A DESCRIPTIVE CLINICAL SURVEY OF 228 PERINATAL DEATHS AT KORLE BU TEACHING HOSPITAL

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SUMMARY

From 1st June to 31st August 1997, the mothers of stillbirths and first week neonatal deaths that occurred at the Korle Bu Teaching Hospital Maternity Unit were surveyed. The aim was to determine the proportions of stillbirths in which the fetus died in-utero before admission to the labour ward as well as those who died during labour on the Korle Bu Teaching Hospital labour ward, the clinically diagnosed causes of perinatal deaths, the avoidable factors in the perinatal deaths and the responsibility for each avoidable factor.

The proximate causes of the 228 perinatal deaths were mainly birth asphyxia; hypertensive diseases in pregnancy; respiratory distress syndrome; antepartum haemorrhage, and neonatal sepsis.

Responsibility for the avoidable factors was assessed to lie with the labour wards (45.5%), the antenatal clinics (23.5%), and the patients and/or their relatives (18.2%).

Early recognition and referral of high-risk pregnancies, motivation of staff at health institutions, and provision of more facilities to enable caesarean delivery to be performed without delay, would help to reduce the high perinatal mortality rates at the Korle Bu Teaching Hospital.

Keywords: Stillbirths, perinatal death, avoidable factors, Korle Bu Teaching Hospital.

INTRODUCTION

Perinatal mortality rates are recognized worldwide as indices of the effectiveness of obstetric care. Whilst the perinatal mortality rates of some developed countries range from 6.2 to 16.9 per 1000 births[1,2,3,4] those of some African countries are as high as 34.5 to 98.7 per 1000 births[5,6,7,8].

The differences in perinatal mortality rates between the developed and developing countries are due mainly to better socio-economic factors, better obstetric services and better reproductive health in the developed countries[4].

Two previous studies at the Korle Bu Teaching Hospital (KBTH) almost 30 years apart did not show any decline in the stillbirths rates, (67.3 per 1000 births in 1963 to 1969 and 60.6 per 1000 births in 1991 to 1992), even though social circumstances and technology in-flow could not have remained the same[7,9].

There are certain conditions such as gross congenital malformations and extreme prematurity, in which perinatal deaths may be unavoidable. However, there are instances where perinatal deaths cannot be blamed on the absence of "high-tech" facilities, or conditions incompatible with life, but on errors of omission and commission by the patient and her relatives, the health care workers or the hospital or institution.

The objectives of this study were to determine the proportion of stillbirths in which the fetus died in-utero before admission to the labour ward, the proportion of stillbirths in which the fetus died during labour on the Korle Bu Teaching Hospital labour ward, the clinically diagnosed causes of perinatal deaths, and any avoidable factors in the perinatal deaths and the responsibilities for each avoidable factor.

MATERIALS AND METHODS

The mothers of 228 perinatal deaths during the three-month period, 1st June to 31st August 1997, at the Korle Bu Teaching Hospital were interviewed using a pre-tested questionnaire and their antenatal and labour records reviewed. The causes of the perinatal deaths were determined at the Departmental meetings and from the case notes of those who

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died at neonatal intensive care unit. The authors determined whether there was any avoidable factor in each perinatal loss and the responsibility for the factor. The Epi-Info version-5 software was used for data analysis.

In this study, a stillbirth is defined as a baby born after 28 weeks gestation or birth weight of 1000g or more, who shows no sign of life after separation from the mother. Perinatal deaths include all stillbirths and first week neonatal deaths.

An avoidable factor is an error of omission which had it not happened might have led to a result rather than a perinatal death. For health personnel, this was considered present in the opinion of the authors if there was a departure from generally accepted acts of commission or omission standards of satisfactory care, or if the care provided was considered inappropriate in the circumstances.

RESULTS

During the period of study there was a total of 3072 deliveries at the Korle Bu Teaching Hospital. The perinatal mortality rate was therefore 74.2 per 1000 births (228/3072).

The residential locations of the mothers who had perinatal deaths were as follows: urban 14 (6.1%), urban slum 159 (69.7%) and village 55 (24.2%). Their formal educational attainments are shown in Table 1. Forty-five percent had never been to school, and nearly 40% had had seven or more years of schooling.

