

ORIGINAL RESEARCH

Effect of Convulsion Delivery Interval on Fetomaternal Outcome in Cases of Eclampsia

Avinashi Kujur¹, Nalini Mishra², Abha Daharwal¹

ABSTRACT

Introduction: In India, Eclampsia ranges from 1 in 500 to 1 in 30. Although uncommon in developed countries, it remains the third most common cause of triad of maternal mortality accompanied by obstetric haemorrhage and sepsis. This dangerous triad accounts for 80% of maternal deaths. Improving maternal health is one of the eight Millennium Development Goal 5(MDG-5). Countries have committed to reducing the maternal mortality ratio by three quarters between 1990 and 2015. This study was under taken with aim to find the effect of convulsion delivery interval on fetomaternal outcome in cases of eclampsia whether it could help to reduce mortality in eclampsia. The present study was conducted to see the effect of Convulsion Delivery Interval on fetomaternal outcome in eclampsia patients attending a tertiary teaching hospital, Raipur, Chhattisgarh, India

Material and method: 269 eclamptic women admitted between 1st Jan 2007 to 31 Dec 2009 were included in the study. Once woman was stable, obstetrical management was planned aiming delivery by the fastest rout with an emphasis on to keep convulsion delivery interval less than 12 hours.

Result: The incidence decline from 2.5%to 1.6 % over the Study period, majority were unbooked and from rural areas. By 2008, 80% cases delivered within six hours, bringing a significant drop of MMR from 588 to 341. The caesarian section rate showed a drop from 35% to 22 % in 2009. Perinatal outcome remained same attributed to stillbirths and prematurity.

Conclusion: Proper antenatal care, early detection and starting MgSO₄ therapy for severe pre eclamptic, eclamptic women before shifting them to higher centers and prompt delivery <12hrs by liberal use of misoprostol and caesarean section is the key for optimum outcome.

Keywords: Eclampsia, Maternal outcome, Perinatal outcome, Chhattisgarh, Raipur

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INTRODUCTION

The world celebrated the 20 anniversary of Safe Motherhood in 2007 which is an initiative to place maternal mortality on the global agenda. Ironically every day 1500 women continue to die from childbirth related problems, eclampsia is one such dreaded killer.¹

Eclampsia in Greek translates into 'flash of lighting'. It is a potentially fatal disorder which is unique to human pregnancy. The incidence varies widely in between countries as well as between various states and zones of the same country. In India it ranges from 1 in 500 to 1 in 30.² Although uncommon in developed countries, it remains the third most common cause of triad of maternal mortality accompanied by obstetric haemorrhage and sepsis. This dangerous triad accounts for 80% of maternal deaths. A total of 99% of these deaths occur in developing countries where 85% population of the world resides, the MMR in these counties is 450 in sharp contrast to 9 in the developed countries, According to WHO, there were an estimated 536000 maternal deaths worldwide in 2005.

Improving maternal health is one of the eight Millennium Development Goal 5(MDG5). Countries have committed to reducing the maternal mortality ratio by three quarters between 1990 and 2015. However, between 1990 and 2005 the maternal mortality ratio declined by 5 % only. Achieving MDG5 requires accelerating progress in reducing the mortality associated with preventable cause. The present study was conducted with an objective to study the incidence and epidemiology

of eclampsia in our state and to observe the changing trends and results while attempting to optimize the outcome in women with eclampsia by virtue of ensuring delivery within a reasonable time limit after the stabilization of general condition. With the above background the present study was conducted to see the Effect of Convulsion Delivery Interval on Fetomaternal Outcome in Eclampsia patients attending a Tertiary Care Hospital of Raipur city, Chhattisgarh.

MATERIAL & METHOD

The present prospective study was conducted in the department of Obstetrics and Gynecology Pt. J.N.M. Medical Collage, Raipur & Dr. B, R, Ambedkar Hospital, Raipur(C.G.), India between 1st January 2006 to 31st December 2008 which included 269 women with eclampsia. Pregnant women having known epilepsy or other convulsive disorder were excluded from the study. Ethical considerations were met through intuitional ethical committee. Each patient was informed and consent was taken. Precise time of start of convulsion was noted. Demographic and clinical data was recorded in all. Baseline investigations including haemoglobin estimation, liver and renal function test and coagulation profile including platelet count was done in emergency. Uniform standard treatment protocol of Prichard regimen was given in all. For control of hypertension nifedepin was used. Once the woman was stabilized, the obstetrical management was planned according to the gestational age and status of cervical dilatation. In women who were not in labour with unripe cervix and in primigravida in latent phase of labour. If delivery was accomplished by caesarean section which otherwise was done for standard obstetric indications. Special emphasis was given to keep convulsion- delivery interval < 12hrs.

Fetomaternal outcome in terms of mode of delivery, baby weight, Apgar score at 1 and 5 minutes, post partum morbidity and mortality in both the mother and the baby were noted. All the women and their babies were followed up to their hospital stay. Data was compiled and analyzed in order to identify the current trends as

well as changes through the study period. Significance of findings was tested by Chi square test. $P < 0.05$ was considered to be significant.

