

## Perinatal Mortality Associated with Eclampsia in Kaduna, Northern, Nigeria

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## ABSTRACT

**Background:** Eclampsia is an obstetric disorder with serious materno-fetal consequences. The objective of this study is to determine perinatal mortality rate associated with eclampsia in Kaduna Northern Nigeria.

**Method:** A retrospective study of 27 perinatal deaths associated with 61 cases of eclampsia in the Ahmadu Bello University Teaching Hospital, Kaduna (ABUTHK) from 1<sup>st</sup> January 1990 to 31<sup>st</sup> December 2000 was done. Resource materials were the admission records, case files, delivery and neonatal case files of women and their babies. The records were reviewed for relevant bio-social, obstetric and neonatal data.

**Results:** Perinatal mortality rate associated with eclampsia was 409/1000 births. It was highest amongst women in the age group 35 years and above, in the two extremes of parity, in those not registered for care, in women with poor control of eclampsia fits and those with ante partum eclampsia. Perinatal mortality rate decreased as gestational age rose. The perinatal mortality rate for those delivered vaginally was 706/1000, and 150/1000 for those delivered abdominally with a ( $P < 0.05$ ).

**Conclusion:** Perinatal mortality rate associated with eclampsia is very high. Making prenatal care available to all, improving the quality of care, early resort to caesarean section and use of perimortem caesarean section in carefully selected women may reduce the deaths.

**KEYWORDS:** Perinatal mortality; Eclampsia; Kaduna.

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## INTRODUCTION

Perinatal mortality figures emanating from Nigeria<sup>1,2</sup> rightly places her among the worst in the world demographic map. One of the obstetric causes of this bad performance is eclampsia; a common phenomenon of obstetrics practice in developing countries and Nigeria in particular<sup>3-6</sup>. The objective therefore of this study is to determine the perinatal mortality rates associated with this disorder, factors that favour the occurrence of the deaths and suggest ways of reducing it

## MATERIAL AND METHODS

Ahmadu Bello University Teaching Hospital,

Kaduna (ABUTHK), Nigeria is a tertiary institution that serves as a referral center for hospitals in Kaduna state and beyond. From 1st January, 1990 to 31st December 2000, 70 women were admitted for eclampsia and out this number the case files of 61 women and their 66 fetuses- infants, were available for this retrospective review. The admission records, case files, delivery records and neonatal case files of all the women and their babies, were reviewed for relevant bio-social, obstetric and neonatal data. Post mortem examinations were not done due to socio-cultural and religious reasons. For the purpose of this study, a woman is considered to be registered for prenatal care, if she had attended any conventional health-care facility, as a result of the pregnancy, at least once before presentation.

## RESULTS

Perinatal mortality rate associated with eclampsia was 409/1000 births. Women 24 years old or less contributed the highest numbers of perinatal deaths, 18(66.6%). The highest perinatal mortality rates were in the age groups 35 years and above (750/1000) and 24 years and less (409/1000). The lowest rate was among those in the age group 25-34 years (313/1000).

The para 0 group contributed the highest number of perinatal deaths 18(66.6%); Perinatal mortality rate was highest in the para 5 and above (600/1000), para 0, 462/1000; it was lowest in the para 1 group of eclamptics(200/1000).

Table I. Thirteen (48%) of the perinatal deaths occurred in patients that were not registered for conventional prenatal care. Perinatal mortality rate was highest in the unregistered patients (448/ 1000); it was 378/1000 in those registered ( $p < 0.05$ ). About fifty two percent (14) of the perinatal deaths were from the Hausa/Fulani ethnic group; no death was recorded among the southern minority ethnic group. Perinatal mortality rates were highest among the Ibos, 571 /1000; Yorubas, 417/1000; and Northern minorities, 333/1000.

Perinatal mortality was highest among patients with poor fits control (619/1000); in those with good fits control, 311/1000. ( $p < 0.05$ ). The highest number of perinatal deaths occurred among patients that suffered from antepartum eclampsia (74%). Perinatal mortality rates were for antepartum eclampsia (455/1000) and

,intrapartum eclampsia (389/1000).

Table II. About Forty four percent (12) of the dead babies were delivered *par via vaginales*, about twenty two percent (6) *par via abdominales*; about thirty three percent (9) of the fetuses died *undelivered*.

