

Original Article

Comparative Study on Fetomaternal Outcome after Lower Uterine Segment Caesarean Section and Vaginal Delivery in Eclamptic Patient

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Abstract:

Eclampsia has a high prevalence in our country with a high mortality rate. Eclampsia is uniquely a disease of pregnancy and regardless of gestational age. It is recognized that termination of pregnancy is the only definitive care of pathophysiological event in eclampsia. This study was done to observe fetomaternal outcome in Lower Uterine Segment Caesarean Section (LUCS) and vaginal delivery in eclamptic patient. This cross sectional analytical study was carried out in eclampsia department of Obst and Gyane in Dhaka Medical College Hospital from July 2016 to June 2018. A uniform protocol was followed in all cases to have appropriate history, physical findings and laboratory investigations. In this study 98.0% patients were conscious on admission in group I and 96.0% in group II. This study showed significant difference in recurrence of convulsion after delivery between two groups. Recurrence of convulsion was 30% in vaginal delivery group and 6% in the cesarean section group. Total complications were found in 46.0% and 16.0% patients in group I and group II respectively in this study. The difference was statistically significant ($p < 0.05$) between two groups. In this study PPH was the most common complication in both the groups. Abruption placenta was found more common among the vaginal delivery group. On the other hand, electrolyte imbalance was found more in cesarean section group. Maternal death was only 2% and 1% in group I and group II respectively. In this study live birth was found 64.0% and 79% in group I and group II respectively. Asphyxia was more in neonates in group I than group II which was statistically significant. Referral of asphyxiated babies to NICU was found 63.0% and 56.0% in group I and II respectively. The difference was statistically not significant between two groups.

Key words: Fetomaternal outcome, Eclampsia, Vaginal delivery, Lower uterine segment caesarean section.

Introduction:

Eclampsia is an obstetric enigma. Though it has almost been eradicated from the developed world, it continues to be a major cause of maternal and fetal mortality and morbidity in the developing countries. In Bangladesh the incidence of eclampsia is extra ordinarily high (7.9%) according to the result of a house to house survey¹. In the baseline survey of emergency obstetric care (EOC) it was found that in Bangladesh 5% of total obstetric admission in health

facilities was due to pre-eclampsia and eclampsia². The main pathophysiology of eclampsia is cerebral vasospasm leading to ischemia and cerebral oedema³. The only cure for eclampsia is delivery of the baby. Until recently, the treatment of eclampsia varied throughout the world. The basic principles of management are: control of convulsion, control of hypertension, initiation of steps to effect delivery and general nursing care. The first goal of management of eclampsia is control of convulsion and stabilization of patient's basic cardiovascular status. Administration of magnesium sulphate by an established protocol is considered to be the most rapid, efficient and safe pharmacologic approach for accomplishing this goal⁴. High blood pressure is controlled by injection of hydralazine intravenously followed by oral Nifedipine or Methyldopa or Atenolol. Eclampsia is uniquely a disease of pregnancy and the only cure is termination of pregnancy regardless of gestational age. A rational therapy for general management, management of hypertension and convulsion has been established in our setup by eclampsia working group of Bangladesh

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but controversies exist regarding the obstetrical management⁴. As we do not have adequate facilities for intrapartum fetal monitoring, management by caesarean section is preferred in many cases particularly when fetus is alive considering the compromised fact that patient and fetus may not tolerate the stress of labour¹.

Many obstetricians believe that the best mode of delivery of all cases where the baby is alive should be by lower uterine segment caesarean section (LUCS). However, if the patient is already in labour can be easily induced, then vaginal delivery (VD) may be contemplated provided there are no other obstetric complications⁵. Many obstetricians, on the other hand, also believe that, if the pelvis is adequate and cervix is favourable, presentation is normal, fits are controlled even if the patient is not in labour, inductions of labour seems the appropriate policy⁶. Oxytocin regime dictated by EWGB is ARM and oxytocin drip for primi 5 units and for multipara 2.5 units in 500 ml of 5% DA at a rate 15-20 drops/min⁴. If labour progresses well and there are no fetal distress vaginal delivery is allowed but second-stage is usually cut short by forceps or ventouse. The success of any method of treatment of eclampsia is usually judged by the reduction of maternal and perinatal mortality rates⁷. With a view to achieving this, caesarean section rates in eclampsia have varied from 26.3% to as high as 80.4% in different studies carried out throughout the world⁶. This is owing to the fact that both maternal and perinatal mortality showed favourable results of 8.06% and 12.9% in caesarean delivery group, whereas much higher corresponding figures of 15.48% and 33.7% were shown in vaginal delivery group.