RESULTS

A total of 269 women were admitted with eclampsia during this period, the overall incidence was 1.89%. In 2006 more than half (52.1%) eclamptic women were admitted in labour whereas in ensuing year of 2007 the figure decreased to 31.6% ($P < 0.05$) and furthermore in 2008 to 21.59 % ($P < 0.001$). [Table-1]

Table 2 shows the epidemiological variables and they were showed significant association. Nearly all women were unbooked (86-95%) and majority belonged to rural areas.

In the year 2007 only 7 (11.66%) deliveries occurred after 12 hrs in comparison to 25(21%) in the preceding year of 2006 ($p < 0.05$). In 2008 the vast majority i.e. 80% women delivered within 6 hrs in contrast to 62.18% women in 2006. The difference is highly significant statistically ($p < 0.001$). No delivery occurred after 12 hrs in 2008. [Table-3]

Contrary to our expectation the mode of delivery during the three year study period did not exhibit a major shift towards operative deliveries even less than overall caesarean section rate of our institute which was 24% for the same year. Liberal use of prostaglandin (misoprostol) made vaginal deliveries possible in majority of women and helped to decrease caesarean section rate from 35% in 2006, 23.3% in 2007 to 22.7% in 2008. [Table-4]

Perinatal mortality and morbidity remain higher in the studied women with eclampsia, but the difference was not significant. There were more than 50% still births throughout contributing to total PNMR. Commonest cause of early neonatal mortality was prematurity, accounting for 31.1% in (2008) to 42.31% in (2007) Second factor was birth asphyxia averaging 10%. Intrauterine death of fetus resulting in still birth contributed nearly half the perinatal deaths perinatal mortality rate could not be brought down significantly because of this factor only, unlike significant decline in the maternal mortality. [Table-5]

	Year 2006 (n=119)		Year 2007 (n=60)		Year 2008 (n=88)		P
	No	%	No	%	No	%	
Antepartum	57	47.90	40	66.67	68	77.27	<0.001
Intrapartum	62	52.10	19	31.67	19	21.59	<0.001
Postpartum	0	0.00	1	1.67	1	1.14	

Table-1: Distribution of cases of Eclampsia in relation to labour

Variables	Year 2006		(n= (119)	Year 2007		(n= 60)	Year 2008		(n=88)
	No.	%	P value	No.	%	P value	No	%	P value
Age									
< 20 Years	9	7.56		4	6.67		9	10.23	
20-29 Years	97	81.51	<0,001	52	86.67	<0,001	73	82.95	<0.001
30-40 Years	13	10.92		4	6.67		6	6.82	
Residence									
Urban	41	34.45		15	25.00		59	67.05	
Rural	78	65.55		45	75.00		29	32.95	
Literacy status									
Educated	56	47.06		24	40.00		45	51.14	
Un-educated	63	52.94		36	60.00		43	48.86	
Social status									
Class III	107	89.92	<0.001	51	85.00	<0.001	83	94.32	<0.001
Class IV	12	10.08		9	15.00		5	5.68	
Booking status									
Booked	5	4.20		8	13.33		10	11.36	
Un-booked			0.001			<0.001			<0.001
Parity	114	95.80		52	86.67		78	88.64	
P-1	89	74.79	<0,001	38	63.33	<0,001	61	69.32	<0.001
P2-4	30	25.21		22	36.67		26	29.55	
>4	0	0.00		0	0.00		1	1.14	
Gestational age									
<28 weeks	14	11.76		4	6.67		14	15.91	
29-36 weeks	53	44.54		29	48.33		26	29.55	
Term (>36 weeks)	52	43.70		27	45.00		48	54.55	

Table-2: Epidemiological variables

Convulsion delivery Interval	Year 2006 (n=119)		Year 2007 (n=60)		Year 2008 (n=88)	
	No	%	No	%	No	%
0-6 hrs	74	62.18	40	66.67	71	80.68
7-12 hrs	20	16.81	13	21.67	17	19.32
13-18 Hrs	12	10.08	5	8.33	0	0.00
19-24hrs	13	10.92	2	3.33	0	0.00

Table-3: Convulsion Delivery Interval

Mode of Delivery	Year 2006 (n=119)		Year 2007 (n=60)		Year 2008 (n=88)	
	No	%	No	%	No	%
LSCS	42	35.29	14	23.33	20	22.73
Vaginal	77	64.71	46	76.67	68	77.27
Maternal Morbidity	10	8.40	4	6.67	0	0.00
Maternal Mortality	6	5.04	0	0.00	3	3.41
MMR	588		0		341	

