

ORIGINAL ARTICLE

An analysis of augmentation of delayed labour using different doses of oxytocin

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ABSTRACT:

Background: Delayed labour progress is common in nulliparous women, and is among the leading indications for emergency caesarean section. The present study evaluated augmentation of delayed labour using different doses of oxytocin. **Materials & Methods:** 80 pregnant women with gestational age ranged 37 weeks - 41 weeks were divided into 2 groups of 40 each. Group I were prescribed 33.2mg oxytocin (high) and group II 16.6mg oxytocin (low) in isotonic saline. Parameters such as indication for caesarean section, vaginal birth, NICU admission, NICU stay, mortality, metabolic acidosis, Apgar score less than 4, Apgar score less than 7 was recorded. **Results:** Indication for caesarean section was fetal distress seen in 14 in group I and 17 in group II, progress failure in 29 in group I and 26 in group II. Vaginal birth was spontaneous seen 13 in group I and 15 in group II and instrumental seen 30 in group I and 28 in group II. The need for manual placenta removal was seen in 4 in group I and 7 in group II. The difference was significant ($P < 0.05$). APGAR score < 7 was seen in 3 in group I and 5 in group II. NICU admission was seen in 6 in group I and 3 in group II, NICU stay was seen in 4.6 in group I and 5.2 in group II, mortality was seen in 3 in group I and 2 in group II and metabolic acidosis was seen in 5 in group I and 4 in group II. The difference was non-significant ($P > 0.05$). **Conclusion:** Both high and low oxytocin doses given in women with delayed labor produced comparable outcomes.

Key words: Delayed labour, oxytocin, female

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INTRODUCTION

Delayed labour progress is common in nulliparous women, and is among the leading indications for emergency caesarean section. Synthetic oxytocin is one of the most frequently used medications in obstetric care and the common routine for augmentation of labour.^{1,2} However, the effectiveness of oxytocin for treating abnormal progress has been questioned. Despite that, over time an increased use of oxytocin during labour has been noted. An unstructured manner of using the drug prevails, and its use can lead to hyperactive uterine contractions, which have been associated with negative effects on the fetus. Delay in the labour comprises the major factor leading to emergency intervention by caesarean section and is commonly seen in the nulliparous females.³

Low rates of caesarean sections are correlated with high oxytocin doses. High oxytocin doses, however, are accompanied by safety worries. Although modest doses of oxytocin are less dangerous than high doses, their effectiveness is debatable.⁴ There is a lot of disagreement over the ideal dosage of oxytocin to use

while inducing labor.⁶ High doses of oxytocin shorten labor, but they can also cause uterine hypertonicity, uterine rupture, and fetal hypoxia. Although low dose oxytocin appears to be safer, it might not be effective enough to treat labor delays.⁵ The present study assessed augmentation of delayed labour with different doses of oxytocin.

MATERIALS & METHODS

This study consisted of 86 pregnant women with gestational age of 37 weeks - 41 weeks. All were informed regarding the study and their written consent was obtained.

Data such as name, age etc. was recorded. Patients were divided into 2 groups of 43 each. Group I were prescribed 33.2mg oxytocin (high) and group II 16.6mg oxytocin (low) in isotonic saline. Parameters such as indication for caesarean section, vaginal birth, NICU admission, NICU stay, mortality, metabolic acidosis, Apgar score less than 4, Apgar score less than 7 was recorded. Results were recorded and subjected to statistical analysis. P value less than 0.05 was considered significant.

