decreased by a factor of 0.39. This finding is comparable with the studies[91,89,24,98,94]. In a study conducted in Boston including 4,123 nulliparous women, Cervical dilatation in centimeters at the admission was found to be a risk factor for failed induction of labour[49].

Bishop's score determines the method of induction of labour. PGE1 (Misoprostol) and PGE2 (Dinoprostone gel) are clinically applied for induction of labor. Our study revealed that, with increased PGE1 resulted in increase in the odds of

failed induction by a factor of 4.56.Increased odds of cesarean delivery was observed with oral misoprostol (41%) compared to vaginal misoprostol (28%) among nulliparous women[42]. Prostaglandin was linked with higher relative risk in cesarean deliveries for non-reassuring fetal status in an unadjusted analysis of data, whereas propensity score analysis showed no relationship between prostaglandin usage and cesarean for non-reassuring fetal status[43]. Lower cesarean section (22%), shorter time between drug administration to the beginning of labor, average time from administration to delivery, reduced need for oxytocin were better in the misoprostol insert group compared to dinoprostone insert group[44].

Birth weight was not significantly associated with induction status in our study. In the prior literature review, Birth weight is also considered as sole risk factor for failed induction of labor and increased risk for cesarean delivery[26].

A meta-analysis found significantly higher rates of CS due to fetal heart rate abnormalities and lower Apgar scores in women with oligohydramnios, but no differences in fetal acidosis[10]. However, this analysis included high-risk and preterm pregnancies. None of the few retrospective studies of isolated oligohydramnios at term reported differences in Apgar score, neonatal intensive care unit admissions, neonatal acidosis, or perinatal death from normal pregnancies with induction of labor[(11,12)].

The strengths of the study are, it is a prospective study done only in primiparous women. The sample size is sufficient enough to verify the predictors of failed induction. The other sonographic parameters were not studied as predictors in relation to IOL. However further studies are necessary, comparing the clinical and the sonographic predictors in women undergoing labour induction. The study is limited to

the women who met inclusion criteria for our study and may not be generalizable to women who do not fit into these criteria.

CONCLUSION

The prospective observational study involving women (pregnancy, nulliparity, gestational age ≥37, cephalic presentation and live fetus) undergoing induction of labor through the administration of Dinoprostone gel or Misoprostol. They were divided into a failed induction and successful induction group based on the outcome of the induction protocol. The primary outcome was to determine the risk factors associated with failed induction of labour.

Comparison of multiple parameters observed that age, height and birth weight were non-significant factors compared with induction status. Significant association between gestational age, weight, BMI, preinduction modified Bishop Score and the outcome of the induction status was observed. Weight, Pre induction modified Bishop score had a profound effect on failed induction. These risk factors are to be monitored carefully for successful inductions and discussions with the patient and families can increase the patient satisfaction, reduce maternal and neonatal morbidity.

Incidence of failed induction of labour was 13.6%.

SUMMARY

The observational study involving a total of 264 pregnant women observed that a large category of women belonged to 20-25 years (61.74%) old followed by women in 26-30 years (27.27%) category. The gestational age of the women revealed that 31.4% were in 40 – $40^{0/6}$weeks, 20.8% in 38 – $38^{0/6}$weeks and 19.7% in 37-$37^{0/6}$weeks. In the 39-$39^{0/6}$weeks and 41 – $41^{0/6}$weeks, 17.8% and 10.2% women were observed respectively. They were distributed in four BMI groups namely <20, 20-24.9, 25-29.9, 30-35 categories. A total of 145 cases (54.92%) were in the 25-29.9 BMI category and 37.88% (100 cases) in 20-24.9 BMI category. Based on the preinduction Bishop score 25.38% (67 cases) were with Bishop score 2, 57 cases (21.59%) in Bishop score 1. Among the Bishop scores 3-5, a range of 14.77% to 19.7% cases were observed. Prior Vaginal delivery (35.23%), operative vaginal delivery (Ventouse) (3.79%) or Caesarean delivery (60.98%) was also observed. The outcome of induction of labour was judged where successful induction was observed in 48.86% of cases and failed induction in 13.63% of cases. Caesarean delivery with predetermined induction status was observed in 99 cases.

Eleven factors that indicate inductions include post-datism, FGR, PROM, decreased fetal movements, oligohydramnios, gestational hypertension, gestational diabetes mellitus, Rh negative, Fetal macrosomia, mild and severe PE. Post-datism (22.72%), PROM (17.04%), gestational hypertension (12.5%) and FGR (12.5%) are the major indicators of the induction of labor. Similarly, the indications for Caesarean section include failed induction, foetal distress, Meconium stained liquor, CPD, non-progress of labor, anamnios, DTA and prolonged PROM. The three major indicators of Caesarean section include foetal distress (36.64%), failed induction (22.36%) and meconium-stained liquor (21.73%).

In an effort to compare the characteristics between failed inductions (group A) and successful indications (group B) multiple parameters were included in the study. Higher percentage of pregnant women belong to the age group of 20-25 years, were less than 40 weeks of gestational age in both group A and B. Higher percentage of women in the successful induction group belonged to 20-24.9 BMI range, whereas 72.22% of women who had failed induction belonged to 25-29.9 BMI category. Based on the Bishop score successfully induced women had a preinduction Bishop score of 4 (27.03%) and women was had failures of induction had pre-induction of Bishop score of 1 (40.63%).

Larger percentage of group A (80.56%) and group B (52.71%) underwent both PGE1 plus PGE2 mode of induction, whereas PGE1 mode of induction was adopted in 19.44% (7 cases) of group A and 24.03% (31 cases) in group B patients. PGE2 was adopted in none of the group A cases and in 23.26% (30 cases) of group B. In the successfully induced group 69.77% (90 cases) had vaginal delivery, 6.98% (9 cases) had operative vaginal delivery (Ventouse). Failed inductions resulted in 100% Caesarean delivery and in 23.26% (30 cases) of successful inductions.

