Role of Emergency Caesarean Section in Improving the Maternal and Perinatal Outcome in Ante and Intrapartum Eclampsia

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ABSTRACT

Introduction: This study is the efficacy of an emergency caesarian section after 34 completed weeks of gestation in all cases of ante and intra partum eclampsia to improve maternal and perinatal outcome.

Material and methods: All antenatal women who has come to department of Obstetrics for a period of 1 year and satisfy the inclusion criteria were categorized as the study group. All antenatal women with intra and ante partum eclampsia are categorized as control groups they were induced with misoprostol or dinoprostone gel.

Results: Incidence of eclampsia in antenatal population in our study was *2.1%.* 58% of the subjects, 17 % belongs to 21-25 yrs. 72% of subjects in our study were primigravida. 62% of the subjects were in the gestational age of 34-36 wks, 38% of subjects were beyond 36 wks. High control group 66.7% delivered by misoprostol, 16.5% by dinoprostone gel, 16.5% by emergency c-section. The subjects who were induced with misoprostol 15 had normal vaginal delivery, 5 had outlet forceps delivery. The fetal outcome in the study group showed a mean birth weight of 2.25 kg with NICU admission of 6.6% C.F in control group, the birth weight is 2.25kg, still born 6.6%, NICU admissions 23.3%, neonatal deaths 3.3%. Regarding maternal outcome there were no maternal death in the study group, 3 in the control group. The cause of death in the control group was pulmonary edema, CVA, HELLP Syndrome, one patient each respectively.

Conclusions: Regional anesthesia is the best form of anesthesia in emergency caesarean section for eclampsia. Emergency LSCS reduces the convulsions and delivery interval, as well as maternal mortality and morbidity. The fetal outcome with emergency caesarean section is also very good evidenced by decreased NICU admissions and perinatal deaths

Keywords: Eclampsia, Emergency caesarian section, Misoprostol, Dinoprostone gel.

INTRODUCTION

Hypertensive disorders of pregnancy are an important cause of severe morbidity, long term disability and perinatal and maternal mortality.[1] In Africa and Asia, nearly one tenth of all maternal deaths are associated with hypertensive disorders of pregnancy, whereas one quarter of maternal deaths in Latin America have been associated with those complications. Hypertensive disorders of pregnancy affect about 10% of all pregnant women around the world.[2] Among the hypertensive disorders that complicate pregnancy, pre-eclampsia and eclampsia stand out as major causes of maternal and perinatal mortality and morbidity.[2] The majority of deaths due to pre-eclampsia and eclampsia are avoidable through the provision of timely and effective care to the women presenting with these complications.[3] ECLAMPSIA is a Greek word means "a flash of lightening". It is an acute disorder characterized by convulsions associated with pregnancy. It may occur before, during, and after the labor and caused pre eclampsia or pregnancy aggravated hypertension. Pre eclampsia and eclampsia are more common in nullipara and more commonly affect the women at extremes of reproductive age i.e. teenager or a women more than 35 years of age. It most often occurs after 20 week of gestation and become increasingly frequent as term approaches.[1] In developed countries the eclampsia is a dying disease where as in developing countries still it is a killing disease. In the third world countries with an uncared pregnancy this entity remains undetected till major complications supervene.[4] The highest incidence of perinatal and maternal mortality occurs in those mothers who suffer from multiple problems of social, biological and pathological origin. The cumulative risk is with extremes of maternal age, primigravida, low social class, genetic factors, maternal weight and other medical and obstetric diseases. The main objective of ultimate treatment of eclampsia is control of convulsion and termination of pregnancy throughout globe. There is common agreement among physicians and obstetricians for controlling the convulsions but method for delivery vary. The management eclampsia is broadly divided into general line of management, anticonvulsant line of management, antihypertensive management and obstetric management.[5] management of complications The obstetric line of management is the most important component of PRITCHARD'S REGIMEN. Maternal and perinatal outcome depends on the convulsion to delivery interval. The lesser the convulsion to delivery interval the better the maternal and fetal outcome therefore the definitive management of eclampsia is delivery of feto placental unit.[6]

MATERIAL AND METHODS

This study done in the department of obstetrics and gynecology, Kakatiya Medical Collage-Government Maternity Hospital, during November 2014 - October 2015. The type of study was randomised control study.