Materials and methods:

It was a cross sectional study conducted in Dept of Obst & Gynae in Dhaka Medical College Hospital from July 2016 to June 2018. A total no. of 200 antepartum & intrapartum eclamptic patients were included in this study. They were divided into Group I (underwent VD) & Group II (underwent LUCS). The purpose and procedure of study was explained to the subjects who fulfilled the enrollment criteria. After taking informed written consent from guardian of the patient careful history taking, thorough clinical examination was performed and urine was tested (heat coagulation method) for protein, convulsion was controlled by MgSO₄ if not contraindicated and blood pressure was controlled by hydralazine, nifedipine, or methyldopa. After initial management decision for termination of pregnancy was taken and mode of delivery (LUCS or vaginal delivery) was planned by senior obstetrician of the respective unit. The mode of delivery was carefully noted and patient was followed up till discharge, or death in hospital. Statistical analysis was carried out by

using the Statistical Package for Social Sciences version 20.0 for Windows (SPSS Inc., Chicago, Illinois, USA). A descriptive analysis was performed for all data. The mean values were calculated for continuous variables. The quantitative observations were indicated by frequencies and percentages. Unpaired t-test was used to compare continuous variables between VD and LSCS. Chi-square test and fisher's exact test were used to compare categorical data. A "p" value <0.05 was considered as a minimum level of significance.

Results:

Data were collected through a pre-tested, pre-reviewed data collection sheet. Data regarding demographic variables, laboratory variables and clinical variables were recorded. Thereafter, data were gathered, compiled, edited and plotted in tabular and figure form.

Table I: Distribution of the study patients by recurrence of convulsion after delivery (N=200)

Recurrence of convulsion after delivery	Group		p value
	Group I (n=100) n (%)	Group II (n=100) n (%)	
Yes	30 (30.0)	6 (6.0)	0.001 ^s
No	70 (70.0)	94 (94.0)	

s= significant, p value reached from Chi square test

Table I shows significant difference in recurrence of convulsion after delivery between two groups (p<0.05).

Table II: Distribution of the study patients by mode of delivery (N=200)

Groups	Mode of delivery	Frequency (n)	Percentage (%)
Group I (n=100)	Vaginal delivery	70	70.0
	Assisted vaginal delivery (Ventous)	30	30.0
	Caesarean Section due to		
Group II (n=100)	Failed induction	7	7.0
	Unfavorable BISHOP	61	61.0
	Uncontrolled convulsion	28	28.0
	HELLP syndrome	4	4.0

Table II shows mode of delivery of the study patients, it was observed that in group I 70.0% patients were delivered by vaginal delivery and in group II commonest indications for C/S was unfavorable BISHOP (61.0%). Other result is depicted in the above table.

Table III: Distribution of patients by maternal complications (N=62)

Maternal complications	Group	
	Group I	Group II
	(n=46) n (%)	(n=16) n (%)
PPH	10 (21.7)	6 (37.5)
Abruptio placenta	10 (21.7)	0 (0.0)
Pulmonary edema	9 (19.6)	2 (12.5)
Retained placenta	7 (15.2)	0 (0.0)
Electrolyte imbalance	6 (13.0)	6 (37.5)
Postpartum psychosis	4 (8.7)	2 (12.5)

Table III shows maternal complications of the study patients. It was observed that in group I 21.7% had PPH and followed by 21.7% had abruption placenta, 19.6% had pulmonary edema and 15.2% had retained placenta. In group II 37.5% had PPH followed by 12.5% had pulmonary edema, 37.5% had electrolyte imbalance. Other result is depicted in the above table. Complications were more in vaginal delivery group.