Comparison of multiple parameters revealed non significant association between age, height and birth weight with induction status, whereas a significant association between gestational age, weight, BMI and preinduction Bishop Score was observed. From Mann Whitney U test, we observed that, there is no remarkable difference in the distribution of maternal age, height with induction status. There is significant difference in the distribution of period of gestation, weight and BMI with induction status. From both Mann Whitney U test and Chi square test, we observed that, there is significant difference in distribution of pre induction BISHOP score with

Induction status and significant association of method of induction with induction status.

From logistic regression, we observe that, Weight, Pre induction BISHOP score have significant effect on failed induction. With unit increase in weight, the odds of failed induction increase by 1.21. With unit increase in Pre induction BISHOP score, the odds of failed induction decrease by 0.39. With unit increase in PGE1, the odds of failed induction increase by 4.56.

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ANNEXURE I: ETHICAL CLEARANCE

K.L.E. ACADEMY OF HIGHER EDUCATION AND RESEARCH
(Deemed – to- be- University)
Accredited 'A' Grade by NAAC (2nd Cycle) Placed in Category 'A' by MHRD (GoI)
JAWAHARLAL NEHRU MEDICAL COLLEGE,
NEHRU NAGAR, BELAGAVI-590010 (KARNATAKA-INDIA)
Website: http//www.jnmc.edu
E-Mail : dome@jnmc.edu
Phone: (+ 91-(0)831 Office : 2472550
Principal: 2471701
Fax No. +91 (0)831 – 2470759

Ref: MDC/DOME/ 191 **Date: 24/12/2019**

To,

REG NO.B J 0 1 1 9 0 0 3
PG student in Obstetrics and Gynecology,
J.N.Medical College,
BELAGAVI.

Sub: Institutional Ethical Clearance for the study.

With reference to the above, we wish to inform you that your proposed research project titled **"A ONE YEAR CROSS SECTIONAL STUDY OF FACTORS RESPONSIBLE FOR FAILURE OF INDUCTION OF LABOR IN TERM NULLIPAROUS WOMEN",** is ethical and justifiable. The proposed research project has been cleared by the JNMC Institutional Ethics Committee on Human Subjects Research.

(Dr. Anita Dalal)
Member Secretary
JNMC Institutional Ethics Committee
on Human Subjects Research,
J.N.Medical College, Belagavi.

(Dr. Roopa M Bellad)
Chairman,
JNMC Institutional Ethics Committee
on Human Subjects Research,
J.N.Medical College, Belagavi.

4

ANNEXURE II – INFORMED CONSENT FORM.

Mrs._____ we are requesting you to enrol yourself in study titled "Risk factors for failed induction of labour in term nulliparous women" conducted by **REG NO.BJ0119003,** Post Graduate in M.S. Obstetrics and Gynaecology Under the guidance of DR. _____, Department of Obstetrics and Gynaecology, J.N. Medical College, Belgaum under KAHER, Belagavi.

Objectives/purpose of study:

Respected Madam we request you to participate in our study as you are eligible for participating and your participation in this study is important as it helps us to study the risk factors for failure of induction of labour, which is the one of the common indication for ceserean section.

Your participation in research is voluntary. Your decision whether to participate in the study or not will not change present or future health care services offered to you and will not affect your relationship with J.N. Medical College. If you decide to participate you are free to withdraw at any time. All pregnant women meeting the inclusion criteria will be recruited in our study.

The purpose of research study is to know the risk factors responsible for failure of induction of labour. I will be the investigator for our study. This study is not being funded.

Procedure Involved:

If you agree to enrol yourself in my study, you will be interviewed regarding your present, past and family history, then you will be clinically examined in detail and investigated which may or may not cause pain. The procedures don't cause any temporary or lasting

problems to you. Your co-operation is necessary as the investigation may be repeated number of times as required.

Risk and Benefits:

There are no potential risks and discomforts associated with any procedure involved in our study. The benefits of taking part in this research is your participation being valuable contribution to medical research to improvise treatment currently practiced.

Alternative:

There are no other options of treatment. If you decline to participate it will affect the results of our study and you will get the routine line of management. You will be informed about any new information that may affect your decision to participate in the study.

Withdrawal from study:

You can withdraw at any time from the study. There will be no penalty for withdrawal. You can be removed from the study if necessary.

Privacy and Confidentiality:

The only people who will know that you are the research subject will be the members of the research team. No information about you or information provided by you during the research will be disclosed to others without your written permission except:

1.In emergency to protect your rights and welfare.

2.If required by law.

Institutional/sponsor's policy:

In the event of any injury related to the study, treatment will be made available through KLE's Hospital & MRC, Belgaum. There is no compensation or payment for such medical treatment by law. If you are injured you may contact **REG NO.BJ0119003,** Post graduate student, Department of Obstetrics and Gynaecology, KLE's Hospital & MRC or by Ph.No:_____.

Financial incentives for participation:

No financial incentives are being offered to enrolled patients. It is purely being done with the idea of research and all the cost of the study will be borne by the investigator. You will not be reimbursed for any expenses for participation in this research.

Contact details:

In case you have any questions related to the study, in future or in case of study related injury or illness, you can contact **REG NO.BJ0119003**, Post graduate student, Department of Obstetrics and Gynaecology, KLE's Hospital and MRC, Ph.No:_____ or DR. _____, and of the Department , Dept. Of Obstetrics and Gynaecology, KLE's Hospital and MRC, Belagavi, Ph.No:_____.

If you have any queries about your rights as a study participant, you may contact

DR. ROOPA M BELLAD, Prof. of Pediatrics as Chairman of J.N.Medical College Institutional Ethics Committee on Human Subjects Research,PhoneNo.08312473777 ext-1527 at J.N.Medical College, Belgaum.

