Perinatal Mortality in the Private Specialist Hospital Setting in South East Nigeria

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Abstract

Background: Perinatal deaths remain high in the developing world, including Nigeria. This study is aimed at determining the pattern of perinatal deaths as well as the associated factors in a private specialist hospital setting. This would help in planning group specific healthcare interventions for improved perinatal outcome.

Method : This is a five year retrospective survey of perinatal deaths at Chimex Specialist Hospital, Nnewi from July 1 2006 to June 30, 2011. The data was analyzed using EPI info 2000 software. Frequencies were within 95% confidence limits.

Results: A total of 36 perinatal deaths occurred during the period of study, giving a perinatal mortality rate of 23.6 per 1000 births. Majority, 21 (58.3%) of the babies were born via spontaneous vertex delivery. Twenty-two (61.1%) had low birth weight. Most, 24 (66.7%) of the babies were stillborn and one was malformed. Number of antenatal care (ANC) visits, booking gestational age, maternal age, gestational age at delivery and birth weight were found to influence birth outcome.

Conclusion: This study identified the number of antenatal care visits, gestational age at booking, birth weight, gestational age delivery and maternal age as predictors of perinatal outcome. Early ANC booking and compliance with ANC visits by pregnant women is therefore vital in reducing perinatal deaths, hence improving possibility of attaining MDG 4.

Keywords: Developing world, Healthcare interventions, Perinatal deaths, Private specialist Hospital, Stillborn

Introduction

Perinatal mortality which is described as deaths in the first week of life including still births is at an unacceptably high level in developing countries, especially in sub-Saharan Africa [1]. The estimated incidences of perinatal deaths vary worldwide based on socio-economic, demographic and clinical profiles. Recent estimates show that the perinatal mortality rate (PNMR) in developed regions of the world is about 10 per 1000 live births compared with more than 50 per 1000 live births in less developed regions of the world [1,2]. These figures remain worrisome, considering the fact that the PNMR is known to be a key health status indicator of a region [2]. It has also been identified as an important indicator of the quality of obstetric and newborn care available in any setting, and remains a major contributor to overall childhood mortality [2-6].

Nigeria has the highest absolute number of newborn deaths among countries in Africa, accounting for 255,500 of the 912,000 neonates who die annually in Africa [7]. With a neonatal mortality rate of 48/1000 live births, and over 700 newborn deaths each day Nigeria ranks seventh among the ten African countries where newborns have the highest risk of dying [7]. Neonatal deaths in Nigeria account for a quarter of under-five mortality 7. The perinatal mortality rate (PMR) in Nigeria varies among regions and centers, ranging from 40 to above 80/1000 live births [8].

According to UN mortality estimates in 2011, Nigeria has achieved only an average of 1.2% reduction in under-five mortality per year since 1990; it needs to achieve an annual reduction rate of 10% from then until 2015 to meet MDG 4 [9]. While little progress has been made to reduce deaths after the first month of life, there has been very minimal progress in reducing neonatal deaths, which includes perinatal deaths, over the past decade in Nigeria [9].

Studies have been conducted in several centers in Africa, including Nigeria, to evaluate the prevalence and risks of neonatal and perinatal deaths. However, majority of these works were done in tertiary healthcare facilities or as community based

studies, hence providing minimal data on perinatal outcome in the private specialist obstetric hospital. This study was therefore conducted to determine the pattern of perinatal deaths as well as the associated factors in a private specialist obstetric hospital setting. Data obtained on the pattern and risks of perinatal deaths would be important for planning and implementation of maternal and child health care programs and intervention services in developing countries, as well as help in improving perinatal care at the local level.

Methods

This is a five year retrospective survey of perinatal deaths at Chimex Specialist Hospital, Nnewi, from July 1 2006 to June 30, 2011. Nnewi is a semi-urban town located in Anambra State of South Eastern Nigeria, about 35 kilometers away from Awka, the state capital. The delivery records and case notes of patients who delivered their babies at the hospital were reviewed and information on the antenatal care, labor, perinatal outcome, as well as socio-demographic characteristics were extracted. The data obtained was analyzed using EPI info 2000 software. Tests of significance were done using the Chi square test at 95% confidence intervals.

