EARLY VERSUS LATE EXTERNAL CEPHALIC VERSION

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ABSTRACT

Objective: *To find out whether initiating external cephalic version (ECV) earlier in pregnancy increase the rate of successful ECV procedures, and be more effective in decreasing the non cephalic presentations at birth and also cesarean section rate.*

Methodology*: This interventional study was conducted in Department of Obstetrics and Gynecology Mardan Medical Complex from first July 2010 to 31st Dec 2011.It included women with singleton breech fetus at a gestational age of 34 to 35 weeks. Patients were randomly divided into two groups, those having a first ECV procedure between 34(238 days) and 35 weeks of gestation were called early ECV group the second group included those who had first ECV at or after 37 weeks(259 days) and were called delayed ECV group. Percentages were calculated for qualitative variables like Gravida, complications etc, while mean and SD for quantitative variables like gestational age.*

Results*: Out of total 203 women who had breech presentation 123 were finally selected for the trial. Early ECV group included 63 patients while delayed group included 60 patients..Fewer fetuses were in non cephalic presentation at birth in the early ECV group (41/63[65%] versus 29/60[49%] in the delayed ECV group, p = 0.04. There were no differences in rates of cesarean section (19/63[30%] versus 20/60 [33%], p=0.42) in the early ECV group versus the delayed ECV group. The rate of preterm birth was not different between groups, early ECV group (2/63[3%] versus 0/60[o], p=o.26) delayed ECV group.*

Conclusion*: External cephalic version at 34 and 35 weeks increase the likelihood of cephalic presentation at birth but it does not decrease the rate of cesarean sections and may increase the rate of preterm birth in the early ECV group.*

Key Words*: Breech Pregnancy, External Cephalic version, Fetomaternal complication, Caesarian section.*

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INTRODUCTION

Fetus presents as breech in 3-4% of singleton full terms pregnancies and higher proportion of preterm deliveries.[1] External cephalic version is a procedure used during pregnancy to try to turn a breech fetus to cephalic by externally maneuvering the fetus through the maternal abdomen.

A Cochrane review reported that ECV decreased the non cephalic presentation at birth and the c-section rate[2,3]. The success rate is upto 60%[4,5]. After the publication of terms breech trial, the incidence of c-section for breech presentation has increased markedly. The trial concluded that elective c-section is safer for the fetus and of similar safety to mother when compared to vaginal breech delivery[6]. However cesarean section has higher maternal morbidity and mortality as well as financial cost and long terms complications than vaginal delivery[7].

We hypothesized that initiating ECV earlier in pregnancy (before the Breech descends into the pelvis and while the amount of amniotic fluid is comparatively more), will increase the success rate of the procedure and decrease the caesarian section rate. I also calculated the risk of pre term birth. Group allocation on the basis of gestational ages was done In accordance with the two major multicenter trials conducted on the same subject before[8,9].

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METHODOLOGY

From first July 2010 to 31st December 2011,a prospective interventional study including

all the patients undergoing trial of ECV at or beyond 34weeks was done. The success and complication rates were calculated.

The study received ethical approval by the Hospital ethical committee at Mardan Medical Complex.

All pregnant ladies with singleton fetus in Breech presentation at 33-35 weeks of gestation on a recent screening ultrasonogram were eligible for the study. This one week time was taken for booking of procedures, confirmation of breech presentation and to rule out contraindications to ECV. No ECV procedure was undertaken before 34 completed weeks of gestation. All the women who presented with contra indications to the procedure were excluded, Such as fetal heart rate abnormalities, history of vaginal bleeding, especially in the 3rd trimester, life threatening fetal abnormalities, placenta previa, placental abruption, rupture of fetal membranes, fetal weight restriction, previous classical cesarean section, if amniotic fluid index was less than 5cm, estimated fetal weight exceeding 4kg, uterine mal formations and if the patient is unwilling for ECV despite thorough counseling.

Informed consent was obtained from each patient after explaining about the diagnosis, risk of malpresentation, the nature and risk of ECV, timing of ECV and option of delivery if ECV failed. All women undergoing ECV were kept for about 03 hour in antenatal ward near labour room. They were asked not to take anything orally befor the procedure for about 04-06 hours. Blood group and rhesus factor was looked .those with negative blood group were given anti D IMMUNO-GLOBULIN after the procedure. OT staff was informed in case any emergency arises. Modified bio physical profile i.e., assessment of, fetal heart rate and amniotic fluid volume was done at the time of procedure.