Authorization to Publish Results:

When the results of the research are published or discussed, in a conference, no information will be displayed that would disclose your identity. Any information that is obtained in connection with this study and that can be identified with you will remain confidential .Results of the study will be used to decrease the rate of caesarean section by indentifying the risk factors of failure of induction of labour

Consent Statement:

I,_____voluntarily agree for participating in this study. By signing this consent form I am not giving up any of my legal rights, I may withdraw from the study anytime. I am signing the consent form after having read or been read form in my own vernacular language, including the risks and the benefits and having all my questions answered.

Participant Name: _____

Signature or the Left Thumb Print of Participant: _____

Investigators Name:_____ Signature:_____

Witness Name: _____ Signature:_____

Date:¬_____

ANNEXURE III - SCREENING FORM.

- **SCREENING FORM**

  - Screening number: | | | | | |
  - Date of screening: _____
  - First name: _____
  - Middle name: _____
  - Last name: _____
  - Husband's name: _____
  - Age (years): _____
  - IP number: _____
  - Address: H.no-_____
  - Phone number-_____

Registered	
Unregistered	

- Screening criteria:

Included:	
Excluded:	

ANNEXURE IV– PROFORMA.

- **OBSTETRIC HISTORY:**

- SCORE:

- **MENSTRUAL HISTORY:**

LMP	
EDD	
C.EDD	
POG	

- **GENERAL PHYSICAL EXAMINATION:**

HEIGHT	
WEIGHT	
BMI	

- **SYSTEMIC EXAMINATION:**

UTERINE HEIGHT	
PRESENTATION	
UTERINE ACTIVITY	
FHR	
EFW	

INVESTIGATIONS :

Blood group:

Haemoglobin:

- INDICATIONS FOR LABOUR INDUCTION:
  - Post-datisim
  - FGR.
  - PROM
  - Oligohydramnios
  - Foetal macrosomia
  - Polyhydramnios
  - Rh negative pregnancy
  - Decreased foetal movements.
  - PIH.
  - GDM.
  - Others.

- Pre – Induction Bishop score:

- MODE OF LABOUR INDUCTION:
  - Dinoprostone gel. ☐
  - Misoprostol ☐

- **MODE OF DELIVERY:**

Vaginal delivery	
Operative Vaginal delivery	
Caesarean delivery	

- Blood loss

- INDICATIONS FOR CESAREAN SECTION:
  - Failed induction
  - Foetal distress
  - Non progress of labour
  - Meconium stained liquor
  - Others

➢ **MATERNAL OUTCOMES:**

- No complication
- Uterine hyperstimulation
- Tachysystole
- Uterine rupture
- Caesarean section
- Operative vaginal delivery
- Perineal tears.
- Shock
- PPH

- **Foetal outcome :**
  - Birth weight.
  - APGFAR.

ANNEXURE VI - KEY TO MASTER CHART.

INDICATIONS FOR INDUCTION

1. POST-DATISM.
2. FOETAL GROWTH RESTRICTION.
3. PROM
4. DECREASED FOETAL MOVEMENTS.
5. OLIGOAMNIOUS
6. PREGNANCY INDUCED HYPERTENSION.
7. GESTATION DIABETES MELLITUS.
8. RH NEGATIVE PREGNANCY.
9. POLYHYDRAMNIOUS
10. FOETAL MACROSOMIA.

METHOD OF INDUCTION

1. PGE1+PGE2
2. PGE2
3. PGE1

MODE OF DELIVERY

1. VAGINAL DELIVERY
2. OPERATIVE VAGINAL DELIVERY
3. CESAREAN DELIVERY

INDICATIONS FOR CESAREAN SECTION

1. FOETAL DISTRESS.
2. FAILED INDUCTION.

3. MECONIUM-STAINED LIQUOR.
4. NON-PROGRESS OF LABOUR.
5. OBSTRUCTED LABOUR.
6. CEPHALO PELVIC DISPROPORTION.

MATERNAL OUTCOME

1. NO COMPLICATION.
2. UTERINE HYPERSTIMULATION.
3. TACHYSYSTOLE.
4. UTERINE RUPTURE.
5. CESAREAN SECTION.
6. OPERATIVE VAGINAL DELIVERY.
7. PERINEAL TEARS.
8. PPH.
9. SHOCK.

