



A RETROSPECTIVE CASE CONTROL STUDY ON ASSOCIATION BETWEEN USE OF OXYTOCIN IN LABOUR AND POOR MATERNAL- FETAL OUTCOMES

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ABSTRACT

Oxytocin is most commonly used drug in obstetrics practice, as a result of various studies indicating its adverse maternal and fetal effects, in recent years there have been lots of focus on judicious use of oxytocin. The objective of this study was to investigate the association between the oxytocin exposure and maternal and fetal outcomes. It was a retrospective hospital record based case control study done over a period of 6 months. All the women with term singleton pregnancies, after an uncomplicated pregnancy who received oxytocin induction/ augmentation were included, for every case a control was also recruited. After adjustment for all the potential confounders, Oxytocin use during labour was associated with higher risk of Post Partum Hemorrhage and low apgar at 1 and 5minutes interval. Oxytocin use during labour appears to be an independent risk factor for poor maternal and fetal outcome.

KEY WORDS: Oxytocin, Augmentation of Labor, PPH, Apgar Score



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INTRODUCTION

Dealing with labour induction and augmentation is one of the most commonly faced task by an obstetrician in day to day practice. Oxytocin remains the most commonly administered drug for this purpose. Although data are sparse, oxytocin infusion during labour appears to have become a routine procedure that may concern a significant proportion of parturients (1-5). This evolution merits concerns because it suggests that the use of oxytocin has been extended from specific to broader but poorly defined indications without even an evidentiary basis (6,7). During the recent years there has been a lots of focus on judicious use of oxytocin to prevent possible complications in terms of poor maternal and fetal outcome viz. Increased rate of cesarean delivery and post partum hemorrhage (PPH), low apgar score at birth and increased risk of neonatal intensive care admissions (8-12). Vigilance is required to avoid excessive uterine activity because it can increase risk of fetal compromise and adverse maternal and fetal outcomes. During excessive uterine activity, the fetus attempts to compensate because uterine blood flow and fetal oxygenation are negatively affected, which activates the autonomic nervous system and results in a decrease in fetal heart rate variability and appearance of recurrent decelerations (13). Oxytocin plays a physiological role in maintaining uterine contractions during labour and reinforcing it after delivery to stop post partum bleeding. Its pharmacological use for inducing or augmenting labor can, however, desensitize receptors (14,15), thereby impairing oxytocin's post delivery effects on uterine contractility and increasing the risk of atonic (16). Our objective of this retrospective case control study was to investigate the association between oxytocin exposure during labour and risk of poor maternal and fetal outcomes.

MATERIALS AND METHODS

Study Design: This was a hospital record based retrospective case control study.

Population: study population included women delivering in labour room of Gandhi Memorial Hospital from January 2014 to June 2014. Inclusion and Exclusion criteria: All the primi and second gravida women with singleton term pregnancies were included. Presence of any high risk factor medical or obstetrical disqualified the women. Method: A hospital record based study done. All the women fulfilling inclusion criteria were divided in two groups of case and control; case were those who received oxytocin augmentation and control were those who did not receive oxytocin augmentation, data were collected for the characteristics of study population regarding maternal are, gravidity, length of second stage of labour, mode of delivery, presence of PPH, Apgar score of newborn at 1 and 5 minutes, neonatal admissions to intensive care. Analysis: The case and control groups were compared with chi square test for the data collected. Statistical significance was defined as a p value of <0.05. Analyses were performed with Stata V.11 software (Stata Corporation).

RESULTS

During this period total of 4863 deliveries took place. After meeting inclusion criteria of this study, we could recruit 862 women in each group. Results have been demonstrated in Table I. Demographic criteria in each group were comparable. In case group (women receiving oxytocin augmentation) cesarean delivery performed in 155 women while in control group (women not receiving oxytocin augmentation) it was performed in 121 women, P value was .03, which is significant. 66 women in case group and 30 women in control group had some grade of Post Partum Hemorrhage, therefore higher in case group and highly significant statistically. In case group mean Neonatal Apgar at 1 minute was 6.6 (SD 1.1) while in control group it was 7.2 (SD .78) which is also highly significant statistically. 5 minute Apgar was 8.7 (SD 1) in ase group and 8.8 (SD .98) in control group,

which was significant (p value- <.05). Neonatal admission was done for 39 newborns in case group while in control group for 24 newborns, which was higher in case group but not statistically significant.

Overall results of this study clearly indicate that oxytocin usage in labour is an independent risk factor for poor maternal and fetal outcomes.

Table I

Demographic /Clinical factor	Case Group (total 862)	Control Group (total 862)
Maternal Age in years	24.5 (6.2)	24.8(6.4)
Parity in number	1.2(1.3)	1.3 (1.1)
Gestational age in weeks	37.6 (1.8)	37.1(1.6)
Oxytocin onset to delivery in hours	8.1 (4.4)	7.9 (4.6)
Active phase length in hours	5.1 (1.3)	4.6 (1.2)
Second stage Length in hours	.69 (.58)	.74(.91)
Apgar at 1 minute	6.6(1.1)	7.2(.78)
Apgar at 5 minute	8.7(1)	8.8(.98)
Cesarean delivery	155	121
Newborn intensive care unit admission for more than 48 hours	39	24
Post Partum Hemorrhage	66	30

**Figures with Standard deviation are shown in mean while others viz. cesarean deliveries, PPH cases and Newborn intensive care admissions are in absolute numbers.*

DISCUSSION

Mode of delivery did not differ between the case and the control group. Early use of oxytocin shortened labour duration significantly, but did not affect the duration of the second stage. There were no significant differences in mode of delivery, postpartum haemorrhages, proportions of neonates with a 5-minute Apgar score below 7 or transfers to NICU between the groups. Our observation of the statistical difference in the caesarean section rate between early oxytocin and expectant care groups corresponds well to earlier conclusions in meta-analyses that the use of early oxytocin may or may not decrease the caesarean section rate (17-19). Our observation of no significant difference in reduction in labour duration in the oxytocin group is also similar to earlier reports in which decrease in duration of labour varies from 50 to 162 minutes which may or may not be significant (18,20,21). One-to-one midwifery care is also one of the most important factors

to increase maternal satisfaction (22). The personal attention from the midwife during one-to-one care could considerably contribute to the progress of labour and women with prolonged labour may need extra support and encouragement during childbirth. The results of earlier studies on women's experiences of different managements of prolonged labour are contradictory. Some studies indicate that women are more satisfied with active oxytocin treatment (23,24) but more recent and larger trials report equal satisfaction between groups (20,25). In our study incidence of PPH was found to be very high in case group which was highly significant and is comparable with other studies(8,9).

CONCLUSION

Oxytocin is a drug commonly administered drug to a pregnant lady during labour,

nowadays even without an indication, in the hope that the progress of labour can be improved and the need for cesarean delivery may be reduced. We have enough studies on adverse effects of injudicious use of oxytocin on mother and the fetus both. According to present study excessive Oxytocin use during labour appears to be an independent risk factor

for PPH and Early fetal and neonatal complications. This study emphasizes the need for safeguards to minimize maternal and neonatal complications when augmenting labour with oxytocin, including rigorous indications, use of minimal useful dose and careful efficacy evaluation.

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