

Comparison of Mean Duration of First and Second Stage of Labour in Term Primigravida with and without Phloroglucinol

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ABSTRACT

Aim: To compare the mean duration of first and second stage of labour in term primigravida with and without phloroglucinol

Methods: This randomized double blinded controlled trial was carried out at Department of Obstetric & Gynaecology Sandemen Provincial Hospital, Quetta from 1st October 2016 to 31st March 2016. One hundred cases with term primigravida, single alive cephalic fetus, in spontaneous labour were included. Patients were divided in two groups A (study group) & B (control group). Progress of labour was plotted on partogram for duration of first and 2nd stage of labour in both groups and other variables like duration of third stage of labour and mode of delivery was also noted in both groups.

Results: The mean age was 26.12±0.89 years. The duration of stages of labour, In group A mean duration of stages of labour was 203.06±9.21 minutes and in group B 311.12±10.89 minutes (P 0.004). Duration of second stage of labour was 27.02±4.18 in group A and 39.08±5.29 in group B and accumulative duration of first and second stage of labour was 230.09±3.39 in group A and 350.20±16.18 in group B (P 0.005).

Conclusion: Phloroglucinol shortens the duration of labour in nulliparous also and is non toxic to both mother and foetus. Spasmolytics as phloroglucinol have a definite role in obstetrics.

Keywords: Nulliparous, First stage of labour, Second stage of labour, Prolonged labour, Phloroglucinol

INTRODUCTION

Laboring woman and obstetrician both would like to accomplish the delivery of the fetus in shortest possible time without compromising the fetomaternal safety.¹ As the active phase commences, the uterine contractions progressively increase, additionally, intensity, and duration, and the cervical dilatation also increases.

Sometimes, the active phase of the first stage known as "dilatation phase" of labour. Nearly majority of the women may experience the active phase of first stage labor in the hospital obstetric unit. However, the method of care during this duration may influence the course of labor and its ultimate outcomes².

For many years, the hazards and problems of prolonged labour, both for the mother and foetus are recognized. The mother is at a higher risk of infection, ketosis and obstructed labour while the foetus is exposed to the danger of infection, excessive cranial moulding and asphyxia³.

Originally, active management of labour (AML) was introduced by O'Driscoll et al⁴ to avoid dystocia (prolonged labour), which at that time was called as labour lasting for more than 24 hours. In 1970s, in England and Wales labour was prolonged for more than 24 hours in only 5.1 percent of labours.⁵ O'Driscoll defined active management as a comprehensive programme of care in labour for females having their first baby, which includes, in addition to strict diagnosis of the onset of labour, early amniotomy, regular vaginal examinations to ensure dilation of at least 1cm an hour, early use of an IV infusion (drip) of synthetic oxytocin to ensure the progress, advising females that their labour may not last longer for more than 12 hours, the constant participation of a mid-wife and the active involvement of an experienced obstetrician. Active management was introduced with a belief that inefficient contractions are required to be corrected to reduce the number of prolonged labours. The prolonged labour (dystocia) was recognized as being due to one of the three factors, known as short as the forces, the passenger and the passages. The commonest cause, affecting 80 percent of prolonged labours, was inefficient uterine action, 10 percent of cases had the baby's persistent occipito-posterior position 'the passenger' while a further 10 percent of prolonged labours had cephalo-pelvic disproportion 'the passages'⁶. This hypothesis continued to underpin

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active management of labour. For those who practice active management of labour, if there is a diagnosis of failure to progress, intervention planned to improve uterine action is taken. It may facilitate the progress either by improving the efficacy of the contractions or by optimizing the position of the baby. If there is true cephalo-pelvic disproportion, intervention for increasing contractions may help to recognize this by reducing other causes. For active management of labour to be safe, it must be carried out with the caution and careful monitoring of the effects. As augmentation with synthetic oxytocin can produce overall oxytocin levels well-in-excess of those met during normal spontaneous labour, strong and more painful contractions may result, with additional fetal distress risks.

Spasmolytics and spasmolytics mixtures are being used to facilitate cervical dilatation during delivery and also to shorten first stage of labour alongwith amniotomy and oxytocine⁷. Hyoscine and Drotaverine are proved to shorten all stages of labour^{8,9,10}.

Phloroglucinol (Spasfon) is a spasmolytic agent used in G.I.T Colic, between 1970's to early 1980's for the augmentation of labour⁷. Previous studies are lacking regarding its efficacy in primigravida females only, however, this study was planned in primigravida females.