SEX OF THE NEWBORN

1. FEMALE.
2. MALE

S.NO	AGE	GRAVIDITY	POG	HEIGHT	WEIGHT	BMI	INDICATION OF INDUCTION	PRE-INDUCTION BISHOP SCORE	METHOD OF INDUCTION	PGE1	PGE2	MODE OF DELIVERY	INDICATION FOR CASEAREAN SECTION	OUTCOME OF INDUCTION	MATERNAL OUTCOME	SEX	BIRTH WEIGHT	APGAR AT 1MIN	APGAR AT 5 MIN
1	20	1	39.57	150	57	25.3	8	2	3	6	0	3	2	2	5	1	2.8	7	9
2	32	1	38.14	148	59	29.5	4	2	1	6	1	3	2	2	5	1	2.7	6	9
3	25	1	37.28	155	63	26.2	7	1	1	6	3	3	2	2	5	1	2.8	5	9
4	21	1	39.28	157	77	31.3	6	1	1	6	3	3	2	2	5	1	2.7	6	8
5	26	1	37.57	152	66	28.5	6	4	1	6	3	3	2	2	5	2	3.3	7	9
6	36	1	37	158	83	33.3	2,6	1	1	6	2	3	2	2	5	1	1.56	7	9
7	22	1	39.57	146	57	26.7	7,10	1	1	6	2	3	2	2	5	1	3.5	8	9
8	30	1	40.14	156	74	30.4	1	4	1	6	1	3	2	2	5	1	3.2	5	8
9	25	1	40.14	152	66	28.5	1	4	1	3	3	3	1	3	5	1	2.8	6	9
10	21	1	40.85	158	64	25.7	1	4	1	2	3	3	3	3	5	2	3.8	7	9
11	19	1	40.85	147	57	26.3	1	5	1	3	2	1	0	1	1	1	3.1	7	9
12	21	1	40.57	158	64	25.7	1,5	5	1	2	2	1	0	1	1	1	3.2	6	9
13	19	1	38.71	148	57	26	4	3	1	3	2	3	1	3	5	2	3.2	5	9
14	20	1	40.57	158	62	24.8	1,10	4	1	3	2	3	3	3	5	2	3.5	7	9
15	28	2	41.57	152	60	25.9	1	2	1	4	2	3	6	1	5	1	3.5	6	9
16	24	1	39.71	154	56	23.6	6	2	1	3	2	3	4	1	5	1	3	7	9
17	20	1	41.28	156	60	24.6	1	1	1	4	2	3	3	3	5	2	3.5	8	9
18	19	1	37.71	152	56	24.24	3	3	3	4	0	3	6	1	5	2	3.2	5	9
19	30	1	38.57	150	58	25.7	6	2	2	0	2	3	1	3	5	2	3.1	6	8
20	22	1	39.28	150	65	28.8	5	1	2	0	3	3	1	3	5	1	2.9	7	9
21	23	1	39	152	57	24.6	2	3	1	2	2	1	0	1	1	2	2.5	7	9
22	23	1	39.71	161	68	27.2	4	2	1	3	3	1	0	1	1	1	3.1	7	9
23	27	1	37	150	58	26.3	6	3	1	4	2	1	0	1	1	2	2.5	7	9
24	24	1	40.42	156	56	23	3	5	3	4	0	1	0	3	1	1	2.8	7	8
25	23	1	38.14	145	50	23.8	2	1	2	4	2	1	0	1	1	1	1.9	6	9
26	22	2	39.42	157	62	25.2	5	1	1	5	2	1	0	1	1	1	3.2	5	8
27	19	1	40	150	56	24.8	5	2	1	4	1	1	0	1	1	1	3	6	9
28	22	1	37.85	158	62	24.8	8	1	1	3	3	3	1	3	5	2	3.5	7	8
29	19	1	38	158	58	23.2	2	3	1	3	2	1	0	1	1	2	2	7	9
30	26	1	37.57	155	70	29.1	10	1	1	6	3	3	2	2	5	1	3.2	6	8
31	27	1	39.71	154	60	25.3	3	4	3	6	0	3	2	2	5	2	3.1	7	9
32	21	1	41.42	148	57	26	1	3	1	6	2	3	2	2	5	2	2.9	6	8
33	24	1	37.14	146	54	2.13	2	1	1	6	3	3	2	2	5	1	1.8	7	9

34	23	1	37.28	145	64	30.4	7	1	1	6	2	3	2	2	5	1	2.9	7	9
35	20	1	37.14	150	52	23.11	2	1	1	6	2	3	2	2	5	1	1.3	6	8
36	25	1	39.85	148	58	26.4	5	2	1	6	2	3	2	2	5	2	3	7	9
37	29	1	37.85	156	66	27.1	10	2	1	6	3	3	2	2	5	2	3.1	7	9
38	23	1	39.57	153	64	27.3	4	2	1	6	3	3	2	2	5	2	2.5	6	8
39	29	1	38.28	157	73	29.6	5	2	1	6	2	3	2	2	5	2	2.6	7	9
40	24	1	38	160	66	26.6	5	2	1	6	3	2	0	1	5	2	2.4	6	8
41	26	1	40.14	158	64	25.7	3	3	3	6	0	3	2	2	5	2	3.9	7	9
42	23	1	39.37	156	63	25.9	3	4	3	6	0	3	2	2	5	1	2.7	8	9
43	25	1	38.14	156	58	23.8	3	5	3	4	0	1	0	1	1	1	3	6	9
44	20	1	40	152	57	24.6	3	4	3	4	0	2	0	1	5	1	3.1	7	9
45	21	1	40.57	150	56	24.8	3	3	3	3	0	1	0	1	1	2	3	7	9
46	23	1	38.28	150	58	25.7	3	4	3	4	0	3	6	1	5	2	3.2	7	9
47	22	1	37.85	153	60	24.8	3	4	3	3	0	1	0	1	1	2	2.6	7	9
48	24	1	40.28	154	58	24.5	3	4	3	4	0	1	0	1	1	2	2.7	7	9
49	20	1	40.42	158	62	24.8	1,6	5	1	2	2	1	0	1	1	2	3	7	9
50	23	1	40.71	154	63	26.5	4	1	1	3	2	1	0	1	1	2	2.8	6	9
51	22	1	38.28	156	56	23	4	4	1	3	2	1	0	1	1	2	2.4	7	8
52	26	1	39.71	147	57	27.1	3	3	3	5	0	3	4	1	1	2	3.7	8	9
53	29	1	40	150	56	25.4	1,6	5	1	3	2	1	0	1	1	1	2.5	7	8
54	21	1	40	148	58	27.6	10	1	1	6	3	3	2	2	1	2	4	6	8
55	21	1	38	154	58	24.4	4	3	1	4	3	1	0	1	1	2	2.2	7	9
56	20	1	38.14	152	56	24.2	10	1	1	2	3	3	1	3	5	1	3	8	9
57	23	1	40.28	150	64	29.2	4	3	1	6	3	3	2	2	5	1	2.9	7	8
58	26	1	37	156	67	27.5	6	2	1	6	3	3	2	2	5	1	2.8	7	9
59	27	1	40.57	154	62	26	1	3	1	2	2	3	1	1	5	2	2.7	6	8
60	24	1	40.71	153	63	26.9	1	3	1	3	2	1	0	1	1	1	2.6	6	9
61	24	1	37	150	62	27.5	6	2	1	3	2	3	1	3	5	1	2.9	7	8
62	23	1	41.71	147	60	27.7	3	3	3	3	0	3	1	3	5	2	2.7	7	9
63	26	1	40.85	156	67	27.5	1	3	1	3	2	2	0	1	5	2	2.8	7	8
64	22	1	38	152	64	27.7	6	1	1	3	2	3	1	3	5	2	3	6	9
65	30	1	38.57	156	56	24.4	5	1	1	3	2	3	3	3	5	2	2.7	6	8
66	21	1	40.57	160	62	22.9	1	2	1	2	2	3	3	3	5	2	2.7	7	9
67	24	1	39.14	152	54	23.4	6	5	2	0	2	1	0	1	1	2	2.8	7	8
68	21	1	38.57	148	56	25.5	6	5	1	2	3	3	3	3	5	2	2.7	7	9