Inclusion criteria

1. All antenatal women presenting to labor room with ante and intra partum eclampsia above 34 weeks of gesta-

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tional age are included in the study.
2. All antenatal women who crossed 34 weeks of gestational age with cephalic presentation with normal amniotic fluid volume and normal placental position.

Exclusion criteria

1. All antenatal women presenting with gestational age < 34 weeks with ante and intra partum eclampsia.
2. The antenatal women with malpresentations and previous caesarian section and placental abnormalities.
3. All antenatal women with ante and intra partum eclampsia who are in active phase of labor.
4. All antenatal women who satisfy the inclusion criteria were categorized as the study group. All antenatal women with intra and ante partum eclampsia are categorized as control groups [who are induced with misoprostol or dinoprostone gel]

RESULTS

The time of initiation of obstetric management was the same in both groups study and control i.e 4 hours and Convulsion to delivery interval was 6hrs, which is clinically and statistically significant. In comparison to control group where it is 12hrs. In a study group of 30, spinal anaesthesia, spinal+epidural anaesthesia and general anaesthesia were injected and the best mode of anaesthesia is spinal anaesthesia.

Incidence of Eclampsia in Antenatal population in study was 2.1% and 62% of patients are in gestational age of 34-36 weeks and 38% are in gestation age greater than 36 weeks.

Incidence of exclampsia is maximum in 15-20 years with 58% and the incidence of exclampsia is maximum in primi gravida

This Table shows that perinatal outcome in study group where caesarean section was done is excellent with no still births and no neonatal deaths, there were only 2 N.I.C.U admissions which is 6.6%.in contrast the control group showed less favourable perinatal out come in the form of 2 still births which is 6.6% and 7 N.I.C.U admissions which is 23.3% and 1 neonatal death which is 3.3%.

Incidence of Eclampsia in relation to gravida				
Primi gravida		2nd gravida	3rd gravida	
43		15	2	
72%		25%	3%	
Incidence of Eclampsia in relation to Age Groups				
15-20 years	21-25 years	26-30 years	31-35 years	Total
35	10	9	6	60
58%	17%	15%	10%	
Distribution of patients according to gestation age				
34-36 weeks		>36 weeks		
37		23		
62%		38%		

Table-1: Incidence of Eclampsia in age groups, parity and gestational ages

Misoprostal	**Dinoprostone gel**	**Emergency caesarean section**
20	5	5
66.7%	16.5%	16.5%
Indication of emergency caesarean section		
Failed induction	Failure to progress	Fetal distress
3	2	1

Table-2: Mode of delivery in control group and the indication of emergency caesarean section

DISCUSSION

The discussion is based on review of literature and actual results obtained in our study. Incidence of eclampsia in antenatal population in our study is 2.1%, which is in conformity with most of the studies in literature. The incidence is increasing from 1990 to today. The factors associated with increased incidence are increased maternal age at marriage, increased women coming to antenatal clinics after successful A.R.T protocols. The literature itself has clear evidence that A.R.T protocols are associated with increased incidence of pre eclampsia/eclampsia also more and more cases of antiphospholipid antibody syndrome cases are diagnosed which is responsible for increased incidence of eclampsia. In our study 75% of subjects are in the age group of 15 to 20 yrs [58%], 20 to 25 yrs [17%] which proves the hypothesis that eclampsia is more in the younger age group which is clinically and statistically significant. In our study, primigravida accounts for 72% of all subjects. As per the sperm co habilitation theory pre eclampsia and eclampsia are more common in primigravida because of immunological factors, the antigenic stimulus being the spermatozoa which elicit antibody response in the cervical mucus which further gives rise to autoimmune phenomenon in the body giving rise to antigen, antibody complexes mediated by compliments causing tissue damage. " BAHA and SIBAI"[7,8] have concluded that development of eclampsia is associated with increased risk of adverse maternal and fetal outcome especially in the devel-

