ORIGINAL RESEARCH

Assessment Of Variables Among Pregnant Women Who Underwent Labour Induction And Evaluation Of BMI As A Risk Factor- A Tertiary Hospital Based Study

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Received: 20 March, 2024 Accepted: 26 April, 2024

ABSTRACT

Introduction: Although inducing labour to end a pregnancy is ethical and successful, it can occasionally have negative effects on the mother's and fetus's health. Hence, the present study was used to assess the various variables among pregnant women who underwent labour induction.

Materials and Method: The present study was conducted among a total number of 179 pregnant women with gestational age more than 28 weeks. The data were collected in a paper-based questionnaire. The questionnaire was approved by the ethical committee before starting data that comprised demographic details, obstetric history, ante- and intrapartum details.The primary outcome was the analysis of various maternal factors associated with the induction of labour among the pregnant women.

Results: Out of the 179 participants majority had normal BMI (95.5%) and 3.9% were overweight. Out of the 179 participants included in study majority were not having any comorbid conditions (85%), 9% had hyperthyroidism, 4.5% had gestational diabetes mellitus and 1% had Asthma. 53.6% had the duration of labour for 11-14 hours, 22.9% for 6-10 hours, 15.65% for 15-18 hours and 7.8% for 19-21 hours. The mean and the median duration of labour was 13.02 and 12 hours, respectively.

Conclusion: To conclude, induction of labour is safe among term pregnancy irrespective of pregnant women's age, parity or history of abortion. Induction of labour can be conducted safely among women having antenatal comorbidities viz., diabetes, preeclampsia, and hypothyroidism. Obesity is associated with an increased risk of intrapartum interventions.

Keywords: Gravida; Gestational diabetes mellitus;Maternal factors; Obese

INTRODUCTION

Since the dawn of time, the adage "watchful expectation" has applied to delivery. The term "labour" describes the beginning of strong uterine contractions that cause the cervix to gradually enlarge and efface, which causes the foetus, placenta, and membranes to be expelled from a pregnant woman's uterus through the vaginal canal.[1] The norm for pregnant women was to wait for labour to start on its own. Intervention was only encouraged when expectant management put the mother's health or the life and wellness of the unborn child in peril. However, modern obstetrics offers the option of inducing labour when necessary, despite the fact that the majority of patients undergo spontaneous labour at term.[2] When continuing a pregnancy provides a risk or threat to the pregnancy's outcome, labour induction is a clinical intervention that may offer significant advantages to the mother and infant.[3-6] Thus, induction of labor—also known as the process of labour where uterine contractions are started by medicinal and surgical techniques before the commencement of spontaneous labor—has become a widespread obstetric procedure. [3-6]When a woman is not already in labour, the cervix is artificially ripened and uterine contractions are started.[7,8] This causes the cervix to gradually enlarge until the baby may be delivered vaginally at any gestation that is past the

legal criteria of foetal viability. However, its hazards, which include uterine hyper-stimulation, failure induction, and higher Caesarean section rates, worry both physicians and patients. Although inducing labour to end a pregnancy is ethical and successful, it can occasionally have negative effects on the mother's and fetus's health.[9,10,11] Hence, the present study was used to assess the various variables among pregnant women who underwent labour induction.

