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ORIGINAL ARTICLE

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Maternal and perinatal outcome in eclampsia in a district hospital

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OBJECTIVE(S): To evaluate the clinical course and outcome of pregnancy in eclampsia with emphasis on the pitfalls in the diagnosis and management.

METHOD(S) : Seven hundred ninetyone consecutive cases of eclampsia were evaluated, 783 cases were managed with magnesium sulphate, and 8 were managed with Phenytoin regim**e.**

RESULTS : 238 (30%) women did not have edema, 111 (14%) women had relative hypertension and 90(11.4%) did not have proteinurea at the time of admission. The convulsions developed in 73 (9.2%) women after anticonvulsant therapy was started. There were 43 (5.4%) maternal deaths and morbidity consisted of pulmonary edema in 28 (3.5%) cases, aspiration pneumonia in 21 (2.7%) cases, acute renal failure in 9 (1.10%) cases. Perinatal mortality was 39.3% with the majority being related to extreme prematurity.

CONCLUSION(S) : There is a need of proper antenatal care to prevent eclampsia and the need for intensive monitoring of women with eclampsia throughout hospitalization to improve both the maternal and perinatal outcome.

Key words: eclampsia, perinatal outcome, maternal transfer, magnesium sulphate

Introduction

Eclampsia is a life threatening emergency that continues to be a major cause of serious maternal morbidity and is still the leading cause of maternal mortality worldwide. According to Chesley[1], a description of this syndrome was mentioned in the ancient writings of both the Egyptians and the Chinese. In recent years the reported incidence of eclampsia ranged from 1 in 110 to 1 in 3448 pregnancies[2-4]. The extremely low incidence reported from Sweden indicates that appropriate prenatal care and early hospitalization of patients with pre-eclampsia can markedly reduce eclampsia. Similar findings were reported by Zuspan[5] and Gilstrap et al[6].

During the past 6 years, 791 cases of eclampsia were managed at our referral center and 21724 deliveries took place, giving an incidence of 3.7%. The purpose of this study is to evaluate the clinical course and outcome of pregnancy in these patients with emphasis on the pitfalls in the diagnosis and management of eclampsia.

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Methods

From 1st May 1998 to 30th April 2004, 791 consecutive cases of eclampsia were managed at District Hospital, Bellary. Women with other causes of convulsions were excluded. During the time period of the study 783 cases of eclampsia received magnesium sulphate and 8 received phenytoin regime as anticonvulsants. Out of 783 621 were treated with low dose magnesium sulphate regime consisting of 4g loading dose infused intravenously followed by 2g intramuscularly every 3 hours as maintenance dose till 24 hours after delivery or after last convulsion. Ninety women were put on single dose of magnesim sulphate i.e. 4g intravenous and 4g intramuscular. Seventy two cases were treated with standard intramuscular regime as recommended by Pritchards[7] which consisted of 4g magnesium sulphate given intravenously and 5g given intramuscularly on each buttock. Subsequently 5g of magnesium sulphate given intramuscularly every 4 hours up to 24 hours following delivery or convulsion which ever is last. Phenytoin regime consisted of 10-15 mg per Kg.

body weight of phenytoin diluted in 10 mL of normal saline given slowly intravenously. The loading dose of phenytoin is given in the dose of 15mg/kg whereas the subsequent dose was at 10mg/kg. The same dose was repeated after 8 hours. Later 100 mg of tablet phenytoin was given 8 hourly for 48 hours. Severe hypertension was treated with nifedipine 10 mg orally 8 hourly when the patient was conscious. In comotosed patients nifedipine 10mg was given sublingually and repeated every 30 minutes only if the blood pressure was ≥ 160/110 mm Hg. As soon as the women were stabilized, labor was either induced, accelerated or cesarean section done if obstetric indication demanded it.

Results

During the study period there were 791 women with eclampsia among 21247 deliveries (1 in 27 deliveries). Seven hundred and forty four (94.0%) were unbooked. The mean age was 19.5 years (range 17-36 years). Thirty-six (4.5%) gave previous history of PIH and 24 (3%) gave history of eclampsia. 77.24% or 611 were primigravidas.

It is important to note that the classic triad used to diagnose pre-eclampsia was not present in all women with eclmapsia. Table 1 shows that, 66% had severe hypertension, 14% had relative hypertension (blood pressure <140/90). Proteinurea was absent in 11.4% cases and significant proteinurea was present in 50% cases. Edema was absent in 30% cases and generalized edema was present in 25% cases at the time of admission. Our clinical findings were comparable to that reported by Sibai [8,9].

Table 1. Clinical finding (n=791)

Clinical Finding		Number	Percentage
Hypertension			
Severe	≥ 160/110	522	66
Mild	< 160/110	159	20
Relative	< 40/90	111	14
Proteinurea			
Absent		90	11.4
Significant	(≤ 2 +)	396	50
Edema			
Absent		238	30
Generalised		198	25

Table 2 summarizes the gestational ages at the time of convulsion. Twenty eight (3.5%) women had eclampsia at less than 28 weeks and 360 (45.5%) women at term.