Table IV: Distribution of the study patients by total maternal complications (N=200)

Total maternal complication	Group		p value
	Group I	Group II	
	(n=100) n (%)	(n=100) n (%)	
No Complication	54 (54.0)	84 (84.0)	0.001 ^s
Complication occurred	46 (46.0)	16 (16.0)	

s= significant, p value reached from modified Chi square test

Table IV shows total maternal complication of the study patients, it was observed that 46.0% patients had complication occurred in group I and 16.0% in group II. The difference was statistically significant (p<0.05) between two groups.

Table V: Distribution of the study patients by maternal mortality (N=200)

Maternal mortality	Group		p value
	Group I	Group II	
	(n=100) n (%)	(n=100) n (%)	
Alive	98 (98.0)	99 (99.0)	0.560 ^{ns}
Expired	2 (2.0)	1 (1.0)	

ns= not significant , p value reached from modified Chi square test

Table V shows maternal mortality of the study patients. It was observed that 98.0% patients were alive in group I and 99.0% in group II. The difference was statistically not significant (p>0.05) between two groups.

Table VI: Association between induction delivery interval with maternal mortality (N=100)

Induction delivery interval (hrs)	Group		p value
	Alive	Expired	
	(n=98) n (%)	(n=2) n (%)	
<8 hours	55 (56.1)	0 (0.0)	0.001 ^s
>8 hours	43 (43.9)	2 (100.0)	

s= significant, p value reached from modified Chi square test

Table VI shows that 2% mortality occurred when ID interval was >8 hours and none when ID interval was <8 hours. The difference was statistically significant (p<0.05) between two groups.

Table VII: Association between hospital admission to C/S interval with maternal mortality (N=100)

Hospital admission to C/S interval (hours)	Group II		p value
	Alive	Expired	
	(n=99) n (%)	(n=1) n (%)	
24 hours	62 (62.6)	0 (0.0)	0.001 ^s
≥24 hours	37 (37.4)	1 (100.0)	

s=significant, p value reached from Chi square test

Table VII shows that only one patient died when C/S done >24 hours after admission and none when C/S done <24 hours of admission.

Table VIII: Distribution of the study patients by perinatal outcome (N=200)

Perinatal outcome	Group		p value
	Group I (n=100)	Group II (n=100)	
	n (%)	n (%)	
Live birth	64 (64.0)	79 (79.0)	
Still birth	27 (27.0)	9 (9.0)	0.004 ^s
Early neonatal death	9 (9.0)	12 (12.0)	

s= significant, p value reached from Chi square test

Table VIII shows perinatal outcome of the study patients. It was observed that 64.0% baby was alive in group I and 79.0% was alive in group II. The difference was statistically significant (p<0.05) between two groups.

Table IX: Association between induction delivery interval in vaginal delivery with perinatal outcome (N=100).

Induction Delivery interval (hrs)	Perinatal outcome			p value
	Live birth (n=64)	Still birth (n=27)	Early Neonatal death (n=9)	
	n (%)	n (%)	n (%)	
≤8 hours	47 (73.4)	9 (33.3)	2 (22.2)	0.001 ^s
>8 hours	17 (26.6)	18 (66.7)	7 (77.8)	

s= significant, p value reached from Chi square test

Table IX shows induction delivery interval with perinatal outcome of the study patients. It was observed that 73.4% patients had live birth, 33.3% in still birth and 22.2% had early neonatal death when ID interval was ≤8 hours. On the contrary it was 26.6%, 66.7% and 77.8% when ID interval was >8 hours. The difference was statistically significant (p<0.05) between two groups.

Table X: Association between hospital admission to C/S interval with perinatal outcome (N=100)

Hospital admission to C/S interval (hours)	Perinatal outcome			p value
	Live birth (n=79)	Still birth (n=9)	Early neonatal death (n=12)	
	n (%)	n (%)	n (%)	
≤24 hours	45 (68.7)	3 (33.3)	3 (25.0)	0.011 ^s
>24 hours	24 (31.3)	6 (66.7)	9 (75.0)	

s= significant, p value reached from Chi square test

Table X shows induction delivery interval with perinatal outcome of the study patients. It was observed that 68.7% patients had live birth, 33.3% still birth and 25.0% had early neonatal death when CS was done ≤24 hours of admission and it was 31.3%, 66.7% and 75.0% when it was >8 hours admission to C/S interval. The difference was statistically significant (p<0.05) between two groups.