METHODOLOGY

In this randomized controlled trial, we enrolled 100 cases, with term primigravida, single alive cephalic fetus, in spontaneous labour (cervical dilatation of 3 cm and/or uterine contractions of 3/10 min) were included in the study while women with history of PIH (2 diastolic values of 90 mmHg on 2 occasions 6 hrs apart, known diabetics or random blood sugar of more than 200 mg/dl and patients with deranged liver function tests), preterm labour (patients at less than 37 completed weeks with uterine contraction of 3/10 or cervical dilatation of 3 cm), pre Prom (Patients at less than 37 completed weeks with history of gush of fluid and speculum examination showing liquor), Twin

pregnancy, intrauterine demise and placenta praevia type 2-4 were excluded.

All the primigravidas in labour room of Obstetric & Gynaecology Sandemen Provincial Hospital, Quetta from 1st October 2016 to 31st March 2016 who met our inclusion and exclusion criteria were enrolled in this trial. Their demographic profile that is name age address was noted. Patients were divided in two groups A & B. Syringes containing drug or placebo were prepared by principle investigator under aseptic conditions and on a rolling basis. One containing phloroglucinol 5ml and other containing normal saline 5ml, both colorless so indistinguishable from each other. Computer program was used to generate a random sequence of numbers. Each patient received that drug at 4cm dilatation and then 8cm dilatation by midwife or resident. Progress of labour was plotted on partogram for duration of first and 2nd stage of labour in both groups and other variables like duration of third stage of labour and mode of delivery was also noted in both groups.

RESULTS

Mean age of the participants was calculated as 26.12±0.89 years. Regarding duration of stages of labour, in Group A mean duration was 203.06±9.21 (mins) while in Group B 311.12±10.89 (mins), P value was found as 0.004, duration of second stage of labour was found 27.02±4.18 in Group A and 39.08±5.29 in Group B and accumulative duration of first and second stage of labour was found 230.09±3.39 in Group A and 350.20±16.18 in Group-B, P value was found as 0.005. Duration of third stage of labour was found 7.66±1.21 and 6.74±0.92 respectively (Table 1). The mode of delivery of the subjects, 32(64%) had spontaneous vaginal delivery in Group A and 17(34%) in Group B, while 11(22%) of Group-A and 21(42%) in Group B had instrumental delivery and 7(14%) in Group A and 12(24%) in Group B had operative delivery (cesarean section) [Fig.1].

Table 1: Duration of stages of labour

Stages	Group-A (Study group n=50)	Group-B (Control group n=50)	P value
First	203.06±9.21	311.12±10.89	0.004
Second	27.02±4.18	39.08±5.29	0.001
First+Second	230.09±3.39	350.20±16.18	0.005
Third stage	7.66±1.21	6.74±0.92	0.194

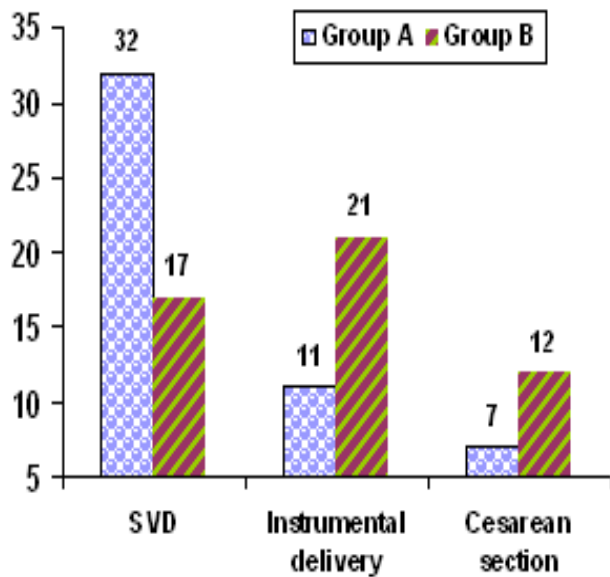


Fig.1: Mode of delivery

DISCUSSION

Prolonged labour in developing countries occurs mainly due to cephalopelvic disproportion. Other causes include inefficient uterine action and abnormal fetal presentation¹¹. Primi para women experience prolonged labour more often than multipara. In developing countries e.g., Pakistan & India, prolonged labour contributes significantly to maternal and perinatal morbidity and mortality. Prolonged obstructed labour and ruptured uterus may account for 70% of all maternal deaths, and 7-15% of perinatal mortality has been attributed to obstructed labour. Vesicovaginal fistula, severe consequences of prolonged labour, occurs at a rate of 55-80 per 100,000 live births in developing countries¹².

