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ORIGINAL ARTICLE

Induction of Labour at 40 Weeks May Reduce Likelihood of Caesarean Section

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ABSTRACT

Objective: Aim of current study is to determine either induction of labour at 40 weeks may reduce likelihood of cesarean section.

Study Design: Controlled trial

Place and Duration: Gynaecology and Obstetrics Department Combined Military Hospital Peshawar for the duration of six months from 1st Jan 2021 to 31st December 2021.

Methods: Total 48 pregnant females of age 18-45 years were presented in this study. After receiving informed written consent, detailed demographic information about the enrolled cases; including age, parity, gestational age, level of education, and region of residence was collected. Frequency of cesarean section with respect to labour induction was calculated among all cases. SPSS 22.0 was used to analyze all data.

Results: Among 48 cases, 28 (58.3%) had age 18-28 years, 15 (31.3%) patients had age 29-38 years and 5 (10.4%) cases had age >38 years. There were 26 (54.2%) patients with BMI <25kg/m^2 and 22 (45.8%) with BMI >25kg/m^2. There were 18 (37.5%) patients with gestational age 34-36 weeks, 16 (33.3%) patients with gestational age 37-38 weeks and 14 (29.2%) patients with gestational age 39-40 weeks. Frequency of cesarean section among all cases were 15 (31.3%) in which majority of the cases were from gestational age 34-36 weeks. There was no mortality found among mothers.

Conclusion: In this study we found that labour induction at 40 weeks significantly reduce the frequency of cesarean section. There were benefits for the fetus and no increased risk of maternal death.

Keywords: Pregnant patients, Labour Induction, C-section, Gestational age

INTRODUCTION

Concern has been growing over the high number of caesarean sections (CS) in industrialised nations. In 2011, 32.3% of deliveries in Australia were by CS (33.2 percnt; of first births) [1]. With a CS rate of 30.6% in 2006 [1] and 32.0% in 2011 [2], Victoria saw a doubling of its CS rate between 1985 and 2006. Although CS has the potential to save the lives of both the mother and the baby if used appropriately, it also carries risks including but not limited to: increased rates of maternal morbidity, mortality, and delayed recovery from the birth; complexity trying to establish breastfeeding [4]; neonatal mortality and admittance to childcare care [3]; serious placental problems in future pregnancies [5]; increased prices for the health system [6].

Concurrent with the rise in CS, the percentage of induced labours rose from 20% in 1992 in Victoria to 28% in 2002 [7] and has since levelled out at around 25%. This pattern is happening in many different nations. In the United States, Zhang discovered that the induction rate doubled between 1989 and 1998 [8], albeit seemingly levelling down.

Clinicians and policymakers are eager to find effective, evidence-based methods to reduce the CS rate without putting patients at risk. Strategies that would safely help stop a first CS show great promise for reducing the total CS rate in the longer term, as 84.1% of women in Australia who had a prior CS had a vaginal birth in their subsequent birth in 2011 [9] and 86.5% of women giving birth in Victorian government hospitals throughout 2011 had only had a CS [10].

One in five births[11] have labour induced due to complications with either the mother or the foetus. These complications can include preeclampsia, cardiac or renal illness, or intrauterine growth restriction in the foetus (e.g., poorly controlled diabetes, preterm rupture of the membranes or post-term pregnancy). When a woman is not already in labour, she may undergo an induction of labour, which involves the artificial ripening of her cervix and the initiation of uterine contractions. This allows for the gradual dilation of her cervix, which ultimately results in a vaginal birth of the baby at any gestation beyond the legal term of foetal viability. [12]

Despite concerns that inducing labour will raise the likelihood of a caesarean, new research has revealed that the actual number of caesareans performed is lower when induction is used compared to natural labour. As a result of the inherent limitations of observed data in a cohort research and the limited number of RCTs included in the systematic reviews, the results have not had a significant impact on practise. Contradictory information concerning caesarean risk has been provided in consumer group guidelines and textbooks[13], which can lead to confusion about decision-making, especially considering the aim to support normal birth in the face of rising caesarean rates worldwide. Both the mother and the newborn face dangers when a caesarean section is necessary, such as the possibility of maternal death,[14] infection, postpartum depression, and respiratory failure. [15] Because of this, it is essential to get reliable data on the likelihood of a caesarean section before making any choices about inducing labour.

MATERIAL AND METHODS

This controlled trial was conducted at Gynaecology and Obstetrics Department Combined Military Hospital Peshawar for the duration of six months from 1st Jan 2021 to 31st December 2021 and comprised of 48 females. After receiving informed written consent, detailed demographic information about the enrolled cases; including age, parity, gestational age, level of education, and region of residence was collected. Females with severe medical illness and those did not provide any written consent were excluded.

Trials were included if they involved pregnant women with a viable foetus, compared active induction to placebo or expectant management (henceforth referred to as expectant management), and provided caesarean delivery rates as an endpoint. Mechanical methods (amniotomy, membrane trying to sweep, Foley catheter insertion with or without additional saline infusion), pharmacodynamic agents (prostacyclin, oxytocin, cortisone, mifepristone, estrogens, relaxin, misoprostol, isosorbide mononitrate), and alternative methods were all used as forms of active intervention (acupuncture, breast stimulation, sexual intercourse, homoeopathic preparations, castor oil, bath, enema).

Information needed to evaluate the study's methodological quality, such as the induction technique used, the reasons for inducing labour, the total number of caesarean and noncesarean (vaginal or instrumental) births, and the proportion of each.

We assessed the potential for bias in the following areas of the methodology: sequence creation, allocation concealment, participant and staff blinding, and the handling of partial output data. Given the impossibility of blinding in trials including mechanical interventions, we made no such evaluation. To examine the information, we used SPSS 22.0. Frequencies and percentages were used to display data.