Perinatal mortality rates were for vaginal and abdominal routes of delivery, 706/1000 and 150/1000 respectively. Table III. Perinatal mortality rates according to maternal complications were: respiratory obstruction 1(100%), acute renal failure 6(67%), cerebrovascular accident 2(50%), fever 14(48%) and pulmonary oedema 6(38%). Some of the patients had more than one complication Perinatal mortality rate according to gestational age was highest for 28-33 weeks (1000/1000), 34-37 weeks, (419/1000) and 38 weeks and above ,(286/1000).

Antepartum eclampsia is as lethal for preterm (50%) as it is for term fetuses. Fourteen (51.9%) of the perinatal deaths were fresh stillbirths, 3(11.1%) macerated still births; there was only one early neonatal death 1(3.7%). Table IV. Fifteen (55.6%) of the fetuses were alive at admission.11(73.3%) were derived from antepartum eclampsia, while 4(26.7%) were from intrapartum eclampsia group. Among the fetuses from the antepartum eclampsia group, 4(36.4%) and from the intrapartum group 3(75%) could be presumed to be matured enough for extra uterine existence. Seven fetuses that died undelivered were alive at admission; three of them were of gestational ages of 36 weeks and above.

**Table I. Age, Parity and Perinatal Mortality in Eclampsia**

Age in Years	Total number of eclamptic patients	Total number of babies	Number of perinatal deaths in eclampsia	Perinatal mortality in eclampsia per 1000
<20	20	22	9	409 [409]
20-24	21	22	9	409
25-29	8	9	3	333 [313]
30-34	6	7	2	286
35-39	4	4	2	500 [750]
40&>	2	2	2	1000
Total	61	66	27	409
Parity				
0	36	39	18	462
1	10	10	2	200
2	6	8	3	375
3	3	3	1	333
4	1	1	-	-
5&>	5	5	3	600
Total	61	66	27	409

**Table II. Registration for prenatal care, ethnic group, fits control, Clinical type of eclampsia and perinatal mortality in Eclampsia**

Place of Registration	Total number of eclamptic women	Total number of babies	Total number of perinatal deaths	Perinatal mortality rate per 1000
ABUTHK	15	16	6	375
Other Hosp/Clinics	18	21	8	381
Not Registered	28	29	13	448
ETHNIC GROUPS				
Hausa/Fulani	33	35	14	400
Yoruba	11	12	5	417
Ibo	6	7	4	571
Northern Minority	11	12	4	333
Southern Minority	-	-	-	-
FITS CONTROL				
Controlled	40	45	14	311
Not Controlled	21	21	13	619
TYPE OF ECLAMPSIA				
Antepartum	40	44	20	455
Intrapartum	17	18	7	389
Postpartum	4	4	-	-

**Table III. Mode of Delivery and Perinatal Mortality**

MODE OF DELIVERY	Total number of Eclamptic Women (61)	Total number of babies (66)	Number of perinatal deaths in eclampsia (27)	Perinatal Mortality rate per 1000
Vaginal	17	17	12	706
Caesarean section	35	40	6	150
Undelivered	9	9	9	1000

**Table IV. Gestational Age, Type of Eclampsia and Perinatal Mortality**

	Gest age in weeks 28-29	30-31	32-33	34-35	36-37	38-39	40 &>	Total number of deaths (perinatal mortality rate/1000)
Total number of babies (66)	3	4	5	14	26	7	7	
Total number of eclamptics (61)	3	4	5	14	22	6	7	
Antepartum (44)	3	3	3	1	9	-	1	20(455)
Intrapartum (18)	-	1	-	1	2	1	2	7(389)
Postpartum (4)	-	-	-	-	-	-	-	-(0)
Fresh stillbirth	1	2	2	1	5	1	2	14
Macerated stillbirth	-	1	-	-	2	-	-	3
Early neonatal death	-	-	-	-	1	-	-	1
Died undelivered	2	1	1	1	3	-	1	9
Total number of deaths	3	4	3	2	11	1	3	27(409)
Perinatal mortality/1000	1000	1000	600	71	423	333	429	
		833		325		286		

## DISCUSSION

The perinatal mortality rate of 409 per thousand in

this study is higher than the 177 per thousand reported by Caffrey<sup>7</sup> from the same hospital about thirty years ago. It is also higher than the figures reported from other centres in Nigeria<sup>8-10</sup>. This rate is not surprising because there has been a general degradation of maternity service quality in Nigeria since the introduction of Structural Adjustment Programme (SAP)<sup>11-13</sup>.