Table-4: Distribution of cases according to maternal outcome

		Year 2006 (n=50)		Year 2007	(n=26)	Year 2008	(n=40)
		No	%	No	%	No	%
	Total						
Perinatal Mortality		50	42.01	26	43.33	40	45.45
	SB	28	62.22	12	46.15	23	57.50
	Neonatal Pre-	22	48.89	14	53.85	17	42.50
Causes of Neonatal	maturity	17	77.27	11	78.57	14	82.35
	Birth Asphyxia	4	18.18	3	21.43	3	17.65
Mortality	Septicaemia	1	4.55	0	0.00	0	0.00
	Jaundice						
	Total Pre-	0 22	0,00	0 14	0.00	0 17	000
Neonatal morbidity	maturity	17	77.27	11	78.57	14	82.35
	Birth Asphyxia	4	18.18	3	21.43	3	17.65
	Septicaemia	0	0,00	0	0.00	0	0.00
	Jaundice	1	4.55	0	0.00	0	0.00

Table-5: Perinatal outcome

DISCUSSION

The finding of the current study was in accordance to WHO statement³ giving the incident of 2.3 % in the developing countries in contrast to only 0.8% for the developed ones, although much higher incidence of 5.1% was observed by HS Kidanto⁴ in Tanzania and as low as (0.02 %) by YM Chan in Hong Kong.⁵

In contrast admission of women with ante partum eclampsia increased progressively. Only two women developed postpartum eclampsia during the study period. This change reflects the effect of regular training programmes of doctors at primary health centers resulting into referral of these women to tertiary centers as soon as possible. The changing trend allows more institutional deliveries.

In the present study, it was observed that nonexistent antenatal care in our rural sector that serves as main referral centers furthermore, the cultural believes and poverty might also prevent women from getting the care she needs. The extent of the endothelial damage is the most acceptable theory of pathogenesis of hypertensive disorder of pregnancy so that eclampsia can precede pre-eclampsia which makes it preventable even more difficult, Twaini A J at el⁶ reported 36% women with eclampsia having only slightly elevated B P and without any symptom of sever pre eclampsia. Even in uncomplicated pregnancies the optimal visits are 12. This helps in prompt identification of beginning of preeclampsia along with proper investigations. Sadly

the restricted or nonexistent antenatal services in the under developed state like ours have to go a long way to achieve this goal. Even more disappointing was the fact that merely 31 women received injectable MgSO₄ and that too in insufficient dosage before referral. It is yet another potential area for improvement.

In this study, decline in the convulsion delivery interval corresponding to our attempt to deliver eclamptic women within 12 hrs of start of convulsion. This protocol required initial few months of intense efforts and persuasion to get established because in spite of knowledge that prompt termination of pregnancy is treatment of choice in eclampsia, "watchful expectancy" had long been the approach in our institution also. We have even witness the dismal conduct of delivery of those women under inhuman conditions like tying them to eclampsia cots. It was not rare to have woman undelivered even after 24 hrs for various reasons. But now the shift from the old policy to prompt delivery has started showing result. The recommendations for delivery within 12 hrs are provided by the guidelines of Integrated Management of Pregnancy and Childbirth (IMPAC).⁷ In cases of preterm gestation sufficient steroid administration for lung maturity could not be provided because of the plan of study which weighs maternal well being above fetal one. Bhagawa et al⁸ reported accelerated recovery from the disease process including life threatening maternal problems following immediate postpartum.

Alauddin et al⁹ have reported caesarean section rate of

69.24% in order to accomplish prompt delivery.

There was a significant reduction in the maternal mortality along with a sharp decline in it was noted from 6 deaths in 4514 deliveries in 2006 to no deaths in 4706 deliveries in 2007 to 3 deaths in 4959 deliveries in 2008, bringing down the maternal mortality rate from 588 to 0 to 341 in 2008. The causes of death were DIC and cerebral haemorrhage in two instances each whereas acute renal failure and HELLP syndrome claimed one life each in 2006. In 2008 one woman died of pulmonary edema whereas septicemia and cerebral haemorrhage caused remaining two deaths in the postpartum period. All these women were unbooked and were admitted in moribund condition. Higher maternal mortality rates have also been reported by other researchers.^{10,11,12} Pregnancy complicated by eclampsia is associated with poor perinatal outcome^{13,14,15} and prematurity remains the leading cause of PNM as in the present study also. Although the Perinatal mortality rate declined over 3 years but the difference was not significant. Improving perinatal outcome necessitates proper antenatal care and screening as well as stabilization of blood pressure and convulsion before transporting the woman to tertiary care center, it is also disappointing that we lack better facilities of intensive care for very premature infants even in our hospital.

An important step towards improving the status of first and second referral units is being taken by the Government by starting EMOC courses in C.G. state (India) in near future and implementing IMPAC protocols throughout the state. Two centers including ours are all set for the purpose and we expect better antenatal care throughout the state once the doctors start functioning after training & thereby improving fetomaternal outcome in women with eclampsia.

CONCLUSION

Eclampsia remains the major contributor to maternal and perinatal mortality. This challenge can be met by improving antenatal care especially at primary health centers. Early detection and referral of severe pre-eclampsia and eclamptic women and starting MgSO₄ therapy before shifting should be mandatory. At tertiary care centers prompt delivery of these women must be ensured. Prostaglandin and liberal use of caesarean section if necessary can go a long way to improve outcome. Finding of the present study will be useful for obstetrician in skilled obstetric care during the management of these types of cases for effective outcome.

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