To facilitate the procedure patient was kept in 20^0 trendlenburg position. The Breech was disengaged by gentle pressure on both sides of the presenting part. Tocolysis was not used. Mainly two operator technique and forward roll was applied. Most of the procedures succeeded in 2-3 attempts over a period not exceeding beyond 15 minutes. After the procedure patient was kept for about 01 hours to look for bleeding or any other complications. Post procedure CTG was done.

The procedure was discontinued if there was excessive maternal discomfort, fetal heart rate irregularities or repeated failed attempts. Patients were discharged with the advice for weekly visits in the delayed ECV groups and fortnightly in the early ECV group.

RESULTS

Total number of deliveries from Ist July 2010 to 31st Dec 2011was 5075. 240 patients were admitted with mal-presentations out of which 203 (04%) were Breech presentations. Of 203 patients 60+63=123 were finally selected for the trial. Baseline characteristics were analyzed in all the 63 patients in early ECV group and 60 patients in the delayed ECV group. Majority of the patient were in 25-35 years of age. 80% were multigravida.

All attempts under taken to maneuver the fetus at one visit were considered as part of one procedure. A 2nd attempt was performed at a later date in those who reverted to non cephalic presentation, after consultation with the patient.

Out of the 63 patients in the early ECV group 81% underwent at least one procedure.and 77% in the delayed group underwent at least one procedure. All ECV procedures were performed in the hospital in Antenatal ward near labour room and OT. Re-version to breech occurred in 05(08%) patients in early group and one patient (02%) in the delayed group, which were diagnosed on follow up visit and were successfully repeated.

Women in the early ECV group experienced less pain during the ECV procedure than those in the delayed ECV group after adjusting for parity, maternal age.

The rate of complication encountered during any ECV procedure was low i.e 4.7% in the early ECV group and 05% in the delayed ECV group.

Fewer patients were non cephalic presentation at in the early ECV group (35%) than the delayed ECV group(52%) with p=0.04.

The rate of cesarean section was not different between groups(19/63[30%] in the early ECV group versus 20/60[33%] in the delayed ECV group; p=0.42). 70% in the early ECV group and 76% in the delayed ECV group had vaginal delivery. Out of those who had successful ECV 83% achieved vaginal delivery. The remaining 07 (17% under went cesarean section due to varied reasons mainly fetal distress due to non re-assuring CTG and poor progress. In the delayed group 76% of those with successful ECV delivered vaginally and 07 patients i.e. 24% had cesarean section. Out of those with failed ECV 45% in the early ECV group and 58% in the delayed ECV group achieved vaginal breech delivery. Among failed ECV's 55% in the early group and 42% in the delayed group underwent cesarean section. The rate of preterm births at less than 37 weeks was not different between groups (3%[2/63] in the early ECV group versus nil in the delayed ECV

Table 1: Parity of the patients

Parity	Early ECV group	Delayed ECV group
0	13 (21%)	12 (20%)
1-4	26 (41%)	28 (47%)
≥4	24 (38%)	20 (33%)
Total	63	60

Table 2: Gestational age in relation to outcome of ECV

	Gestational age	No of patient	Successful	Unsuccessful
Early ECV Group	34 weeks	30	25	08
	35 weeks	33	16	14
Delayed ECV Group	37 weeks	25	17	08
	38 weeks	30	10	20
	39 and above	05	02	03

Table 3: Description of ECV procedures

Description of procedure	Early ECV n (%)	Delayed ECV n (%)
Only one procedure under taken	51(81%)	46(77%)
First procedure successful	32	21
Two procedures under taken	07(11%)	08(13%)
2^{nd} procedure successful	05	05

Table 4: Description of ECV procedures

Reason for discontinuing first ECV	Early ECV	Delayed ECV
Unable to turn fetus	09	10
Unable to lift breech from pelvis	03	10
Maternal discomfort	04	04
Anxious	04	03
Very obese/unable to palpate	04	02
Non reassuring fetal heart	02	02

Table 5: Maternal and fetal complications in both the groups

Maternal and Fetal complication	Early ECV	Delayed ECV
Non re-assuring fetal heart rate	01	01
Contractions	-	01
Hypotension	01	-
Vaginal bleeding/abruption(suspected)	01	01

Table 6: Success rate of ECV

Presentation at Delivery	Early ECV	Delayed ECV
Cephalic	41(65%)	29(48%)
Breech	22(35%)	31(52%)

Table 7: Mode of delivery

Characteristic/ Outcome	Early ECV Group		Delayed ECV group	
	Successful	Failed	Successful	Failed
Cesarean section	07	12	07	13
Vaginal birth	34	10	22	18
Spontaneous cephalic	27	-	15	
Assisted cephalic (vacuum+ forcep)	07	-	07	
Vaginal Breech 15.8%	-	10		18

group p= 0.26). There was no maternal death or serious maternal morbidity in either group. There was one case of sudden unexplained fetal death in utero in the delayed group.