69	30	2	37.14	148	62	28.3	6	2	1	6	3	3	2	2	5	2	3.2	7	8
70	24	1	41	154	64	27	1	2	1	1	6	3	2	2	5	2	2.8	7	9
71	24	1	39.14	160	60	23.4	3	5	3	3	0	1	0	1	1	1	2.3	6	8
72	27	2	37.57	147	62	29.1	3	4	3	5	0	3	4	1	5	2	2.8	6	9
73	24	1	38.14	150	63	28	3	3	3	6	0	3	2	2	5	2	2.5	7	8
74	32	2	40.85	160	62	24.2	6	2	1	1	3	3	3	3	5	1	2.8	6	9
75	32	1	40.28	150	63	28	1,5	2	1	3	3	3	3	3	5	1	3.1	7	7
76	28	1	37.57	156	60	24	2,5	2	1	3	2	1	0	1	1	2	2.2	6	9
77	24	1	41.57	160	62	24.2	1	2	1	2	3	3	3	3	5	1	2.9	7	8
78	24	1	39.42	158	60	24	3	4	3	3	0	3	1	3	5	2	2	6	9
79	23	2	40.14	152	62	26.8	5	3	1	3	3	1	0	1	1	1	3	6	8
80	21	1	37.42	158	60	24	5	2	1	2	2	1	0	1	1	2	2.9	7	9
81	23	1	37	158	62	24.8	3	5	3	4	0	1	0	1	1	2	2.5	7	8
82	22	1	41.14	156	58	23.8	1	3	2	0	2	1	0	1	1	1	3.1	8	9
83	23	2	39.57	158	60	24	2	1	1	2	3	1	0	1	1	2	2.2	5	8
84	25	1	37.57	160	58	22.7	3	4	3	3	0	1	0	1	1	1	2.9	6	9
85	21	2	37.42	158	60	24	6	2	1	5	3	1	0	1	1	2	2.4	7	8
86	20	1	40.28	145	56	26.6	2	1	1	6	3	1	0	1	1	1	2	7	9
87	25	1	38.85	152	64	27.7	3	4	3	4	0	2	0	1	6	2	2.6	6	8
88	22	1	37	156	58	23.8	3	3	3	2	0	1	0	1	1	1	2.3	7	9
89	20	1	40	158	64	24	5	1	1	2	3	1	0	1	1	1	2.6	6	8
90	24	1	39.71	154	69	29.1	3	5	3	2	0	3	6	1	5	1	3.1	6	9
91	26	1	41	154	65	27.4	1,5	3	2	0	1	3	3	3	5	2	2.9	7	9
92	26	1	38.71	158	60	24	2	2	1	5	2	1	0	1	1	1	2.5	6	8
93	21	1	41.14	160	60	23.4	10	5	2	0	1	1	0	1	1	2	4	7	9
94	27	1	38	152	58	25.1	3	5	3	1	0	1	0	1	1	2	3.1	8	9
95	27	1	40.57	156	52	21.3	1,5	2	2	0	2	1	0	1	1	1	2.9	6	9
96	20	2	38.14	150	60	26.6	3	5	3	4	0	3	1	3	5	2	2	7	9
97	20	1	40.28	158	64	25.7	4	5	1	1	1	1	0	1	1	1	2.7	8	7
98	23	1	40.85	145	56	26.6	1	2	1	1	3	3	3	3	5	2	2.5	7	9
99	23	1	38.57	156	58	23.8	3	2	3	4	0	1	0	1	1	1	2.8	6	8
100	22	1	40.28	160	58	23.4	3	4	3	4	0	1	0	1	1	2	3	6	8
101	23	1	40.28	146	57	26.7	1	3	1	3	2	3	1	3	5	1	2.9	7	8
102	24	1	39	150	60	26.6	3	5	3	3	0	1	0	1	1	1	2.8	6	9
103	21	1	41.14	162	64	24.2	1	5	2	0	2	2	0	1	6	2	2.7	6	9