Extremes of reproductive age and parity have been associated with poor reproductive performance<sup>14,15</sup> and this was the finding in the present study. It is however likely that those two biological indices may not have operated independent of other factors to account for the associated higher perinatal mortality rate. Attendance for prenatal care from early pregnancy has variously been associated with better outcome<sup>9,16</sup>. However, the outcome in eclampsia does not appear to agree with that. No significant difference between perinatal mortality rate in registered and unregistered patients was found in this study though the number of cases are considerably small and our definition of registered patient too accommodating. One can only infer that probably some of the babies were already severely degraded before arrival to the hospital due to severity of the eclampsia, late reporting or that quality of care was less than optimal. That the Ibos and Yorubas had the highest perinatal mortality rates despite the fact that the Hausa/Fulanis contributed the largest number of the eclamptic patients was contrary to all expectations. Could it be that the environment rather than the biological characteristics of the Ibos and Yorubas is important here. This is because perinatal mortality rates have been reported to be lower from two institutions where these two ethnic groups are majority<sup>9,10</sup>. Perhaps the civil disturbances that occurred in the city during the period of study is a veritable factor in the unexpected poor showing of these two ethnic groups. It will be interesting to look deeper into the effect of the civil crises in Kaduna on maternity care indices among the various ethnic groups that inhabit the city. That patients with good fits control had better perinatal outcome was not very surprising. This may mean that the eclampsia was not of severe variety, patients were seen early in the disease process, or that appropriate treatment was instituted promptly. It is known however that Diazepam which is the anticonvulsant commonly used in the hospital has its own demerits of significant fetal vital functions depression<sup>17,18</sup>. Perhaps if Magnesium sulphate was used, fetal outcome might have been better. It is salutary however that an anti diazepam Flumazenil as demonstrated by Shibata *et al*<sup>19</sup> will soon begin to assume therapeutic importance for reversing

the effect of diazepam on the fetus-infant in those centres, that are yet to embrace the use of Magnesium sulphate for whatever reason. With regards to clinical type of eclampsia, perinatal mortality rate is understandably in favour of postpartum type. No significant difference was observed between ante partum and intrapartum varieties despite the fact that the former type is more common in Kaduna<sup>7,20</sup>. Some common management factors may be operational for both varieties of eclampsia. Nevertheless the uncertainty surrounding the time relationship between fetal death and onset of labour makes comparison fruitless in this study.

The influence of gestational age on perinatal mortality in eclampsia lies firstly in the severity of the disorder, as early onset eclampsia is likely to be associated with the *HELLP* syndrome with consequent increase in materno-fetal degradation. The very preterm fetus is less endowed to withstand the eclamptic phenomenon per se; this is in addition to the known deleterious effects of the therapeutic *armamentarium* on the fetus-infant. This when added to the known influence of prematurity on neonatal survival, could partly explain the higher perinatal mortality rate trend observed in the study.

Delivery of the eclamptic woman is the other important step in the management of eclampsia, and various factors are taken into consideration when choice of mode of delivery is made. Compounding factors include, fetal condition, whether alive or not at admission, gestational age, stage in the labour process, maternal condition, obstetric complication, and some aspects of quality of care. It is when these factors are considered together that the advantage of one mode of delivery or the other can be correctly evaluated.

Vaginal delivery has been the method of choice, but recently better results, both maternal and fetal are beginning to emerge with caesarean section. It is remarkable that in the present study though not a large one, perinatal mortality rate for vaginal delivery was more than four times that for caesarean section.

It is noteworthy that about 33 per cent of the perinatal deaths was attributable to fetuses that *died undelivered*; this is similar to the figure reported by Sawhney *et al*<sup>21</sup>. This phenomenon of *Dying undelivered* has been discussed by Jammelle<sup>3</sup>, Kafaray and Korejo<sup>22</sup> and Onwuhafua<sup>23</sup>. It would seem also from this study that not much was done to salvage the salvageable fetuses-infants by way of postmortem;<sup>24,25</sup> or rather *perimortem* caesarean section. Among the fetuses that died undelivered, seven of them were alive on admission of their moribund mothers and perhaps at

least three of these babies would have benefited from perimortem caesarean section. It is time the medical team, began to work also towards protecting the right to life of the unborn child as recommended by FIGO<sup>26</sup>.

Indeed eclampsia is an important clinical cause of perinatal mortality in Nigeria. We believe that better results will be obtainable if every Service point evaluates its therapeutic results viz a vis current protocol of management, adopt those interventions that are seen to be better in the interim, while awaiting greater improvement in service quality for example change from Diazepam to Magnesium sulphate. Above all every effort should be put into reducing the incidence of eclampsia per se by improving quality of care.

Caesarean section and perimortem caesarean section should be offered early in carefully selected women.

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