Limitations of Retrospective Study

Retrospective studies are less in the hierarchy of publishable than randomized controlled trial. Randomized controlled trials have drawbacks too. External validity is one [10]. Retrospective nature of the study did not have the limitations of some instances such as intentional exposure to risk. Such risk exposures are unethical. Also, it is less expensive to carry out retrospective studies.

Results and Discussion

Results

A total of 36 perinatal deaths occurred out of 1527 deliveries during the 5-year period under review, giving a Perinatal Mortality Rate (PNMR) of 23.6 per 1000 births. Most, 24 (66.7%) of the babies were stillbirths and 12 (33.3%) were immediate neonatal deaths. The summary of birth outcome is shown on **Table 1**. One of the babies was malformed and 22 (61.1%) had low birth weight. A third of the babies were delivered at term, ten (27.8%) were delivered before 28 weeks of gestation, while in 10 (27.8%) babies, the mothers had unsure dates.

The ages of the mothers ranged from 18 years to 42 years with a mean age of 28.47 ± 5.83 years. All the women with perinatal deaths had delivered babies in the past, as the parities ranged

from 1 to 5, with majority, 17 (47.2%) of the mothers being primiparous. Many, 12 (33.3%) of the mothers did not receive antenatal care from any hospital. Only 4 (11.1%) of them booked in the first trimester of pregnancy, while only 8 (22.3%) had up to 5 antenatal care visits. Majority, 21 (58.3%) of the babies were born via spontaneous vertex delivery, while 9 (25.0%) were born via emergency caesarean section. Six (16.7%) of the mothers had augmentation of labour while 20 (55.6%) had induction of labour. Duration of labour was more than 12 hours in 18 (50%) of the mothers, with labour lasted more than 24 hours in 6 (16.7%) of the mothers. The effects of these maternal and fetal indices given above on the perinatal outcome are shown are shown on **Table 2**.

Table 1. Summary of perinatal outcome and causes.

Birth outcome	Frequency	Percentage
Macerated stillbirth	14	38.9
Asphyxia neonatorum	11	30.6
Fresh stillbirth	10	27.8
Umbilical cord accident	6	16.7
Infection	2	5.6
Congentital malformation	1	2.7
Cyanosis	1	2.7

Table 2. Effects of some maternal and fetal indices on birth outcome.

Variables	Fetal outcome		
	Fresh stillbirth	Macerated stillbirth	Neonatal death
Maternal age [x^2=20.0; df=8; p= 0.01]			
<20 years	2	0	0
20-24 years	2	4	3
25-29 years	6	5	0
30-34 years	0	3	5
≥ 35 years	0	2	4
Duration of labour [x^2=8.91; df=4; p= 0.063]			
<12 hours	7	5	6
12-24 hours	0	8	4
>24 hours	3	1	2
Parity [x^2=14.8; df=8; p= 0.062]			
1	6	7	4
2	2	5	2
3	0	2	4
4	2	0	0
5	0	0	2
Number of antenatal care visits[x^2=18.0; df=4; p= 0.001]			
0	8	4	0
1-4	0	8	8
5-8	2	2	4
Birth weight [x^2=10.9; df=4; p= 0.028]			
< 2.5 kg	10	8	4
2.5 – 3.9 kg	0	4	4
4.0 kg & above	0	2	4
Mode of delivery [x^2=7.97; df=6; p= 0.241]			
Elective c/s	0	2	0
Emerg. C/s	4	1	4
Svd	6	9	6
Vacuum	0	2	2
Gestational age at delivery [x^2=13.1; df=4; p= 0.011]			
< 28 weeks	1	9	0
28-36 weeks	0	2	2
>36 weeks	2	2	8
Unsure date	7	1	2
Gestational age at booking [x^2=13.0; df=4; p= 0.011]			
≤ 20 weeks	0	4	7
> 20 weeks	4	4	5
Unbooked	6	6	0