104	21	1	40.85	160	68	26.5	1	5	1	2	3	1	0	1	1	1	3.3	7	9
105	25	1	40.85	148	64	32	2	1	4	3	2	3	1	1	5	2	3.3	7	9
106	23	1	40	150	62	27.5	3	3	3	1	0	3	1	3	5	1	2.5	7	9
107	23	1	41.14	145	58	27.6	1	2	1	2	3	3	3	3	5	2	2.5	7	9
108	23	1	41.57	158	60	24	1	3	1	2	2	1	0	1	1	2	2.8	7	8
109	21	1	40.14	158	57	22.8	1	4	1	2	4	1	0	1	1	2	3.1	6	8
110	26	1	39.85	153	64	27.3	7	4	1	2	4	1	0	1	5	1	2.9	7	9
111	23	2	38.14	147	54	25	3	5	3	3	0	1	0	1	1	1	2.7	8	8
112	23	1	39.71	148	62	29.5	5	2	1	3	2	3	1	3	5	2	2.9	6	8
113	20	1	39.85	157	63	25.6	1	3	1	4	2	3	3	3	5	1	2.9	7	9
114	26	1	41	160	58	23.4	1	4	1	2	3	1	0	1	7	2	4	7	9
115	24	1	38.14	146	54	25.3	2	5	3	2	0	1	0	1	1	1	2.9	7	9
116	24	1	40.42	157	63	25.6	3	4	3	5	0	3	6	1	5	2	3	6	8
117	21	1	37.42	146	58	27.3	3	5	3	4	0	3	1	3	5	2	2.6	8	9
118	23	1	40.57	152	58	25.1	1	2	1	2	3	3	1	3	5	1	3.1	8	9
119	22	1	40.28	147	64	29.6	6	4	1	4	3	3	4	1	5	2	2.8	7	9
120	25	2	37.57	158	64	25.7	2	4	3	1	0	1	0	1	1	1	1.9	6	8
121	31	1	39	152	62	26.8	6	3	1	5	2	2	0	1	6	1	2.6	6	8
122	29	1	40.71	160	69	26.9	1	5	1	1	2	1	0	1	1	1	3.2	7	8
123	22	1	40.57	154	72	30.3	1	1	1	6	3	3	2	2	5	1	2.9	6	8
124	21	2	40	154	54	22.7	6	5	2	0	2	2	0	1	6	2	3.5	6	9
125	23	1	39.28	153	52	22.2	2	4	2	0	3	1	0	1	1	2	2.4	7	8
126	20	1	40.85	156	62	25.5	1	4	1	2	3	3	3	1	3	2	2.8	8	8
127	30	1	37.42	154	61	25.7	5	1	1	6	3	3	2	2	5	1	2.8	6	9
128	21	1	40.57	160	69	26.9	3	4	3	4	0	1	0	1	1	2	2.8	6	8
129	29	1	40.71	158	79	31.7	1	1	2	0	1	3	1	3	5	1	3.5	7	9
130	22	1	40.28	152	57	24.6	3	2	3	2	0	3	6	3	5	1	2.8	7	7
131	24	1	40.85	154	74	31.2	1	1	2	0	3	3	6	1	5	1	3.2	7	8
132	20	1	41.28	150	51	23	5	1	2	0	1	3	1	3	5	1	2.2	6	9
133	20	1	37.57	153	57	24.6	6	1	3	6	0	3	2	2	5	1	3	8	9
134	23	1	39.28	154	60	25.3	4	5	1	2	2	3	6	1	5	1	3.6	6	9
135	25	1	37	158	58	27.6	2	2	1	2	3	3	4	3	5	2	2	7	9
136	24	1	37	153	61	26	2	1	1	3	3	3	1	3	5	1	2.1	5	9
137	29	2	39	150	58	25.7	6	4	2	0	1	1	0	1	1	2	3.5	7	9
138	23	2	37.71	153	65	27.7	2	1	2	0	3	3	3	3	5	1	2.2	6	9

139	22	1	41	154	66	27.8	1	1	1	2	3	3	2	2	5	2	3.5	7	9
140	36	1	39	154	68	28.6	7	1	2	0	3	3	4	3	5	2	3	7	9
141	28	2	37	152	64	27.7	6	4	2	0	1	1	0	1	1	2	2.7	7	9
142	20	2	37	150	50	21.6	3	5	3	4	0	1	0	1	1	2	2.7	7	9
143	20	2	39.28	152	57	24.6	6	2	1	2	3	3	1	1	5	1	2.5	7	8
144	27	1	39	153	55	23.5	2	4	2	0	2	1	0	1	9	1	2.5	6	8
145	35	1	37	156	58	23.8	3	4	3	3	0	3	1	1	5	1	2.5	6	9
146	22	1	40.71	156	60	24.6	1	4	2	0	2	1	0	1	9	1	3.5	6	9
147	25	1	39.28	152	54	27.7	4	2	2	0	3	3	1	3	5	2	2.9	7	8
148	20	1	40.42	158	69	27.7	5	4	2	0	3	1	0	1	1	1	3.5	8	9
149	27	1	40.57	154	61	25.7	1	1	1	2	3	3	4	3	5	1	3	7	8
150	27	2	41.42	144	54	25.5	1	2	2	0	1	3	1	3	5	1	2.9	7	7
151	20	1	39.85	156	68	27.9	6	2	1	2	3	3	3	3	5	1	2.6	7	9
152	29	1	40.85	160	70	27.3	1	2	1	4	3	1	0	1	1	2	3.1	7	9
153	23	1	40.71	153	64	27.3	6	4	2	0	3	3	3	3	5	2	2.8	6	8
154	27	1	40	154	67	28.2	6	1	2	0	3	3	1	3	5	1	2.6	5	7
155	20	1	40.42	152	52	22.5	5	4	2	0	2	1	0	1	7	1	2.7	6	8
156	22	1	41.85	154	56	23.6	1	5	2	0	1	3	1	1	5	1	2.8	6	9
157	24	1	38.57	154	50	23.4	2	2	2	0	3	1	0	1	1	2	3.4	6	9
158	24	1	39.57	154	58	25.4	3	2	3	6	0	3	2	2	5	2	3.1	7	9
159	24	1	40.28	148	62	28.3	1	5	2	0	2	3	1	3	5	2	3	7	9
160	22	1	40.57	150	52	23.1	5	3	3	4	0	3	1	1	5	2	2.4	7	9
161	26	1	40.42	153	72	30.7	6	5	1	1	3	3	1	3	5	2	2.7	8	9
162	28	1	41	155	75	31	1	2	2	0	3	3	1	3	5,9	1	3.4	8	9
163	20	1	37.28	156	66	27.1	3	3	3	5	0	3	4	3	5	1	2.3	8	9
164	20	1	38.57	150	62	25.2	6	4	2	0	1	3	1	3	5	2	2.6	6	8
165	22	1	40.14	154	60	25.3	6	2	1	1	3	1	0	1	1	1	2.9	7	9
166	25	1	38.85	154	46	19.4	2	4	3	1	0	1	0	1	1	1	2.5	6	9
167	26	1	38.42	155	72	30	3	4	3	5	0	3	1	3	5	2	2.7	7	9
168	27	1	40.14	152	56	24.2	1	4	2	0	2	1	0	1	1	1	2.7	7	9
169	30	1	38.14	156	58	23.8	6	4	2	0	3	3	4	1	5	2	3	7	9
170	32	2	40.57	158	62	24.8	10	2	1	1	2	3	3	3	5	2	2.5	6	8
171	20	1	37.14	152	70	30.4	2	1	2	0	1	3	1	3	5	2	1.35	6	8
172	26	1	39.19	152	73	32	7	2	1	6	2	3	2	2	5	1	2.5	7	9
173	38	2	40.57	148	60	27	1	3	1	1	3	1	0	1	1,9	1	2.7	7	9