Table XI: Fetal outcome among patients undergoing vaginal delivery (Group I) and caesarean section (Group II) (N=200)

Parameters	Group-I (n=100)		Group-II (n=100)		pvalue
	n	%	n	%	
Fetal outcome					
Live birth	64 (64.0)		79 (79.0)		0.018 ^s
Still birth	36 (36.0)		21 (21.0)		
Complication (among live birth)					0.001 ^s
Asphyxiated	35 (54.0)		16 (20.0)		
None	29 (46.0)		63 (80.0)		
Referred to NICU (among asphyxiated baby)					0.653 ^{ns}
Yes	22 (63.0)		9 (56.0)		
No	13 (37.0)		7 (46.0)		

s=significant, ns=not Significant, p value reached from Chi square test

Table XI shows that live birth occurred 79% in group II and 64% in group I which was statistically significant. Asphyxia was more in neonates in group I than group II which was also statistically significant.

Discussion:

Eclampsia is a terrible complication of pregnancy. Despite of much advancement in treatment of eclampsia, it is still influencing maternal and fetal demises in a great deal.

With the radical advancement of anesthesiology, caesarean section in eclampsia is no more risky and promises reassuring maternal and perinatal outcome. The aim of this study was to compare the fetomaternal outcome after vaginal delivery and caesarean section in eclamptic patients.

In this current study, 56.0% patients belonged to gestational age 32-36 weeks in group I and 68.0% in group II. The mean Gestational age was 37.6±1.6 weeks in group I and 38.2±2.1 weeks in group II. All these findings are similar with other study⁸.

This study showed significant difference in recurrence of convulsion after delivery between two groups. Recurrence of convulsion was 30% in vaginal delivery group and 6% in the caesarean section group. Total complications were found in 46.0% and 16.0% patients in group I and group II respectively in this study. The difference was statistically significant ($p < 0.05$) between two groups. A study showed that 80% and 35.0% patients had maternal complications in VD group and C/S group respectively⁹.

In this study PPH was the most common complication in both the groups. Another study also revealed the same findings¹⁰. Abruptio placenta was found more common among the vaginal delivery group. On the other hand electrolyte imbalance was found more in caesarean section group. Pulmonary edema was found in 19.6% and 12.5% in group I and group II respectively. Some studies found more cases of pulmonary edema in VD group than LUCS group. Complications like PPH, Abruptio placenta and pulmonary oedema etc occur more frequently in VD group than in CS group^{10,11}. These findings support our study.

In this study, maternal death was only 2% and 1% in group I and group II respectively. In other studies maternal mortality varies between 4% to 6% in VD group but no death in C/S group^{1,8,10}, which were almost similar with this study.

In this current study, 64.0% and 79.0% baby was live birth in group I and group II respectively. Other studies found more live birth in VD group than C/S group^{9,11,12}. These findings also support our study.

Asphyxia was more in neonates in group I than group II which was statistically significant. Referral to NICU among asphyxiated baby was found 63.0% and 56.0% in group I and II respectively. The difference was statistically not significant between two groups. Some studies reported that need for NICU was 72.2% in VD group and 35.13% in LUCS group¹³. Other studies found birth asphyxia higher in vaginal delivery group than caesarean section group⁸. These results also support this study.

This study found significant difference regarding maternal complications, recurrence of convulsion, and association between induction delivery interval and admission to LUCS interval with maternal complications, maternal death and perinatal mortality. Recurrence of convulsion found statistically significant as full dilated eclamptic patient delivered vaginally before proper management of convulsion. So recurrence of convulsion is more in case of vaginal delivery.

Conclusion:

This study concludes that the overall fetomaternal outcome is better in caesarean section than the patients underwent vaginal delivery. Maternal complications were higher in case of vaginal delivery group rather than caesarean section group. This study found significant difference regarding maternal complications, recurrence of convulsion, association between induction delivery interval and admission to LUCS interval with maternal complications, maternal death and perinatal mortality.

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