MATERIALS AND METHOD

The present single-centre hospital based in-patient prospective observational study was carried in the Department of Obstetrics and Gynaecology, LN Medical College, andaffiliated JK Hospital, Bhopal, Madhya Pradesh.A total number of 179 pregnant women with gestational age more than 28 weeks admitted to study institute and planned for induction of labour and fulfilling the above-mentioned selection criteria and consented to participate in the present study. The recruitment of the participants and primary data collection was started once the protocol was approved by the ethical committee and after obtaining informed consent from the study participants.The participants were recruited into the study after fulfillment of inclusion criteria.Inclusion criteria comprised of pregnant women aged 18 to 45 years (both inclusive), gestational age on admission > 28 week, confirmed gestational age by first trimester USG \LMP(regular cycles), adequate pelvis, there is singleton pregnancy and cephalic presentation and patients consenting to participate in the study. Exclusion Criteria comprised of women undergoing elective cesarean section, less than 28 weeks of period of gestation, pregnant women who were not willing for induction of labor, pregnant women who came in spontaneous labor, pregnant women with an indication(s) for elective or emergency LSCS, presence of malpresentations and presence of cephaliopelvic disproportion, medically contraindicated conditions like- cardiac diseases, active genital herpes, pelvic tumor, previous classical cesarean section or hysterotomy, elderly primigravida with obstetric or medical complication and a patient who refused to take part in the study.The data were collected in a paper-based questionnaire. The questionnaire was approved by the ethical committee before starting data that comprised demographic details,obstetric history, ante- and intrapartum details.Participants who fulfilled the eligibility criteria were explained in detail about the induction of labor, indications, methods and possible course with outcomeObstetric abdominal examination of patient was done. Per vaginal examination of patients was done to assess cervical status using modified bishop scoring system to predict the likelihood of success and select appropriate method of induction.Appropriate laboratory and radiological investigations were conducted if needed. Patients were shifted to the postnatal ward after the birth of the child. The occurrence of complications was monitored until the patients were discharged from the hospital. The primary outcome or the dependent variable was the maternal and foetal outcome following the induction of labour among the pregnant women.

RESULTS

Table 1: Distributionof Participants (n=179) according to demographic and obstetric history

	Variables	Freq.	Percent
Age	<=20	16	**8.94**
	21-25	72	**40.22**
	26-30	80	**44.69**
	>30	11	**6.15**
Gravida	1	103	**57.54**
	2	45	**25.14**
	3	17	**9.50**
	4	14	**7.82**
Parity	0	129	**72.07**
	1	40	**22.35**
	2	10	**5.59**
Number of children born	0	129	**72.07**
	1	40	**22.35**
	2	10	**5.59**
Abortion History	0	134	**74.86**
	1	30	**16.76**
	2	14	**7.82**
	3	1	**0.56**
Menstrual History	IRREGULAR	54	**30.2**
	REGULAR	125	**69.8**

Out of the total 179 participants, 44.69% were from 26-30 years age group and 40.22% were in the age group of 21-25 years age. The mean age of the participants was 25.2 (±3.43) years.Out of the total 179 participants 57.5% were primigravidae and 25% were gravida 2. Of the total 179 participants 72% were primipara, 22.3% were para 1 and 5.5% were para 2. Out of 179 women participated in the study 72% had no child, 22.3% had one child and 5.6% had 2 children. Out of the 179 participants 74.8% had no history of abortion, 16.7% had one abortion and 7.8% had two abortions. Of the total 179 participants 69.8% had regular menstrual cycles and 30.2% irregular cycles.

Out of 179 participants 44% were of 40 weeks of gestation, 19% were of 41 weeks of gestation and 14.5% at 42 weeks of gestation (figure1)

