Original Article

External Cephalic Version with Tocolysis

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Abstract

Objective: to compare success rate of external cephalic version with tocolysis and without tocolysis.

Study Design: randomized controlled trial.

Place and duration of study: this study was conducted at department of obstetrics/gynaecology Unit-II of Holy Family Hospital from 10-04-2009 to 09-04-2010.

Methodology: after informed consent the women selected were enrolled randomly to one of the two groups i.e. tocolysis (group A) and non tocolysis (group B)

Results: total 134 women were included after fulfilling the inclusion criteria. Minimum age of the women was 20 years and maximum age was 40 years with mean 29.26± 5.60. All the patients had external cephalic version but out of these 134 patients 67 (50%) patients had tocolysis and remaining 67 (50%) patients did not have any tocolysis. Overall external cephalic version was successful in 101 (75%) of them and it failed in 33 (25%) cases. In tocolysis group ECV was successful in 56 (83%) women as compared to non tocolysis group in which success was achieved in 45 (65%) women. Vaginal delivery occurred in 54 (80%) in group A and in 45 (67%) in group B. Out of total 67 babies born in group with tocolysis, 66 babies survived and 1 baby died whereas in the other group without tocolysis all 67 babies born survived.

Conclusion: in conclusion we can say tocolysis has significant effect on the success rate of external cephalic version.

Key words: external cephalic version, breech presentation, tocolysis.

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Introduction

Breech presentation complicates 3 to 4 % of pregnancies at term. Since the publication of term breech trial, the rate of breech vaginal birth has fallen precipitously[1] and percentage of caesarean deliveries due to breech presentation in Netherlands increased from 50 to 80% within in a year.[2] However caesarean section leads to more maternal and fetal morbidity compared to vaginal birth of cephalic presentation. External cephalic version (ECV) provides the best solution to the problem of short versus long term complications of mode of delivery for breech presentation. ECV decreases neonatal morbidity and mortality by decreasing the incidence of cord prolapse and unattended precipitate breech delivery. The Royal College of Obstetricians and Gynaecologists (RCOG) and American College of Obstetricians and Gynaecologists (ACOG) recommend that all women with an uncomplicated singleton breech presentation at term should be offered ECV.[3]

Despite these guidelines a significant number of women are either not offered ECV or they decline the offer. An inventory survey of all hospitals of Netherland reported that 5% obstetric practices did not perform any ECV at all and 26% of eligible women declined the offer.[4,5] Many intervention strategies have been tried to improve the success rate of ECV. Hypnosis and pain relief might be helpful in women with anxiety.[6] Other methods such as tocolysis, epidural and foetal acoustic stimulation have been shown to increase the success rate of ECV.[7,8] Use of tocolysis does improve the success rate of ECV but whether it should be given before every attempt or only after a failed attempt is not clear.

The objective of the study was to compare success rate of external cephalic version with tocolysis and without tocolysis and to evaluate the hypothesis that tocolysis increases the success rate of external cephalic version.

Operational Definitions

Tocolysis: for tocolysis drugs were used to relax the uterus in an attempt to facilitate external cephalic version at term e.g. sublingual nitroglycerine.

Failed External Cephalic Version: 3 attempts of external cephalic version were made before declaring the case as failure.

Complications of External Cephalic Version: such as foetal heart rate abnormalities i.e. bradycardia and or non reactive cardiotocograph, vaginal bleeding, rupture of membranes and any compilations leading to emergency caesarean sections that were noted.

Methodology

This randomized controlled trial was carried out in the Obstetrics/Gynaecology Unit-II, Holy Family Hospital Rawalpindi for a period of one year from 10-04-2009 to 09-04-2010. Women attending the OPD or admitted in labour room were included by randomized allocation (lottery method) to either group (A or B). Sample size was calculated by using WHO software for calculating sample size. (Estimating difference between two population proportions (where confidence level (1-α) = 95%. Absolute precision (d) = 0.10. P_1 (success rate of

ECV without tocolysis) = 25%. P2 (success rate of ECV with tocolysis) = 80%. After taking written informed consent from the women and approval from hospital ethical committee, out of 134 women, 67 were randomly allocated to either group A (Tocolytic group receiving sublingual nitroglycerine) or Group B (Non tocolytic group) by using non-probability sampling.

