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EFFECTS OF PHLOROGLUCINOL ON AUGMENTATION OF LABOUR IN PRIMIGRAVIDA

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ABSTRACT

Objectives: To study the effects of Phloroglucinol on augmentation of labour in primigravida and its maternal and fetal adverse effects.

Materials and Methods: A comparative study conducted on hundred selected primigravidae divided by toss of block randomization into control group and interventional group with 50 patients in each. In control group labour was augmented by artificial rupture of membranes (ARM) followed by 10% intravenous oxytocin infusion at rate of 10 drops/min and interventional group was augmented by ARM followed by 10% oxytocin infusion at rate of 10 drops/ min intravenously along with a single dose of 80mg phloroglucinol intravenously.

Results: The interventional group had shorter labour with lesser rate of CS and Assisted Vaginal Deliveries (AVDS). Less amount of oxytocin used in this group so the babies had better Apgar Score (A/S) with no maternal or fetal complications as compared to the control group.

Conclusion: The patients of both the groups matched with regards to baseline demographic and clinical features. The results revealed that augmentation in interventional group was better than control group, with no side effects.

Key Words: Phloroglucinol, Artificial, Rupture, Membrane, oxytocin, labour, primigravida.

INTRODUTION

Labour and delivery is the focus and climax of reproductive process. Majority of women experience normal labour and normal delivery. If nature is doing a good job, let it take its own course and do not intervene unnecessarily[1]. Labour lasting more than 18 hours in primigravida and 12 hours in multigravida is called prolonged labour [2]. More than any other objective measurement, the duration of labour determines impact of delivery on mother, fetus and also on efficient running of a labour ward. In prolonged labour, mother faces increased incidence of infection, Postpartum Haemorrhage (PPH), trauma to birth canal and obstructed labour. While the fetus may be exposed to infections, increased intracranial stress and hypoxia. Prolonged labour initiates a cascade of obstetrical interventions especially operative deliveries, which could be avoided by proper interventions. Augmentation of labour is the process by which the labour is accelerated by interventions. Augmentation is justified only when it is beneficial to the mother and her baby[2].

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Contractility and cervical effacement are the two main features of labour. If powerful contractions develop but the cervix remains rigid and unyielding the labour will be more complicated and prolonged[3]. In the history of obstetrics we find many techniques for accelerating the process of labour. The most effective one was ARM but it carried many risks. The next milestone was the discovery and synthesis of oxytocin, but its use was stopped due to the serious complications it produced during labour in the early years of its discovery.

A policy of ARM followed by intravenous infusion of oxytocin was advocated as a standard treatment for augmentation in 1968, but the success rate of this policy depends upon cervical ripeness which is calculated by Bishop scoring system[6]. Therefore the best intervention is one which improves cervical ripeness and establishes gradual myometrial contractility. To achieve this purpose many therapies have been used so far. We augmented the labour with ARM, followed by intravenous oytocin infusion along with phloroglucinol. Phloroglucinol is a spasmolytic and is in use for irritable bowl syndrome, renal and billiary colics and GIT pains. This drug was used in early 1980s for acceleration of labour. To our knowledge there has been no such study conducted to augment the labour in primigravida.

MATERIALS AND METHODS

A comparative study was conducted on 100 primigravidae who were in active phase of labour and not progressing properly, having single fetus with vertex presentation and with period of gestation 37 weeks to 40 weeks. All primigravidae with any medical, obstetrical or surgical complication were excluded. This study was conducted in PGMI, Lady Reading Hospital Gynae A Unit, Peshawar and Department of Pharmacology, Khyber Medical College, Peshawar from March 2012 to June 2012.

Approval of the ethical committee of PGMI, Lady Reading Hospital was taken. The protocol was also approved by the Head of the Gynae A Unit Lady Reading Hospital. The participants were approached through informed consent. Complete history was taken and examination of patients performed along with routine investigations. By toss of block randomization they were divided into two groups, the interventional group and the control group, with 50 patients in each. Control group received the standard treatment of augmentation i.e., ARM followed by 10 units of oxytocin in 1000ml ringers lactate at a rate of 10 drops/min. While the interventional group received standard treatment along with 80mg of phloroglucinol intravenously as a single dose.

The outcome measures were time of labour, amount of oxytocin used, mode of delivery, A/S neonates and adverse effects on mother or fetus. The hypothesis analyzed were, that phloroglucinol shortens the time of laobur without any adverse effects on mother or fetus. It reduces rate of operative deliveries. It reduces the amount of oxytocin used during augmentation of labour and the babies are delivered with better A/S. The progress of labour was recorded on partogram for all the patients. Data collected through proforma was analyzed using statistical package of social sciences. The baseline demographic and clinical features and primary outcome measure were studied in both groups. *P-values* were calculated. The level of significance for p was less than 0.05.