	Mean Baby Weight	**APGAR**	**Still Born Babies**	**NICU Admissions**	**Neonatal Deaths**	**Maternal Deaths**
Study Group	2.25Kg	Ap <8/10	-	2	-	0
Control Group	2.25Kg	Ap <6/8	2	7	1	3

Table-3: Foetal Outcomes in both groups and maternal deaths:

	Pulmonary Oedema	**Cerebro Vascular Attack**	**Posterior cortical reversible encephalopathy**	**HELLP syndrome**	**Disseminated intravascular coagulopathy**
Study Group	0	0	0	0	0
Control Group	1	1	0	1	0

Table-4: Cause of maternal death in study

oping countries where the age of marriage is on average 14 - 15 yrs which causes an increased incidence of pre eclampsia and eclampsia. In our inclusion criteria we selected subjects with gestational age of 34wks and above because we wanted to explore and study whether a quick delivery by emergency caesarean section can improve maternal and fetal outcome and prevent complications, morbidity, and mortality. We deliberately selected subjects above 34wks because we wanted to ensure that we are doing this intervention where the fetus has got a reasonable chance to survive exutero. In our study 62% of subjects presented at gestational age of 34 - 36wks, 38% presented beyond 36wks gestational age. Gestational age is important for dividing the route of delivery because we have to weigh the maternal and perinatal outcome with risks of complications associated with caesarean section for eclamptic patients, where anesthesia risk and post operative complications should be kept in mind. SIBAI in his study says that the decision to perform caesarean section should be based on fetal gestational age, fetal condition, presence of labor and cervical bishop score. Caesarean section is recommended in those antenatal women with gestational age < 30wks, not in labor and bishop score below 5. We are following different protocol per se in our experience, a patient of eclampsia< 34wks response very well to misoprostol and or extra amniotic emecredyl instillation and also we don't have level 4 NICU unit to take care about very low birth weight infants. According to SIBAI regional anesthesia is better but this is contra indicated in presence of coagulopathy and thrombocytopenia with platelet count < 50,000 permm3. In the management of eclampsia when the patient is stabilized, subsequent to general line of treatment, anticonvulsant treatment, anti hypertensive line of treatment. We generally don't waste much time in initiating the obstetric management which is the most crucial and decisive aspect of the whole case. Treatment of eclampsia is delivering the fetoplacental unit and therefore the convulsion to delivery interval becomes important for the maternal and fetal outcome. The shorter the convulsion to delivery interval the better is the prognosis for mother and neonate. Longer convulsion to delivery interval is associated with increased morbidity and mortality. In our study the mean time when obstetric management was initiated in both study and control group was 4hrs. In the control group we resorted to inducing labor with dinoprostone gel/ misoprostol, and in the study group we perform an emergency caesarean section in the form of obstetric intervention. The W.H.O recommendations[1] in 2010 on eclampsia states that in women with severe pre eclampsia/eclampsia at term early delivery was recommended. The strength of recommendations was strong and the guideline also states that only definitive treatment for severe pre eclampsia/eclampsia is termination of fetoplacental unit, which minimizes further pregnancy related complications, maximizes maternal and neonatal survival.

The guidelines development group for W.H.O considered that "if induction of labor is contra indicated due to maternal and fetal conditions early delivery by caesarean section is recommended". The guidelines of W.H.O also recommended that induction of labor is recommended for women with eclampsia at a gestational age when the fetus is not viable and unlikely to achieve viability with in 1 or 2 weeks [strong recommendation]. Our study is in conformity with W.H.O study with respect to the cutoff point of the induction of labor which is < 34wks. In our study convulsion to delivery interval in the study group was 6hrs. In contrast to control group where the convulsion to delivery interval was 12hrs. This conclusion is clinically and statistically significant. Early delivery of fetoplacental unit restores the renal circulation and the threat of acute renal failure is almost negligible. Most of the cases of acute pulmonary edema I occur during labor in eclampsia. Early delivery will prevent the complication which is often due to "ARDS" like clinical situation and pump failure. Early delivery will also prevent the recurrence of postpartum eclampsia. Pulmonary edema of eclampsia is different from that seen in severe mitral stenosis because it is due to endothelial dysfunction and difficult to treat with diuretics and digitalis. The mortality rate is very high. In our study 80% of subjects in the study group were delivered.by spinal anesthesia, 17% with a combination of spinal and epidural, 3% with general anesthesia. Most of the reviews in the literature mention that regional anesthesia is safest because to avoid complications of failed intubation, laryngeal edema, acute pulmonary edema, failure to recover is complications of general anesthesia. Epidural anesthesia also offers an advantage for giving analgesic drugs; it will in turn hasens recovery of patient. Also regional anesthesia avoids the dangerous complication of mendelson's syndrome which can be very fatal.