174	28	2	38.28	156	62	25.5	6	2	2	0	3	3	3	3	5	1	2.5	7	9
175	34	1	39.42	153	64	27.3	4	1	2	0	3	3	3	3	5	2	3.3	6	8
176	20	2	38.71	152	58	25.1	4	4	1	1	1	1	0	1	1	2	3.4	7	9
177	30	1	39.42	150	48	25.7	1	2	1	5	2	3	1	3	5	1	3.1	8	9
178	22	2	38.57	162	63	24	6	2	1	1	1	1	0	1	1	1	2.6	7	9
179	23	1	37.85	152	66	28.9	6	2	2	0	3	3	6	3	5	1	4	7	9
180	23	1	38.57	150	60	26.6	7	5	1	2	3	2	0	1	6	2	2.8	7	9
181	22	1	39	152	66	28.9	8	3	1	5	3	3	3	1	5	1	3.1	7	9
182	23	2	38.85	149	50	22.5	4	3	2	0	3	3	3	3	5	2	3	8	9
183	26	1	41	160	82	32	1	2	2	0	1	1	0	1	1	1	3.4	7	9
184	21	1	40.85	150	56	24.8	1	3	1	1	3	1	0	1	1	1	2.6	7	9
185	24	1	39.57	156	58	23.6	6	4	2	0	2	3	6	3	5	1	3.5	7	9
186	23	1	40.71	152	62	26.8	5	4	1	2	2	1	0	1	1	2	2.5	7	9
187	25	1	38.71	156	70	28.8	6	3	2	0	3	2	0	1	6	2	2.7	7	8
188	20	2	41.71	156	64	25.7	1	4	1	4	3	3	6	3	5,9	2	3.8	7	8
189	20	1	41	152	62	26.8	1	1	2	0	2	3	1	3	5	2	2.4	7	9
190	26	2	40.14	154	66	27.8	6	5	1	3	3	3	6	3	5	1	3	7	9
191	20	1	38.57	150	65	28.8	6	5	2	0	3	3	6	1	5	1	3.5	7	9
192	22	1	40.85	158	60	24	1	5	2	0	2	1	0	1	1	1	2.7	7	8
193	25	1	38	156	64	24.7	6	1	1	4	3	3	3	3	5	2	3.2	8	8
194	24	1	39.85	148	62	28.3	5	3	1	1	3	3	3	3	5	2	2.7	7	8
195	24	1	39.71	153	65	25.6	6	2	2	0	2	1	0	1	1	2	2.8	7	9
196	26	1	40.14	154	64	27	6	4	1	2	3	1	0	1	1	1	2.5	7	9
197	21	1	40.14	150	62	27.5	1	5	2	0	2	1	0	1	1	2	3.4	8	9
198	27	2	37.42	158	78	31.3	4	4	2	0	2	3	1	3	5	1	3.2	7	8
199	26	1	38.14	148	72	32.8	2	3	2	0	2	1	0	1	1	1	2.8	8	8
200	27	1	39.14	147	60	27.7	4	3	1	2	3	3	1	3	5	1	2.5	8	8
201	27	1	40	156	58	23.6	1	1	2	0	3	3	1	3	5	2	2.9	7	9
202	26	1	40.28	151	67	29.3	1	2	1	1	3	3	4	3	5	2	2.9	7	9
203	27	1	40.14	156	58	24.1	5	3	2	0	2	3	1	3	5	2	2.6	7	8
204	26	1	38.28	158	62	24.8	6	3	2	0	2	3	1	3	5	2	3.1	6	8
205	30	2	38.57	155	71	29.5	5	3	1	1	3	1	0	1	1	1	2.8	7	8
206	24	1	40	154	74	31.2	1	3	2	0	2	2	0	1	6	1	3	7	9
207	21	1	38	150	48	21.3	2	2	2	0	1	3	3	3	5	2	2.1	7	8
208	22	1	40.42	158	60	24	1	3	2	0	3	3	6	3	5	2	3.9	7	7