RESULTS

The primary outcome measures i.e. Apgar score, duration of augmentation, amount of oxytocin used and mode of delivery were studied in interventional group as well as in control group and the P-values were calculated. The level of significance was $p < 0.05$. Table 1 shows that the patients of interventional group took less time than the patients of control group after augmentation till delivery with P-value of 0.002 which is statistically significant. The babies were born with better Apgar score in the interventional group as compared to the control group, with P-value of 0.001, which is highly significant. The mean international units of oxytocin used in interventional and control groups were 16.40 and 31.50 respectively, with p value of 0.005, which is highly significant. Table 2 shows the comparison of mode of delivery in control group and interventional group with the p-value of 0.005, which is of great significance. Table 3 shows that after augmentation 10% of the control group delivered in 1 to 2 hours, while 92% of the interventional group delivered in 1 to 2 hours.

Ninety percent of the control group took more than 2 hours and 8% of the interventional group took more than 2 hours after augmentation till delivery, with a P-value of 0.005, which is highly significant. Table 4 shows the complications observed during this study in both the interventional and control groups. Thirty percent of patients got PPH, 4% had perineal tears and 2% had urinary retention. All these complications were found in AVDs of the control group while no such complications were seen in the interventional group.

DISCUSSION

Pregnancy and labour, if not kept under constant supervision, can end up with serious complications[9]. It has been recognized, that dysfunctional labour leading to poor progress is associated with increased morbidity and mortality for both the mother and the fetus. Parturition, though physiologic, places demands on the mother and fetus that may outstrip their ability

Table 1: Summary of results for primary outcome measures n = 100

Descriptions	Interventional group Mean ± SD	Control group Mean ± SD	*P*-value
Augmentation duration in hrs	1.334 ± 0.721	3.18 ± 1.12	0.002
Apgar score at birth	9.36 ± 1.03	8.34 ± 1.66	0.001
International Units of Oxytocin used	16.40 ± 6.23	31.50 ± 9.33	0.005

Table 2: Mode of delivery n=100

Descriptions	Interventional group	Control group	Chi-square	*P*-value
CS and AVDs	02	24	22.92	0.005
NVDs	48	26		

Table 3: Comparison of the control and interventional group for duration of augmentation n = 100

Time taken from augmentation till delivery	Control group & percentage	Interventional group and percentage	*P*-value
1-2 hours	5(10%)	46(92%)	0.005
More than 2 hours	45(90%)	4(8%)	

Table 4: Complications n=100

Complications	Control group & percentage	Interventional group & percentage
Stillbirth PPH	0(0%) 15(30%)	0(0%) 0(0%)
Perineal tears	2(4%)	0(0%)
Urinary Retention	1(2%)	0(0%)

to cope even under apparently normal circumstances. Not only does prolongation of labour expose underlying vulnerabilities, but harm can also arise directly from the underlying cause of delay. It is simplistic to think that accelerating progress of labour will prevent such harm.

In our study, gestational age, Hb%, weight of baby, random blood sugar, patient's age, weight and height of the patient, were the base line demographic and clinical features, which were studied in both, the control group and the interventional group. All these parameters were almost similar in both groups, with a P-value > 0.05, which is not significant. The primary outcome measures of this study were duration of augmentation of labour, A/S international units of oxytocin used, mode of delivery and any complications faced by mother or baby in both groups.

In the present study the duration of augmentation till delivery in the interventional group was almost half of the control group. The difference was statistically significant and the results were comparable with the studies conducted by Tabassum S et al[8].

The second primary outcome measure of our study was Apgar score of the baby at birth and five minutes after birth. The low Apgar score is more strongly associated with neurologic deficit[11]. In our study the babies born in interventional group had significantly better A/S than the babies born in control group. The babies of interventional group were exposed to stress of labour for shorter duration than the babies of control group. The results of Friedman EA et al matched with the results of present study.[9]

The third primary outcome measure of the study was to reduce the amount of oxytocin used in augmentation of labour and the same results were given by Stubbs TM[10] and Bugg GJ.[11] It is evident that, every uterine contraction decreases the blood flow to the baby and hence the oxygen supply[1]. Oxytocin stimulation increases the frequency of contraction, time of contraction and the severity of contraction which causes fetal distress[12-13].

Mode of delivery was also a primary outcome measure of our study. In our study, majority of the deliveries, in the interventional group were normal vaginal deliveries as compared to the control group. In NVD mother baby interaction builds quickly with successful breast feeding, maternal morbidity is less and hospital stay is shorter, as the results of Geary M and Anderson GC study shown. Complications faced by patients in control group were PPH, perennial tear and urinary retention, but no such complications were seen in the interventional group. Similar results have been reported in the study conducted by Ahmad S[14].

CONCLUSION

The standard treatment alone compared to the augmentation with Phloroglucinal combined to standard treatment, the results were superior that is reduction in the duration of labour, no maternal or neonatal side effects, the rate of CS and AVDS was less, lesser amoutn of Oxytocin used. So Phloroglucinal has a good role in Obstetrics.

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