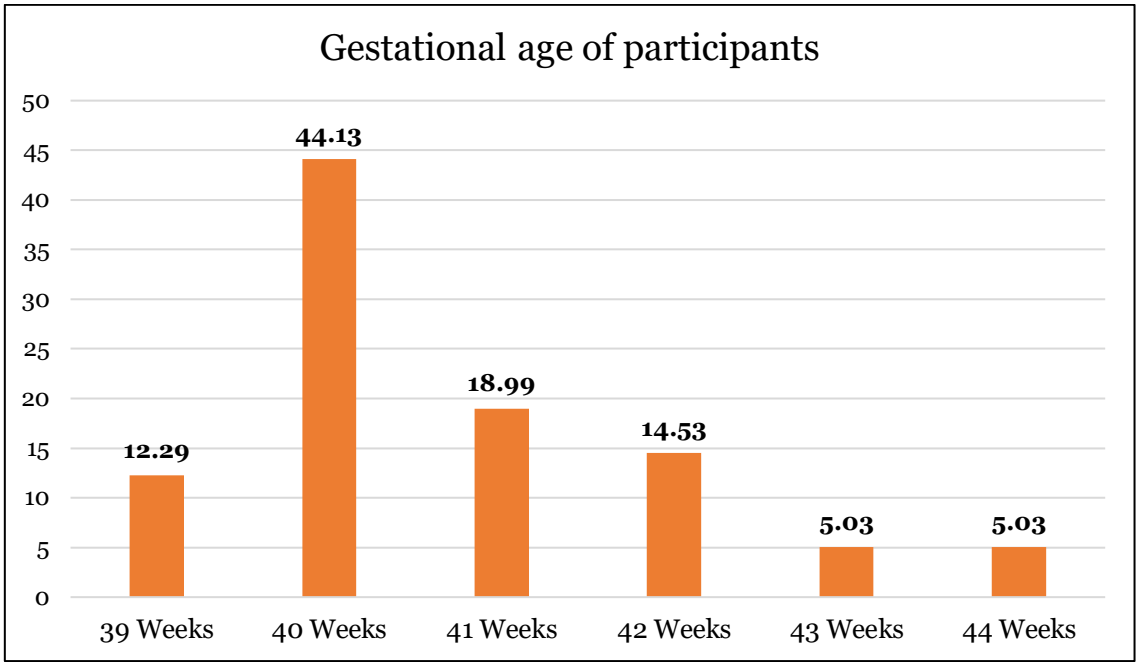

Figure1: Gestational age of participants (n=179, % of total)