Discussion

This study revealed a perinatal mortality rate of 23.6 per 1000 births, of which two-thirds were stillbirths. This perinatal mortality rate is however; lower than that of other studies done in Nigeria which ranged from 58.6% to 162% [2,11-19]. This may be attributed to the fact that this study was conducted in a private specialist obstetric hospital; hence the patients will obtain better care than the general population. Also, the patients who attend the hospital are generally of the upper and middle classes, with a minority from the lower social echelons. It is also noteworthy that those other studies done in Nigeria [2,11-19] were done mostly in tertiary health facilities owned by the government, hence the caliber of patients differ from that of the private specialist hospital, especially in terms of social class, as many people of the lower social class can access healthcare in these tertiary healthcare facilities. Moreover, most high risk cases are preferentially referred to the tertiary healthcare facilities owned by the government because of the higher possibility of accessing proper healthcare, considering cost, manpower and infrastructure. This would then increase the risk of having cases that would result in perinatal deaths in such government owned facilities. This perinatal mortality rate is however, much higher than findings in developed countries [1]. This may be attributed to the quality of healthcare as well as health seeking behavior in such setting.

Two-thirds of the babies were stillbirths, with 10 (27.8%) fresh stillbirths, and 12 (33.3%) were immediate neonatal deaths. This finding is in keeping with findings from other studies done in Nigeria. In a study done at Sagamu, South-West Nigeria, stillbirths accounted for about 79% of perinatal deaths [12]. Also, a study conducted in 21 healthcare facilities across Nigeria revealed a high proportion of stillbirths, which accounted for 90.3% of perinatal deaths 16. This is however, in contrast with findings from a study done in Blantyre, Malawi, where only 44.0% of perinatal deaths were stillbirths [20]. The high proportion of fresh stillbirths suggests a defect in the labour monitoring and delivery interventional processes.

The causes of the immediate neonatal deaths identified include neonatal asphyxia, 11 (30.6%), umbilical cord accidents. Neonatal asphyxia is majorly a manageable cause; having a nurse care manager (that is a midwife trained in new born resuscitation) will improve the outcome. Cicone et al. and Cecere et al. concluded on the import of such care manager [21,22]. Congenital Malformation was found only in one newborn. This is attributable to poor diagnostic equipment for congenital anomalies in the hospital, like in most other healthcare facilities in Nigeria and Sub-Saharan Africa. A study conducted in Lagos, Nigeria to determine the prevalence of congenital anomalies through autopsies revealed a prevalence rate of 21 per 1000 singleton births [23].

Low number of antenatal care visits, higher gestational age at booking, low birth weight, maternal age, lower gestational age at delivery were found to be significantly associated risk factors for perinatal death in this study **(Table 2)**. This is in keeping with findings from other studies done in Nigeria [2,12,13,15-20,23,24]. This finding is however, not surprising, as it is expected that the less antenatal care visits one has, the less the tendency to detect problems early and intervene appropriately, hence increasing the risk of perinatal death. This also goes for late booking. Low birth weight and prematurity are well known risk factors for perinatal death [2,12-20,23,24] and is also supported by findings from this study. Lower maternal age has been described as a predictor of perinatal and neonatal morbidity and mortality [11,12,17]. This is in keeping with findings from this study in which there is increased association of perinatal death with lower maternal age.

Conclusion

This study has revealed a lower perinatal mortality in the private specialist obstetric hospital in the developing country when compared with tertiary health centers and the general population. It also identified the number of antenatal care visits, gestational age at booking, birth weight, gestational age at delivery and maternal age as predictors of perinatal outcome in such a setting. Early ANC booking and compliance with ANC visits by pregnant women is therefore vital in reducing perinatal deaths, hence improving possibility of attaining MDG 4. Efforts should also be geared towards prevention of low birth weight and preterm labor in order to improve perinatal outcome.

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