Table 2. Gestational Age (n=791)

Gestational age in weeks	Eclampsia No. of patients	Percentage
< 28	28	3.5
28 - 32	259	32.8
34 - 36	144	18.2
> 37	360	45.5

The onset of convulsion occurred before delivery in 710 (89.7%) women and after delivery in 79 (10%). Two (0.25%) women had intercurrent eclampsia. Seventy three (9.2%) women had convulsion after institution of anticonvulsant therapy.

Out of 791 women 9 died undelivered. Out of 782 eclamptics, 640 (84.88%) had vaginal delivery. The incidence of cesarean section was 14.9% (113/791). One (0.13%) woman underwent laparotomy for rupture of the previous cesarean scar at term and needed a subtotal hysterectomy. Twenty eight women had induced abortion out of which one (0.13%) underwent hysterotomy for failed induction of abortion (Table 3).

Table 3. Outcome of the pregnancy

Type of delivery	n=791	Percentage
Vaginal	640	80.99
a) Non-instrumental	551	69.66
b) Instrumental	89	11
i) Outlet Forceps	84	
ii) Craniotomy	4	
iii) Mid - Cavity Forceps	1	
Cesarean section	113	14.99
Subtotal hysterectomy for scar rupture	1	0.13
Hysterotomy for failed induction of abortion	1	0.13
Induced abortion	27	
Died undelivered	9	

Perinatal outcome

The 791 pregnancies resulted in 768 births (14 sets of twins, 28 abortions and 9 women died undelivered). There were 200 still births and 102 neonatal deaths for a total perinatal mortality of 39.3% (302/768) which was largely due to prematurity [10]. It is important to emphasize that in 92 of the 302 cases of perinatal deaths the infants had birth weight of <1.5 kg. In addition 6 of the still births were due to congenital anomalies.

Maternal outcome

There were 43 maternal deaths out of 791 eclampsias. Nine died undelivered. The various causes for death were cerebral hemorrhage in 18 (41.8%), pulmonary edema in 8 (18.6%), aspiration pneumonia in 5 (11.6%), left ventricular failure in 4 (9.3%), pulmonary embolism in 2 (4.7%), postpartum hemorrhage in 2 (4.7%), renal failure in one (2.3%) and cortical vein thrombosis in one (2.3%). However they were all admitted in a moribund state.

Table 4 summarizes significant maternal complications in eclmapsia and Table 5 summarizes the neurological

abnormalities. Fourteen women had transient cortical blindness, 4 had retinal detachment and 12 had postpartum psychosis. However these abnormalities were transient without any residual deficit. Eighteen (2.2%) women with intra cerebral hemorrhage and 6 (0.7%) in comatose state died. None of the surviving women had evidence of neurological deficit or seizures at the time of discharge.

Table 4.Maternal Complications (N=791)

Maternal complications	No.of patients	Percentage
Pulmonary edema	28	3.5
Abruptio placenta	24	3.0
Aspiration pneumonia	21	2.7
Post-partum hemorrhage	14	1.8
Acute renal failure	9	1.1
HELLP syndrome	1	0.12

Table 5. Neurologic complications (n=791)

Neurologic abnormalities	No. of patients	Percentage
Intracerebral hemorrhage	18	2.2
Transient cortical blindness	14	1.8
Postpartum psychosis	12	1.5
Comatose state	6	0.7
Retinal detachment	4	0.5

Discussion

The incidence of eclampsia in our hospital has not changed during the past 6 years. The high incidence reflects the nature of perinatal center that serves as a main referral center. This high incidence of eclampsia can be reduced by proper antenatal care and admitting and treating mild PIH cases and training the Medical Officers at Peripheral Health Centres regarding immediate management of eclampsia.

Pregnancies complicated by eclampsia are associated with poor maternal and perinatal outcomes. The reported maternal mortality ranges from 0.4% to 14% depending on the experience and facilities of the reporting center, as well as the condition of the women on admission to the center. Pritchards et al reported one maternal death among 245 women with eclampsia. Maternal morbidity was infrequent. This excellent maternal outcome is attributed to the experience of the physician, use of standard protocol for eclampsia and availability of appropriate intensive care facilities. Seventy three (9.2%) had subsequent seizures after receiving anticonvulsive medications. These findings emphasize the need for close monitoring of all women with eclampsia during labor and post-partum. Many referring doctors have little or no experience regarding the management of eclampsia. It is recommended that physicians and nurses referring such cases should consult physicians at the perinatal center before transport. The women should be stabilized regarding blood pressure and control of convulsions before transport and they should be sent in an ambulance with medical personnel in attendance. Tertiary care center should have a back up with facilities to manage critical maternal complications and provide intensive care for the immature infant.

Conclusion

There is a need for proper antenatal care to prevent eclampsia and for intensive monitoring of women with eclampsia throughout hospitalization to improve both the maternal and perinatal outcome.

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