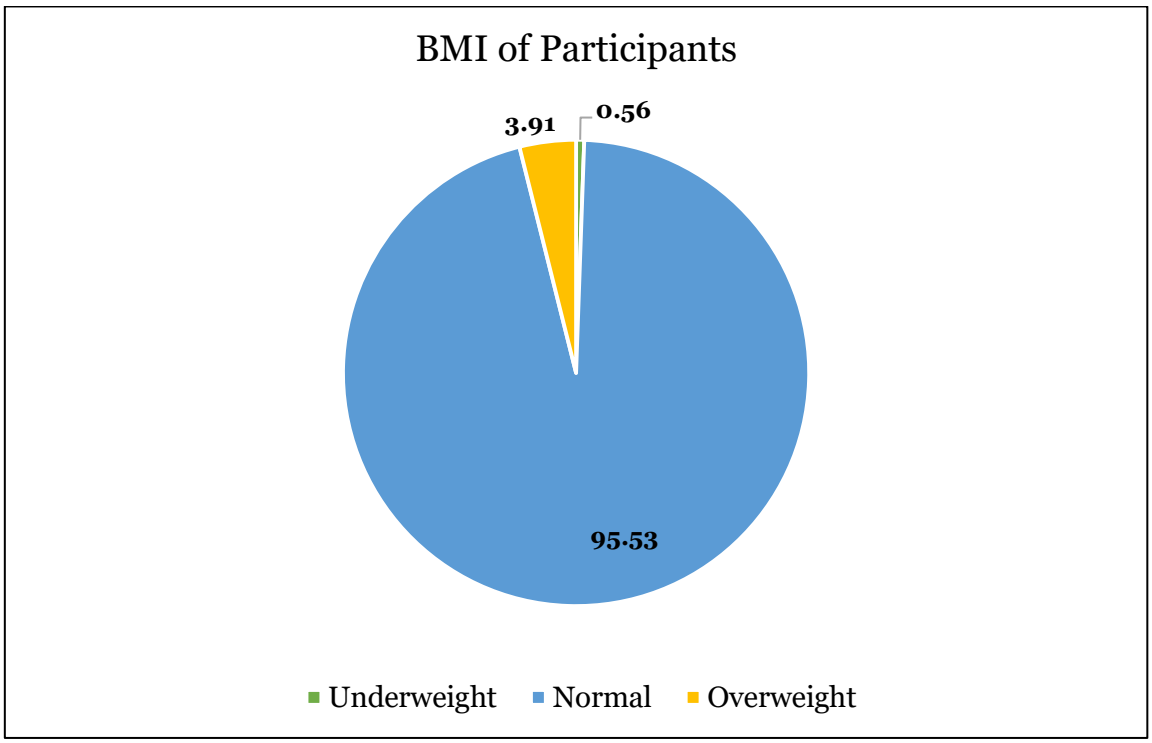

Figure 2: BMI of participants (n=179, % of total)Out of the 179 participants majority had normal BMI (95.5%) and 3.9% were overweight (Figure2).

Table 2: Comorbid Conditions and Personal history of study participants

Variables		Freq.	Percent
Comorbidity	ASTHMA	2	**1.1**
	GDM	8	**4.5**
	HYPERTHYROIDISM	16	**8.9**
	PRECLAMPSIA	1	**0.6**
	NONE	152	**84.9**
Personal History	None	173	**96.6**
	Chewing Tobacco	6	**3.4**

Out of the 179 participants included in study majority were not having any comorbid conditions (85%), 9% had hyperthyroidism, 4.5% had gestational diabetes mellitus and 1% had Asthma (table 2).Of the total 179 participants only 3.4% had history of tobacco use (chewing tobacco).

Out of the 179 participants, 53.6% had the duration of labour for 11-14 hours, 22.9% for 6-10 hours, 15.65% for 15-18 hours and 7.8% for 19-21 hours (Fig 10). The mean and the median duration of labour was 13.02 and 12 hours, respectively (figure 3).