RESULTS

Among 48 cases, 28 (58.3%) had age 18-28 years, 15 (31.3%) patients had age 29-38 years and 5 (10.4%) cases had age >38 years.(figure-1)

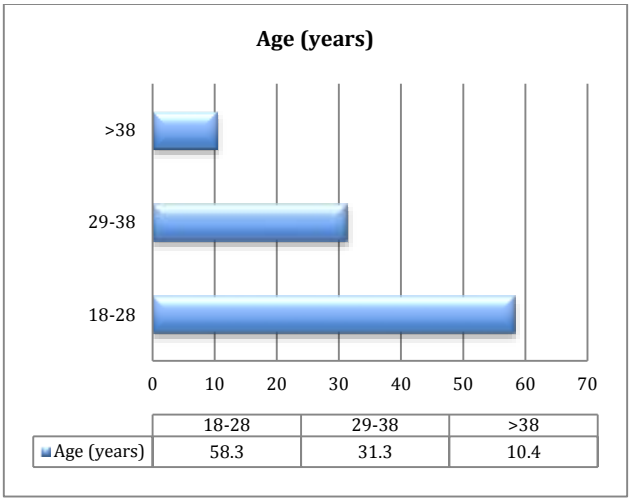

Figure-1: Females with age distribution

There were 26 (54.2%) patients with BMI <25kg/m^2 and 22 (45.8%) with BMI >25kg/m^2. 27 (56.3%) patients were from rural areas and 21 (43.7%) patients were from urban areas. Majority of the females 30 (62.5%) were uneducated. 25 (52.1%) patients were primigravida and the rest were multigravida 23 (47.9%) females. (table 1)

Table-1: Demographics of enrolled cases

Variables	Frequency	Percentage
BMI		
<25 kg/m^2	26	54.2
>25kg/m^2	22	45.8
Place of Living		
Rural	27	56.3
Urban	21	43.7
Education status		
Educated	18	37.5
Un-educated	30	62.5
Gravidity		
Primigravida	25	52.1
Multigravida	23	47.9

There were 18 (37.5%) patients with gestational age 34-36 weeks, 16 (33.3%) patients with gestational age 37-38 weeks and 14 (29.2%) patients with gestational age 39-40 weeks.(table 2)

Table-2: Association of gestational age among all cases

Variables	Frequency	Percentage
Gestational age of patients		
34-36 weeks	18	37.5
37-38 weeks	16	33.3
39-40 weeks	14	29.2

Frequency of cesarean section among all cases were 15 (31.3%) in which majority of the cases were from gestational age 34-36 weeks. There was no mortality found among mothers.(table 3)

Table-3: Frequency of c-section among all cases

Variables	Frequency	Percentage
C-section		
Yes	15	31.3
No	33	68.7
Labour Induction		
34-36 weeks	7	14.6
37-38 weeks	6	12.5
39-40 weeks	2	4.2

DISCUSSION

According to the findings of our research, the likelihood of a caesarean birth occurring after labour has been artificially induced is noticeably lower than the risk of a caesarean delivery occurring under expectant management. This finding is consistent with the findings of systematic reviews[16], but it runs counter to the assumptions that are widely held as well as the information that is provided by consumer organisations, guidelines, and textbooks. [17] Inducing labour was related with benefits for the foetus and was not connected with a higher risk of death for the mother.

In our study 48 patients with age 18-45 years were included. Among 48 cases, 28 (58.3%) had age 18-28 years, 15 (31.3%) patients had age 29-38 years and 5 (10.4%) cases had age >38 years. There were 26 (54.2%) patients with BMI <25kg/m^2 and 22 (45.8%) with BMI >25kg/m^2. Results of current study was comparable to the previous study.[18,19] Most notably, no differences in perinatal mortality were observed between births that began naturally, were artificially accelerated or induced, or had a prelabor CS performed. It is highly unlikely that the primary goal of these inductions of labour was to prevent perinatal mortality, as we exempted women with recognisable risk factors for stillbirth (women with any complication during pregnancy, those with foetal growth restriction, and those who had reached 41 weeks of gestation).

There were 18 (37.5%) patients with gestational age 34-36 weeks, 16 (33.3%) patients with gestational age 37-38 weeks and 14 (29.2%) patients with gestational age 39-40 weeks. Frequency of cesarean section among all cases were 15 (31.3%) in which majority of the cases were from gestational age 34-36 weeks. These results are in line with a review of observational studies [21], but contradict a number of systematic evaluations of RCTs of induction of labour and CS [20]. The extremely big Canadian trial dominates all reviews of RCTs [22]. Induction of labour without medical indication was able to be accurately identified from this detailed and validated dataset, but one limitation of this analysis is that the indication for augmentation of labour was not collected. As a result, we were not able to distinguish a labour that was inco-ordinate, prolonged, or otherwise in undisputed need of augmentation from one that had no such indication for augmentation. For this reason, the results related to induction are more persuasive than those for augmentation.

Although oxytocin and amniotomy are still commonly used induction procedures, they did not improve the likelihood of a caesarean delivery. In the subgroup analysis by indication for induction, post-dates pregnancy and mixed reasons (maternal, foetal, and obstetric) were linked to a lower likelihood of caesarean delivery. On average, the probability of having a caesarean section was cut by 19% in low-risk, term pregnancies where there was no medical need for induction. In addition to the lower risks shown in high-risk and low-risk pregnancies, we also saw these benefits in pregnancies that progressed to or past full term. Our results have implications for the selection of induction candidates and for the counselling of pregnant women about the potential dangers of induction.[23]

CONCLUSION

In this study we found that labour induction at 40 weeks gestation significantly reduce the frequency of cesarean section. There were benefits for the fetus and no increased risk of maternal death.

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