DISCUSSION

ECV under taken at term reduces the need for cesarean section avoids the risk of pre term birth and is considered safe for the fetus[2,4,5,10,11].We hypothesized that Initiating ECV earlier than term might increase the likelihood of successful ECV and would thereby reduce the need for cesarean section[12-14].In this study the early ECV was successful in decreasing the likelihood of non cephalic presentation at birth, however the decrease in non cephalic presentation didn't translate into reduction in use of cesarean section which may be due to higher breech delivery in delayed group. The result show 03% reduction in section rate by early ECV at 34-35 weeks, which even though by this small a percentage can be considered as an option in those women who wish to reduce the risk of cesarean section and also because the combined data of both pilot ECV trail and early ECV 2 trail show a borderline statistically significant difference between the two groups for both the cesarean section rate and the risk of prematurity[8,9].

This trial did not find higher risk of adverse fetal outcome in the early ECV group and generally the infants did well. Only two cases i.e. 3% had preterm birth in the early ECV group with the p-value 0.26 which means that there was no significant difference between the two groups and the procedure was associated with higher risk of prematurity in the early ECV group which is similar to the result of meta analysis of early ECV 2-trial which suggests that early ECV may be associated with higher risk of preterm birth[8]. Since the risks of prematurity such as acute respiratory distress syndrome and poor long term out come and the much higher cost of its treatment are there, therefore the benefits of early ECV in avoiding cesarean section should be balanced against the risk of preterm birth[15,16]. Women were more satisfied with the early ECV. They experienced less pain and were more likely than in the delayed group to indicate that they would use the same approach to the timings of ECV in another pregnancy with a fetus with breech presentation or to recommend it to a friend.

Success rate of ECV was 65% in the early ECV group and 49% in the delayed ECV group. On literature review the rate of successful version at term was 63.3% ranging from 48 to 77%[17]. Our rate of successful ECV was similar to the mean rate found in two large systematic reviews reported on ECV outcomes i.e. 60% and 58% in the early and delayed ECV groups respectively[4,5]. The failure rate in this study is 35% and 52% in the early and delayed groups respectively. Tocolysis was not used to improve the success rate. Amongst failed ECV patients 55% in the early group and 42% in the delayed groups under went cesarean section. The over all cesarean section rate in this study was 30% in the early group and 33% in the delayed group compared to 53.7% and 58.1% respectively in the two early ECV major trials[8,9]. The rate of c-section was lower in our study because of higher proportion of multiparous women (80%VS35%)

which favours higher rate of spontaneous version to cephalic, successful ECV and vaginal births. Moreover early ECV Trials were conducted in centers where cesarean section rate was generally higher[8,9].

Reversion to breech occurred in 08% in the early group and 02% in the delayed group which was diagnosed in one week follow-up and was successfully reversed thus increasing over all success rate[18].

The complication rate was very low. Transient fetal Bradycardia occurred in one fetus(1.5%) in the early group which recovered in 05-10 minutes over the one hour observation period and one in the delayed group(1.6%). The most frequently reported complication of ECV is transiently abnormal CTG pattern i.e. 5-7% which could last from 5minutes to 1 hour[10]. No c-section was done for this transient change, as all patients were observed after the ECV.

In 02 cases version was done successfully in patients with previous cesarean section i.e. one in the early group and one in the delayed group. One patient in the delayed group had favorable Bishop score. She developed contractions after successful version and delivered vaginally. Slight bleeding occurred in one case in each group i.e. 1.5% and 1.6% which subsided with rest and re-assurance.

Uncommon complications reported in the literature are fetomaternal hemorrhage (3.7%), vaginal bleeding (05%), persistent pathological CTG readings (0.4%), placental abruption(0.1 to 0.4%). Therefore ECV should be considered a safe procedure[4,10,13,18,19].

Two patients had RH negative blood group and were given RH immunoglobulin injections at the start of the procedure to cover any risk of fetomaternal hemorrhage and RH sensitization.

CONCLUSION

External cephalic version initiated at 34-35 weeks of gestation compared with 37 or more weeks of gestation increases the probability of cephalic presentation at birth but it does not reduce the cesarean section rate. Vigilance for breech presentation after 34 weeks is important. Accurate patients counseling and understanding the risks will help the patients in making an informed choice as what is best for them and their infants.

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