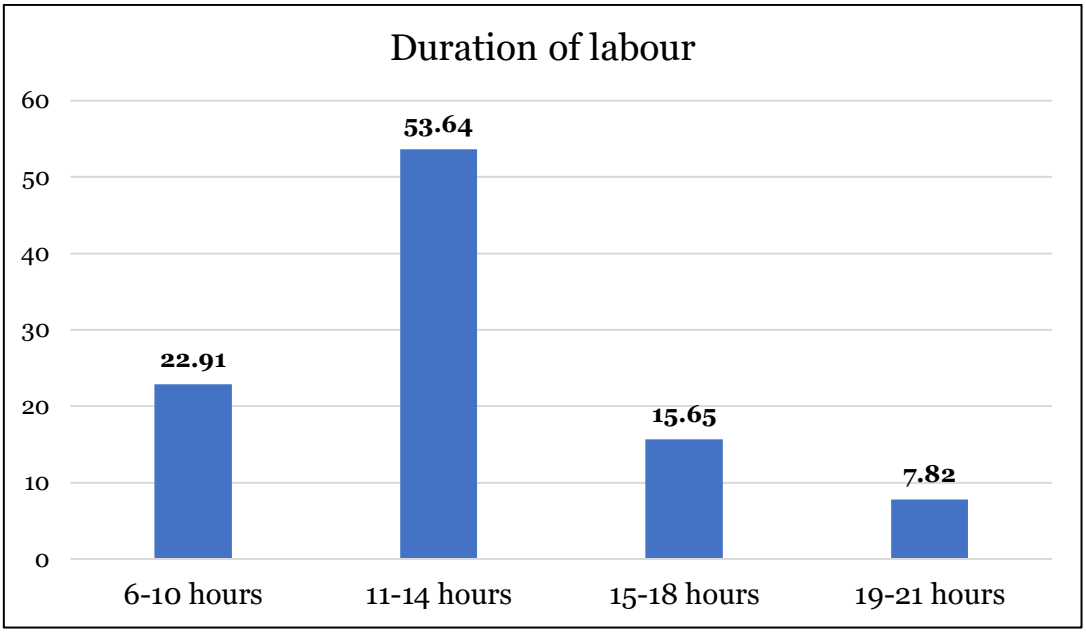

Figure 3: Duration of Labour

DISCUSSION

Around 99% of the anticipated 303 000 women and teenage girls who died from pregnancy- and childbirth-related problems in 2021 did so in low-resource environments.[1] More than half of all maternal fatalities globally are caused by haemorrhage, hypertensive diseases, and sepsis. In order to meet the health objectives of the Sustainable Development Goals, women's maternity healthcare must be improved (SDGs).[12]The present research found that inducing labor during a term pregnancy is safe regardless of the age, parity, or abortion history of the expectant mother. Including post-term pregnancy, induction of labor is safe and effective anytime after 39 full weeks of gestation. Women with prenatal comorbidities such as diabetes, preeclampsia, and hypothyroidism may undergo induction of labor was safe. Our results are in concordance to study carried by Ugwuoroko HC et al[13] who reported that induction of labour is a safe and beneficial procedure in obstetrics. However, it can be associated with adverse obstetric outcomes. In another study by Tarimo CS et al,[14]primiparity, high birthweight, post-dates, living in an urban environment, and receiving labor induction have all been linked to an increased chance of cesarean delivery in these patients. To lessen the negative pregnancy outcomes connected to emergency cesarean birth, these characteristics should be assessed before a labor induction procedure. Ugwuoroko HC et al[13] found that commonest indication for induction of labour was postdate pregnancy (53.8%). Failed induction was due to fetal distress, poor progress of labour from cephalopelvic disproportion/malposition and failed cervical ripening.

In the present study, out of the 179 participants majority had normal BMI (95.5%) and 3.9% were overweight Obesity is associated with increased risk of failed induction and cesarean section. Crane SS et al concluded that higher BMI women. Similarly,

Liu S et al[16] reported that obese primiparas with an unfavorable cervix in delayed pregnancy have a significantly higher risk of cesarean section (CS) and a longer duration until vaginal delivery (VD) than non-obese primiparas during labor induction.Another study by Zheng KF et al,[17] women with Class III obesity have significantly higher rates of cesarean section and intrapartum interventions as compared to women with a normal BMI, after controlling for maternal age, parity, gestational age and fetal size. These associations are indicative of a clinically significant biological influence of obesity on labour.Artificially triggering the uterus to begin labour is known as induction of labour. It is often carried out by giving the pregnant lady prostaglandins or oxytocin, or by manually rupturing the amniotic membranes. The process of inducing labour is not without danger, and many women find it painful.[18] The frequency of labour induction to reduce the gestational period has increased during the previous several decades.[19] One in four births in high-income countries (HICs) result in a baby being born at term after labour is induced.[20] Although the rates are often lower in low- and middle-income countries (LMICs), they are occasionally as high as those seen in high-income nations.The Sustainable Development Goals relating to health have a direct bearing on induction of labour. A crucial step in achieving the health objectives of the Sustainable Development Goals is to improve care for women throughout pregnancy and delivery (SDGs).[12] The severe disparities in maternal and perinatal health throughout the world might be addressed with efforts to prevent and minimise morbidity and death during pregnancy and delivery. Rates of induction of labour have risen over the past few decades, especially in developed countries, due to the growing focus on lowering perinatal and maternal morbidity and mortality. This trend has greatly contributed to a decrease in those nations' maternal and perinatal mortality and morbidity. To help clinical policies and practises, healthcare practitioners, health managers, policy makers, and other stakeholders require current and evidence-based recommendations.

CONCLUSION

To conclude, induction of labour is safe among term pregnancy irrespective of pregnant women's age, parity or history of abortion. Induction of labour is safe and successful any time after 39 completed weeks of gestation including post-term pregnancy.Induction of labour can be conducted safely among women having antenatal comorbidities viz., diabetes, preeclampsia, and hypothyroidism. Obesity is associated with an increased risk of intrapartum interventions.

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