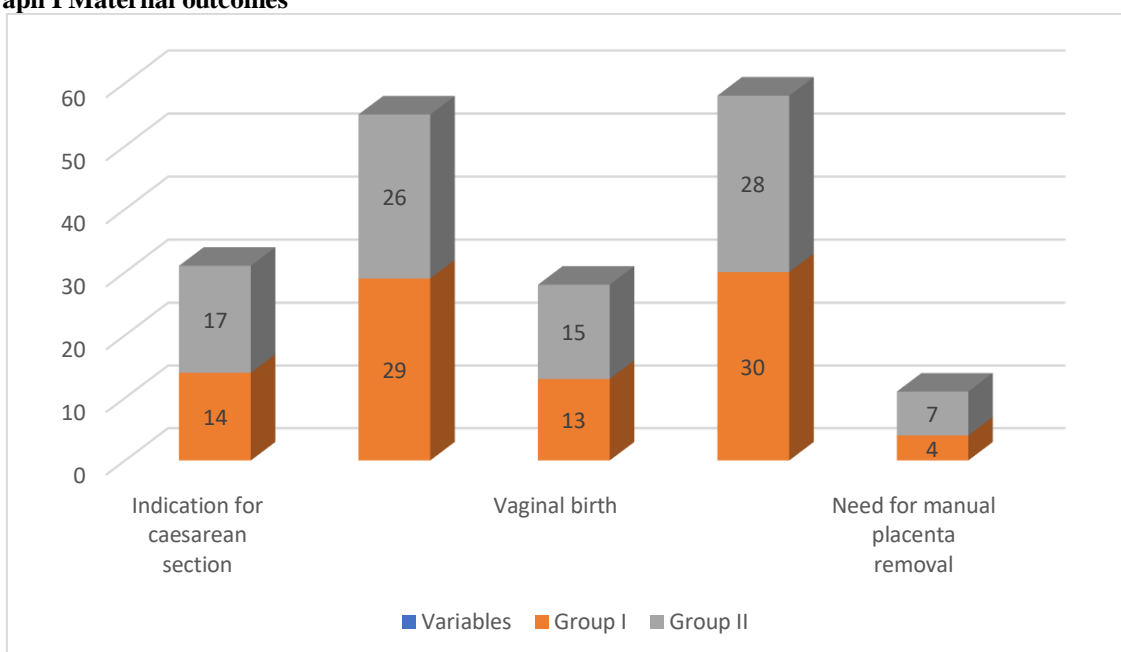
RESULTS

Table I Maternal outcomes

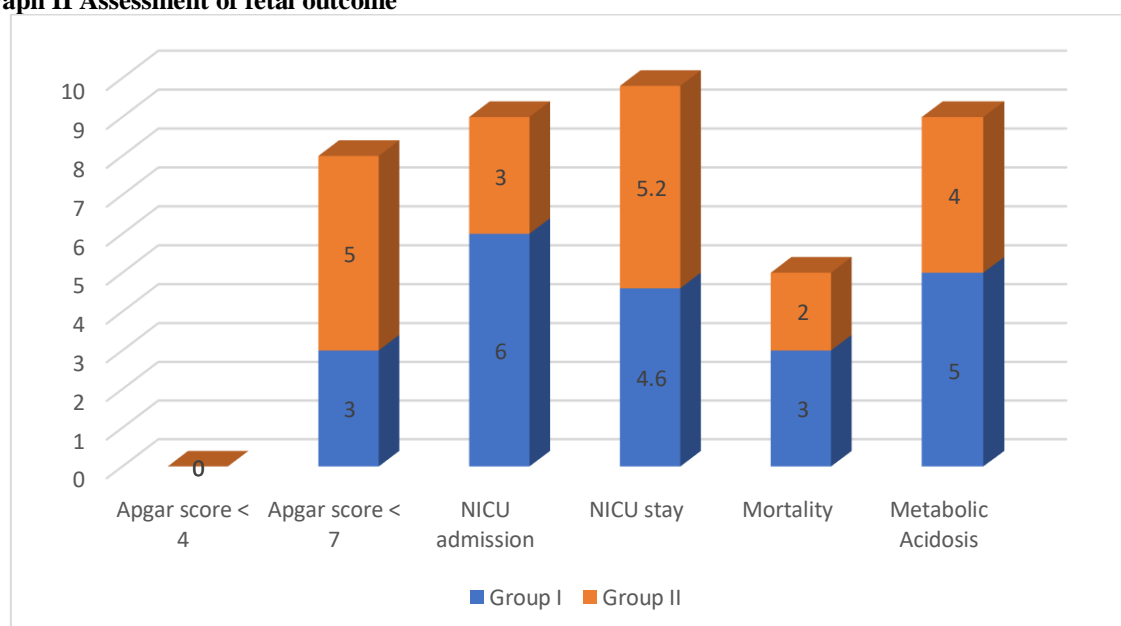
Parameters	Variables	Group I	Group II	P value
Indication for caesarean section	Fetal distress	14	17	0.05
	Progress failure	29	26	
Vaginal birth	Spontaneous	13	15	0.02
	Instrumental	30	28	
Need for manual placenta removal		4	7	0.01

Table I, graph I shows that indication for caesarean section was fetal distress seen in 14 in group I and 17 in group II, progress failure in 29 in group I and 26 in group II. Vaginal birth was spontaneous seen 13 in group I and 15 in group II and instrumental seen 30 in group I and 28 in group II. The need for manual placenta removal was seen in 4 in group I and 7 in group II. The difference was significant ($P < 0.05$).