Inclusion Criteria: Primigravida up till para four between 20-40 years of age with low risk singleton breech pregnancy at 37 weeks (LMP or USG) were included in the study.

Exclusion Criteria: Those with risk factors in current pregnancy like medical disorders, intrauterine growth restriction, oligohydramnios, bad obstetric history, with previous uterine scar or having any contraindication to vaginal delivery were excluded from the study.

Base line blood pressure, Pulse, and fetal heart were noted. Detailed obstetrical ultrasound examination was carried out to find out the type of breech presentation, location of placenta, approximate foetal weight and fetal biophysical profile. 0.5mg of sublingual nitroglycerine was administered in group A (tocolytic group) 3 minutes before the attempt of external cephalic version. Non tocolytic group received no medication before attempt of external cephalic version. The external cephalic version was attempted by a consultant gynaecologist under ultrasound guidance. Three attempts of external cephalic version by either forward or backward flip were done. All selected women were monitored by intermittent blood pressure, pulse rate and fetal heart rate monitoring every 10 to 15 minutes for first three hours. Detailed foetal biophysical profile was also done after the procedure. Mode of delivery in each case was noted. Foetal outcome was assessed according to the APGAR score at 10 minutes after birth.

Data Analysis: The data was analyzed by SPSS ver. 10. For quantitative data mean and ±SD was measured, namely age, gestational age and estimated foetal weight was done. For qualitative data namely parity, type of breech, No. of failed external cephalic version and success rate was calculated. Chi-square was used to compare success rate of external cephalic version in women's receiving tocolysis with those not receiving tocolysis. P value of less than 0.05 was considered as significant.

Results

In our study total 134 women were included who fulfilled the inclusion criteria. Tocolysis was used in 67 women while in another 67 tocolysis was not used. Mean age was 28.88 years in group A and 29.66 years in group B. Flexed breech was present in 78 (58%) women and extended in 56 (42%) women. In group A foetal heart rate variations were found in 6 women, while in group B, 5 women had fetal heart rate variations (Table I). Rupture of membranes occurred in one woman in without tocolysis group and was not observed in tocolysis group as shown in (Table II).

APGAR score at 10 minutes was more than 7 in 133 (99.3%) babies born where as it was less than 7 in one who later expired (Table III).

Table No I. Foetal heart rate complications in different group

Tocolysis	FHR variations		Total
	Yes	No	
With tocolysis	6 9.0%	61 91.0%	67 100.0%
No Tocolysis	5 7.5%	62 92.5%	67 100.0%
Total	11 8.2%	123 91.8%	134 10.0%

Table No II. Rupture of membrane in different group of tocolysis

Tocolysis	Rupture of membranes		Total
	Yes	No	
With tocolysis	0 0%	67 100%	67 100%
No Tocolysis	1 1.5%	66 98.5%	67 100%
Total	1 0.7%	133 99.3%	134 100%

Table No III. APGAR score in our study population

Variable	Babies born in group A	Babies born in group B
Agar < 7	1	0
Apgar ≥7	66	67

In group A (with tocolysis), ECV was successful in 56 (83%) women and failed in 11 (17%) cases. On the other hand in group B (without tocolysis) the success was achieved in 45 (67%) and in remaining 22 (33%) cases attempt failed. (Figure 1).