Table 1 Formal educational attainment of mothers of perinatal deaths

Level of Education (Years)	No	%
Nil	103	45.2
1-3	3	1.3
4-6	33	14.5
7-10	72	31.5
11-30	17	7.5
	228	**100**

The mean age of the mothers was 27.1 ± 5.54 years. The distribution of the maternal ages are shown in the Table 2. The mean parity was 1.3 ± 0.55. Before the index delivery, 101 (44.3%) were nulliparous 118 (51.8%) were parity 1-4, and 9 (3.9%) were grandmultiparae (i.e. Parity 5). Of the 127 parous women, 106 could recall the last delivery date. Fifteen (14.2%) of these women had an interval less than 24 months before the index delivery, whilst 91 (85.8%) had an interval of 24 or more months. Eighteen (14.2%) of the parous women had a history of at least one previous perinatal death.

Table 2 Age distribution of mothers of perinatal

Age Group (Years)	No.	%
12 – 19	18	7.9
20 – 35	192	84.2
36 – 45	18	7.9

The mean gestational age at delivery of the babies was 36.5 ± 3.77 weeks. The distribution of the gestational age at delivery was as follows: preterm (less than 37 weeks) 97 (42.5%), term (37-42 weeks) 128 (56.2%) and posterm (more than 42 weeks) 3 (1.3%).

The mean birth weight of the babies was 2420.7 ± 854.3g. The distribution of the birth weights was as follows: 42 (18.4%) were less than 1500g, 68 (29.8%), were 1500 – 2499g, 109 (47.8%) were 2500 – 3999g, and 9 (3.9%) weighed 4000 – 6000g.

The modes of delivery of the babies are shown in Table 3.

Table 3 Mode of delivery of perinatal deaths babies

Mode of Delivery	No.	%
Spontaneous Vertex	151	66.2
Assisted Breech	24	10.5
Breech Extraction	2	0.9
Vacuum Extraction	5	2.2
Elective Caesarean Section	7	3.1
Emergency Caesarean Section	34	14.9
Caesarean Hysterectomy	4	1.8
Destructive Operation	1	0.4
Total	**228**	**100**

Among the 228 perinatal deaths were 159 stillbirths, 85 fresh (53.5%) and 74 macerated stillbirths (46.5%). One hundred and thirty (81.6%) of the stillbirths died in-utero before admission at Korle Bu Teaching Hospital labour ward. Twenty-nine (34.1%) of the 85 fresh stillbirths died during labour at the labour ward of Korle Bu Teaching Hospital. Sixty-seven of the babies died in the neonatal intensive care unit (NICU) within seven days of delivery and two in the labour ward.

Table 4 Antenatal and labour complications of perinatal deaths

Complication	Antenatal	Labour		
	All Cases n=228	Macerated SBs n=74	Fresh SBs n=85	Early Neonatal Deaths n=69
Hypertension in Pregnancy	57 (25.0)	28 (37.8)	3 (3.5)	11 (15.9)
Ante-partum Haemorrhage	17 (7.5)	-	9 (10.6)	5 (7.3)
Anaemia in Pregnancy	15 (6.6)	6 (8.1)	-	-
Sickle Cell Disease	9 (3.9)	4 (5.4)	-	-
Malaria	13 (5.7)	2 (2.7)	-	-
PROM with Chorioamnionitis	13 (5.7)	7 (9.5)	2 (2.4)	2 (2.9)
PROM without Chorioamnionitis	19 (8.3)	-	-	-
Multiple Pregnancy	12 (5.3)	-	-	-
Diabetes Mellitus	3 (1.3)	2 (2.7)	-	-
Urinary Tract .Infection	3 (1.3)	-	-	-
Malpresentation/Mulposition	-	-	8 (9.4)	12 (17.4)
Prolonged labour (cause unknown)	-	-	7 (8.2)	11 (15.9)
Meconium stained liquor	-	-	19 (22.4)	11 (15.9)
Intrapartum asphyxia (cause unknown)	-	-	20 (23.5)	6 (8.7)
Umbilical cord prolapse	-	-	4 (4.7)	8 (11.6)
Ruptured uterus	-	-	7 (8.2)	1(1.5)
Intrapartum fetal death (cause unknown)	-	-	5 (5.9)	-
Failed Vacuum Extraction	-	-	1 (1.2)	2(2.9)
Unknown	67(29.4)	25 (33.8)	-	-

These 67 are referred to as early neonatal deaths. The antenatal and labour complications of the fresh stillbirths and the causes of the early neonatal deaths are shown in Table 4 and Table 6 respectively. Hypertensive diseases in pregnancy, antepartum haemorrhage, asphyxia due to mechanical complications and chorioamniotis were the main causes of perinatal deaths.