Graph I Maternal outcomes

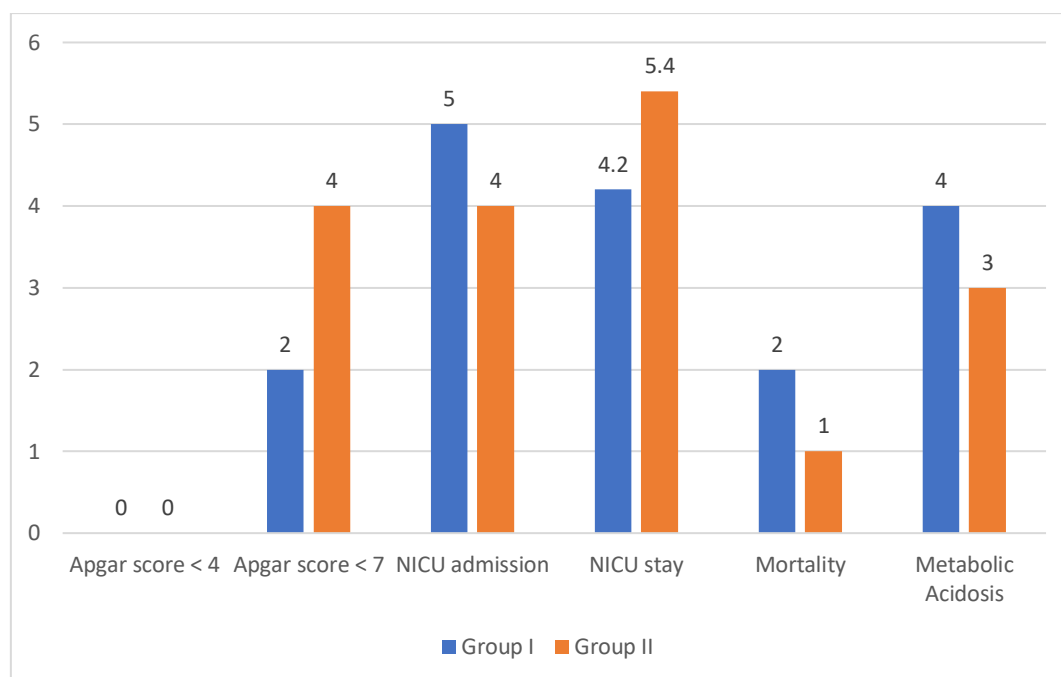


Graph II Assessment of fetal outcome



Graph II shows that APGAR score < 7 was seen in 3 in group I and 5 in group II. NICU admission was seen in 6 in group I and 3 in group II, NICU stay was seen in 4.6 in group I and 5.2 in group II, mortality was seen in 3 in

group I and 2 in group II and metabolic acidosis was seen in 5 in group I and 4 in group II. The difference was non-significant ($P > 0.05$).



DISCUSSION

An important contributing factor to maternal and neonatal morbidity and mortality is protracted labor. Abnormal fetal presentation, an insufficient bony pelvis, weak uterine contractions, and abnormalities of the mother's soft tissues are some of the factors that contribute to protracted labor.⁶ One of the main causes for caesarean sections is now prolonged or delayed labor. Nowadays, caesarean sections are a highly common surgery, thus finding less invasive procedures is essential to reducing the frequency of these deliveries.⁷ When weak uterine contractions are to blame for the delayed labor, labor augmentation is frequently performed. After spontaneous labor starts, it stimulates the uterus to lengthen, frequency, and strength of contractions. Traditional techniques for inducing labor include amniotomy and intravenous oxytocin infusion.⁸ The present study assessed augmentation of delayed labour with different doses of oxytocin.

We found that indication for cesarean section was fetal distress seen in 14 in group I and 17 in group II, progress failure in 29 in group I and 26 in group II. Vaginal birth was spontaneous seen 13 in group I and 15 in group II and instrumental seen 30 in group I and 28 in group II. The need for manual placenta removal was seen in 4 in group I and 7 in group II. Majoko et al⁹ compared high and low starting dose of oxytocin infusion for effectiveness and safety in augmentation of labour in nulliparous women. 133 were randomized to the low and 125 to the high starting oxytocin dose groups. The groups were comparable for maternal and gestational age. There was no difference in mean cervical dilatation before augmentation of labour; six

cm in both groups. The mean augmentation to delivery interval was shorter in the high dose group, 218 versus 326 minutes. There was no difference in the mode of delivery and fetal outcome in terms of birthweight, five minutes Apgar score, admission to neonatal unit and perinatal death.

We observed that APGAR score < 7 was seen in 3 in group I and 5 in group II. NICU admission was seen in 6 in group I and 3 in group II, NICU stay was seen in 4.6 in group I and 5.2 in group II, mortality was seen in 3 in group I and 2 in group II and metabolic acidosis was seen in 5 in group I and 4 in group II. Zhang et al¹⁰ examined the effects and safety of high-dose (compared with low-dose) oxytocin regimen for labor augmentation on perinatal outcomes. A total of 15,054 women from six hospitals were eligible for the analysis. Women were grouped based on their oxytocin starting dose and incremental dosing: 1, 2, and 4 mU/min. Duration of labor and a number of maternal and neonatal outcomes were compared among these three groups stratified by parity. Multivariable logistic regression and generalized linear mixed model were used to adjust for potential confounders. Oxytocin regimen did not affect the rate of cesarean delivery or other perinatal outcomes. Compared to 1 mU/min, the regimens starting with 2 mU/min and 4 mU/min reduced the duration of 1st stage by 0.8 hours and 1.3 hours (1.0 – 1.7), respectively, in nulliparas. No effect was observed on the second stage of labor. Similar patterns were observed in multiparas. High-dose regimen was associated with a reduced risk of meconium stain, chorioamnionitis, and newborn fever in multiparas.

CONCLUSION

Authors found that both high and low oxytocin doses given in women with delayed labor produced comparable outcomes.

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