209	27	1	37.85	158	65	26.1	1	5	1	3	2	3	1	3	5	2	2.7	7	8
210	23	1	38.57	152	62	26.8	4	2	2	0	3	3	1	3	5,9	2	3.4	7	7
211	20	1	38.28	156	58	23.8	2	1	2	0	1	3	1	3	5	2	2.1	7	8
212	22	1	38	154	61	25.7	6	3	2	0	2	3	1	3	5	2	2.7	7	7
213	21	1	39.42	152	68	29.4	1	2	2	0	1	3	1	3	5	1	2.9	7	8
214	28	1	38.14	152	58	25.4	5	1	1	3	3	3	1	1	5	1	2.2	6	7
215	22	1	40.14	152	64	28	4	5	1	3	2	3	1	3	5	2	3	6	9
216	18	1	38.85	156	62	25.8	2	1	1	1	2	1	0	1	1	2	2.6	6	9
217	28	1	38.57	156	62	25.8	3	3	3	1	0	3	1	3	5	1	2.3	7	9
218	23	1	39.42	156	69	28.3	4	1	1	2	3	3	4	3	5	2	3.5	6	9
219	24	1	38.28	152	60	25.9	6	1	1	3	2	1	0	1	1	1	2.5	7	9
220	25	1	37.71	158	62	24.8	2	1	1	2	2	3	1	3	5,9	2	3.2	7	8
221	26	1	37	145	46	21.9	3	5	3	0	1	1	0	1	1	2	2.1	6	8
222	24	2	40.71	152	62	26.8	5	3	2	0	3	3	3	3	5	2	2.8	7	9
223	24	1	38.28	158	62	24.8	10	2	1	3	2	3	1	3	5	2	3.5	6	9
224	30	1	37.14	154	60	25.3	6	1	1	1	3	3	1	3	5	2	2.9	6	7
225	32	1	39.71	155	53	24	8	3	2	0	3	1	0	1	1	2	2.7	7	9
226	30	1	40	158	60	24	1	2	2	0	3	3	1	1	5	2	3	6	9
227	26	1	37.28	154	58	24.4	4	2	1	3	2	3	4	3	5	2	2.8	7	9
228	34	1	37.27	156	64	26.3	7	1	1	1	3	3	1	1	5	1	3.6	7	9
229	24	1	40.14	152	60	25.9	1,4	1	1	3	2	3	3	3	5	1	2.8	6	9
230	23	1	41.14	152	60	21.6	1	4	1	2	3	1	0	1		1	2.8	7	9
231	25	1	39.28	152	54	23.3	7	1	1	3	3	3	6	1	5	1	2.8	7	9
232	22	1	38.14	146	58	27.2	7	1	1	1	3	3	1	3	5,9	2	2.1	7	9
233	24	1	37.42	152	54	23.3	8	3	1	1	3	1	0	1	1	2	2.3	7	9
234	21	1	37.42	156	58	23.9	2	2	1	2	3	1	0	1	1	2	2.2	7	8
235	23	1	40.57	158	60	24	1,7	2	1	2	3	3	3	3	5	1	3	7	8
236	24	1	37	146	50	23.4	6	1	1	1	3	3	1	3	5	1	2.5	7	7
237	22	1	37.71	152	66	28.5	2	1	1	6	3	3	2	2	5	2	2.5	7	9
238	24	1	38.14	150	52	23.1	10	5	2	2	0	3	6	3	5	2	2.3	7	9
239	25	1	37.42	148	56	25.5	5	1	2	0	3	3	6	3	5	1	2.6	7	9
240	24	1	41	153	60	25.6	1	2	2	0	3	3	3	3	5,9	2	3.8	7	9
241	21	1	40.42	148	56	26	1,6	5	2	0	2	3	3	1	5	2	3.2	7	9
242	26	1	40.28	149	53	23.8	1,6	1	2	0	2	3	3	3	5	2	3.2	7	9
243	25	1	39.14	153	60	24.6	7	4	2	0	2	3	3	3	5	2	3.6	7	9

244	23	1	39.57	152	52	22.5	7	3	1	3	2	1	0	1	1	2	3	7	9
245	19	1	37	152	58	25.1	2	4	1	2	3	1	0	1	1	2	2.2	7	9
246	24	1	40.28	158	56	22.4	1,8	3	1	2	3	1	0	1	1	1	2.6	7	9
247	21	2	37	156	64	26.3	7,10	2	1	6	3	3	2	2	5	1	2.9	7	8
248	22	1	37.57	152	50	21.6	2	1	1	6	3	3	2	2	5	1	2.5	7	8
249	21	1	40.14	154	61	25.7	1,4	4	1	3	1	1	0	1	1	1	2.8	7	8
250	20	1	37.71	152	52	22.5	2	2	1	4	3	3	1	1	5	1	1.9	7	8
251	23	1	41.14	152	60	25.9	1	2	1	2	1	3	3	3	5	1	3.3	7	8
252	24	1	38.28	156	62	25.5	7	1	1	2	3	3	2	2	5	1	3.1	7	7
253	22	1	38.71	152	58	25.1	3	3	3	4	0	1	0	1	1	1	2.9	7	9
254	26	1	41	154	61	25.7	1	2	1	3	3	3	1	3	5	2	2.2	7	9
255	22	1	40.57	156	58	23.9	3	3	3	3	0	1	0	1	1	2	2.9	6	9
256	21	1	41	154	61	25.7	1	5	2	0	1	3	3	1	5	2	3	8	9
257	26	1	39.85	152	58	25.1	3	4	3	5	0	1	0	1	1	1	2.5	8	9
258	24	1	38	150	58	25.7	5	2	1	4	2	1	0	1	1	2	3	5	9
259	22	1	40.57	152	50	21.6	3	4	3	3	0	1	0	1	1	1	2.9	7	7
260	21	1	40.85	156	58	23.9	1	3	1	3	2	3	6	1	5	1	3.3	8	8
261	22	1	38.4	154	61	25.7	2	2	1	3	2	3	1	3	5	1	2.4	7	9
262	25	1	40.71	154	56	23.6	1	1	1	4	3	3	3	1	5	1	3.8	6	7
263	22	1	37.85	152	52	22.5	2	2	1	3	2	3	1	3	5	2	2.8	5	8
264	22	1	38	154	54	22.7	3	4	3	4	0	1	0	1	1	2	2.9	6	9
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