In our study the mode of delivery in control group - induction by misoprostol was 66.7%, by dinoprostone gel was 16.5%, by emergency caesarean section was 16.5%. Obstetric management by induction of labor involves the use of either misoprostol or dinoprostone gel if the cervix is not favorable and vice versa. If the cervix is favorable, artificial rupture of membranes and oxytocin infusion is best method. Induction of labor in eclampsia carries the following risks - failed induction, failure to progress, increased incidence of intra partum fetal distress all leading to an increased incidence of emergency caesarean section rate. Also hyper stimulation of the uterus also leads to emergency caesarean section. The induction to delivery interval in the control group in our study is 12 hrs which was double that of study group. The convulsion to delivery interval is the most important parameter which determines the outcome of the study that is the maternal and fetal mortality and morbidity.

In a study done at university of Nigeria it was also concluded that women with Eclampsia have an increased rate of caesarean section consequent to increased incidence of IUGR, fetal distress and pre maturity. Also study done in Singapore from 1978 to 1982 published in Singapore medical journal concluded that caesarean section has a beneficial effect in reducing maternal and perinatal mortality. In our study, in control group who were induced by prostaglandins, the emergency caesarean section rate was 16.5%. The indications were failed induction, failure to progress and fetal distress. Dr. Mudaliar in his study in April 1955 states that the preferred route of delivery in eclampsia if cervix is ripe and favorable ARM followed by oxytocin infusion. Caesarean section is indicated only if there is obstetric indication or unfavorable

cervix. Also our study findings are corroborated by the South African study in which 63% women were delivered by elective caesarean section, 37% by induction. Elective caesarean section in eclampsia contributes better perinatal outcomes than induction of labor. Maternal morbidity as measured by the complications is higher in the control group because of increased convulsion to delivery interval. Early delivery prevents these complications.

These morbidities if untreated either in the form of obstetric management or specific management leads to maternal mortality. The next parameter to measure objectively was maternal mortality. In the control group maternal mortality was 10% which is significantly higher than study which is 0%. The timely intervention in the form of an emergency caesarean section considerably reduces the maternal mortality which is objectively measured outcome to know the efficacy of intervention. The causes of death in control group were cerebrovascular attack, acute pulmonary edema, HELLP syndrome.

As regard to fetal outcome in the study group the mean APGAR score was 8 and 10 where as in control group it was 4 and 6. There are two case of still births in control group no case in study group giving a perinatal mortality of 66 per 1000 in control group and '0' in study group. The U.K study 2005 also reported a perinatal mortality of 54 per 1000. In control group we have 7 NICU admissions C.F 2 in study group. There was one neonatal death in control group, no neonatal death in study group. The follow up in the NICU admissions could not be done in our study.

CONCLUSION

Obstetric management is the most important intervention in cases of ante and intra partum eclampsia. The time of intervention and mode of obstetric management determines the maternal and fetal outcome. Regional anesthesia is the best form of anesthesia in emergency caesarean section for eclampsia. Emergency LSCS reduces the convulsions and delivery interval, as well as maternal mortality and morbidity. The fetal outcome with emergency caesarean section is also very good evidenced by decreased NICU admissions and perinatal deaths.

The objective outcomes of this study which were measured in the form of maternal morbidity and mortality, perinatal mortality and morbidity showed a clinically and statistically significant reduction. This emergency LSCS intervention in ante and intra partum eclampsia should become standard protocol in all tertiary care Hospitals.

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