There has been considerable debate in recent past on the duration of the second stage of labour. Historically, the second stage of labour was limited to ≤ 2 hours^{13,14}. Recently, some authors have extended the duration of the second stage to three hours because majority of nulliparous women who underwent regional anaesthesia were found to deliver within three hours of second-stage labour in comparison to 2 hours in those without regional analgesia^{15,16}.

More importantly, the extension of time given to the second stage of labour is shown to increase the overall rate of vaginal births without adversely affecting neonatal morbidity.⁸⁵ However, maternal morbidities are increased and include operative vaginal delivery, anal sphincter tears, postpartum haemorrhage and emergency Caesarean deliveries^{17,18,19,20}. Furthermore, the rates of CS have

risen steadily in the past two decades and may be correlated with a disproportionate rise in second-stage CS due to a decline in the use of instrumental deliveries²¹.

O'Driscoll at the National Maternity Hospital, Dublin, introduced the concept of active management of labour and this has influenced gynecologists to change their outlook regarding the management of first stage of labour²². Active management of labour is associated with a lower rate of prolonged labour and low cesarean section rate²³.

Phloroglucinol compounds comprise a family which includes synthetic or semi-synthetic moieties and > 700 naturally occurring compounds. This is an important class of natural products comprising 1,3,5-trihydroxy benzene as the basic moiety. A vast array of activities such as anticancer, anti-inflammatory, anti-allergic, enzyme inhibitory, anti-microbial, neuro-regenerative and antioxidant have been exhibited by these compounds. Phloroglucinol (Spasfon) is a spasmolytic²⁴.

The spasmolytics and spasmolytic mixtures are administered to facilitate dilatation of the cervix during delivery and to shorten the first stage of labour. This medication is used in 70% deliveries at the 1st Dept. of Obstetrics and Gynaecology Masaryk University in Brno²⁵.

Hao Y²⁶ and colleagues observed the effects of Spasfon on improving dilatation of cervix and promoting the progression of labor. In their study Ninety seven normal primiparae with cervical edema were randomly divided into Spasfon group (n=46, Group-A) and atropine group (n=51, Group B) when the cervix dilated 2 - 3 cm. Group A was given 80 mg of Spasfon intravenously, and group B was injected atropine 0.5 mg into the cervix. The mean time period from drug administration to full dilatation of the cervix was found (3.1 +/- 0.3) h in group A, and (4.4 +/- 0.4) h in group B (P < 0.01). The disappearance ratio of cervical edema 2 h after drug administration in group A was 95.6%, while in group B it was 90.2% (P > 0.05); the mean dilatation of cervix between the 2 hours in group A was (4.3 +/- 0.2) cm, while in group B it was (2.5 +/- 0.3) cm (P value < 0.01). There were no obvious side effects in group A. While eight women in group B complained of thirst and 22 females had increased heart rate accompanied with elevated baseline FHR, which all recovered in about 60 minutes. Vaginal delivery rate in group A was 95.7%, and 90.2% in group B (P value > 0.05) and concluded that spasfon can effectively improve cervical dilatation during labor and it is well tolerated by both mother and newborn.

The results of our study are also in agreement with the Hao Y and Zahi HR²⁶ as we also found significant difference in our patients administered with

Phloroglucinol as compared with no intervention of phloroglucinol. The patients administered with phloroglucinol had a significantly shorter duration of 1st and 2nd stage of labour.

Our results are also in agreement with a local study by Tabassum²⁷ where patients receiving Phloroglucinol had mean 34% reduction in duration of 1st stage of labour and a 23% mean reduction in 2nd stage as compared to Placebo group respectively while no adverse effects was found to the mother or foetus.

The hypothesis of this study regarding Phloroglucinol's effect on shorter duration of first and second stage of labour in nulliparous women is found to be justified in light of results of the current study supported with national and international studies and it is also found with no toxic effect to the mother and the fetus as well.

CONCLUSION

Phloroglucinol shortens the duration of labour in nulliparous also and is non toxic to both mother and foetus. Spasmolytics as phloroglucinol have a definite role in obstetrics.

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