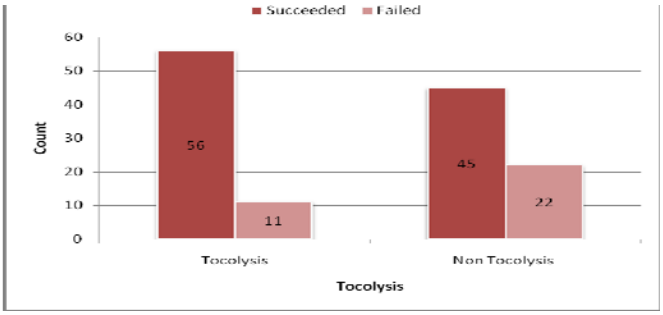

Figure 1. Comparison of Tocolysis with External Cephalic Version

Vaginal delivery was achieved in 54 (80%) in group A and remaining 13 (20%) were delivered by Lower Segment Caesarean Section (LSCS) whereas in the other group 45 (67%) had vaginal delivery and 22 (33%) needed caesarean section (Figure 2).

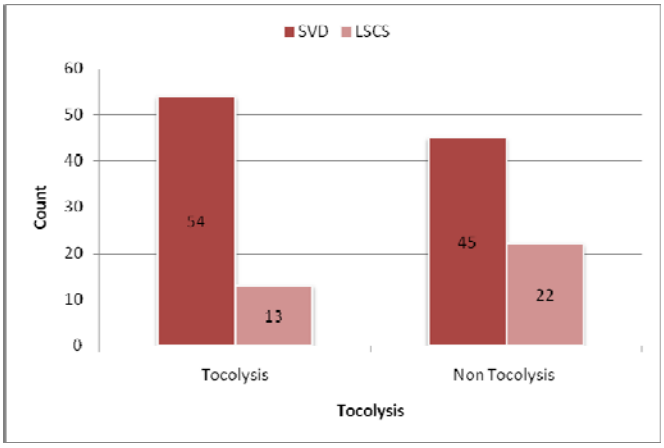

Figure 2. Mode of Delivery Comparison of Two Groups

As for as parity is concerned, out of 56 nulliparous women, 26 (46%) cases underwent ECV while failure occur in 30 (54%) women. ECV was successful in 75 (96%) multiparous out of total 78 cases. The difference was significant between nullipara and multipara with p value of 0.0005.

Discussion

External version had made resurgence in the past 15 years because of a strong safety record and a success rate of about 65 percent. Before the resurgence of the use of external version, the only choices for breech delivery were caesarean section or a trial of labor. It is preferable to wait until term (37 weeks of gestation) before external version is attempted because of an increased success rate and avoidance of preterm delivery. A

recent large multicentre randomized study found that ECV initiated at 34-35 gestation compared with 37 weeks or more increases the probability of ECV, however it does not reduce the rate of caesarean section and it may increase the risk of preterm birth.[9] ECV at 36 weeks has been shown to decrease the incidence of breech presentation at term and consequently reduces the caesarean section rate.[10] In our study the age of women was 20 years to 40 years with a mean age of 29 years is almost similar to other trials. All ladies enrolled consented for ECV though a number of barriers to ECV have been identified. Lack of adequate patient information is a common barrier is reported in one study.[11] Overall 75% of our women had successful ECV and in 25% cases it failed. Results vary from 30% to 80% in different series.[12, 13] ECV success rate of 55% is reported in another study[14]. Highest success rate are seen in multipara[12] and same results were seen in our study. In our study few cases of transient fetal heart rate variation were observed (8%) and almost similar in both groups but another study observed transient fetal bradycardia after ECV in 2.4% of cases[14] and in the same study two cases needed emergency caesarean section due to persistent abnormal fetal heart rate patterns but no case in our series needed emergency caesarean section. However one perinatal death occurred in our tocolytic group but probably it was not ECV related as the case delivered two weeks after ECV and baby died of meconium aspiration.

ECV had good result with the use of tocolysis as in our study the success rate was 83%. In the other group without tocolysis, the success rate was only 67% and this difference was statistically significant having P value of about 0.027.It has been proven that success rate of ECV is increased by the use of retodrine and salbutamol but not with glyceryl trinitrate as a patch or sublingual but we use glyceryl trinitrate sublingually.[15]

Strength of the study is the fact that ECV is performed in one unit by a single trained obstetrician and all data was prospectively recorded.

Conclusion

Tocolysis has significant effect on the success rate of external cephalic version and external cephalic version was also more successful in multiparous than in nulliparous women.

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