Table 5 Indications for admission to NICU of perinatal deaths

Indication	No
Preterm (Birth weight < 1500g)	20
Preterm (Birth weight 1500–2499g)	19
Grunting respiration	15
Meconium aspiration	11
Birth asphyxia (cause unknown)	9
Major congenital anomalies	4
Chorioamnionitis	2

Prematurity, grunting respiration and meconium aspiration were the leading indications for admission to the NICU (Table 5). Fifty-five babies (82.1%) of the 67 admitted to the NICU were in poor condition. The major primary clinical causes of early neonatal death were respiratory distress syndrome 21 (30.4%), birth asphyxia 17(24.6%), and sepsis 13 (18.8%) (Table 6).

Table 6 Primary clinical causes of early neonatal deaths

Causes of Death	No	%
Respiratory Distress Syndrome	21	30.5
Birth asphyxia	17	24.6
Sepsis	13	18.8
Meconium aspiration	9	13.0
Unknown	4	5.8
Birth injury	2	2.9
Anaemia	2	2.9
Congenital malformation	1	1.5
Total	**69**	**100**

One hundred and thirty-two (57.9%) of the perinatal deaths were considered avoidable. Those responsible for the avoidable factors in these perinatal deaths are shown in Table 7.

Table 7 Assignment of responsibility for avoidable factors in perinatal deaths

Responsibility for Factor	No.	%
Labour ward staff	60	45.5
Antenatal clinical staff	31	23.5
Patient/Relative	24	18.2
Antenatal ward staff	15	11.4
Postnatal ward staff	2	1.5
Total	**132**	**100**

The patient/relative responsibilities for avoidable factors included late booking for antenatal care, irregular antenatal clinic attendance, delay in reporting to Korle Bu Teaching Hospital after being referred and going back home and staying away for a period of time ranging from days to weeks after being asked to go on admission at Korle Bu Teaching Hospital.

The antenatal clinic staff responsibilities included not checking the blood pressure of patients at all visits, inability to recognize sign of impending complications, continuing to see the patients at a polyclinic or private maternity home after noting complications and delay in referral to Korle Bu Teaching Hospital.

The labour ward staff responsibility for the avoidable factors was mainly due to delay in referral from the maternity homes and polyclinics of patients who should deliver at the tertiary level of the Primary Health Care System.

DISCUSSION

The perinatal mortality rate of 74.2 per 1000 births at the KBTH is high. This rate is similar to other rates from Africa which range from 60 to 98.7 per 1000[5,6,7,8,9,10] but is significantly higher than the rates of 6.2 to 16.9 per 1000 births from the developed countries[1,2,3,4].

The leading antenatal complications associated with perinatal deaths in this study were antepartum haemorrhage, hypertensive diseases in pregnancy while only neonatal deaths were caused by respiratory distress syndrome and birth asphyxia.

Both clinical[7,9] and pathological[11,12] studies previously done in KBTH also noted these as the major causes of perinatal deaths. Stillbirths formed 69.7% of the perinatal deaths. Intra uterine death before onset of labour accounted for 46.5% of the stillbirths.

The main conditions associated with the macerated stillbirths were hypertensive diseases in pregnancy, chorioamnionitis and anaemia. All these conditions can be effectively controlled or prevented by good antenatal care[10].

Intrapartum asphyxia, thick meconium staining of the liquor and antepartum haemorrhage were the major complications during labour in the fresh stillbirths. Close observation of the fetus in labour, efficient intra-uterine resuscitation and early caesarean delivery of babies who are in distress, can reduce the high incidence of fresh stillbirths. During the period of study inadequate and malfunctioning of suction machines and only one functional operating theatre at the Maternity Unit of the hospital were the bane of the health workers of Obstetrics Department in KBTH. These problems retarded the efficiency of work at the labour wards.

The babies who died at he NICU were mostly in poor condition at birth (82.1% of 67 early neonatal deaths). This is also mainly a reflection on intrapartum care, and to some extent, antenatal management. Of interest in this study is the fact that 57.9% of the perinatal deaths were considered avoidable. The labour ward nursing and medical staff were responsible for 45.5% of the avoidable factors, which included late recognition of worsening fetal condition and delay in performing caesarean delivery.

Delays by labour ward staff in private maternity homes and Polyclinic in referring cases also contributed to the perinatal deaths.

Delay by the patients and/or their relatives accounted for 18.2% of the avoidable factors. This could have been due to financial constraint or their husband not being at home. The male dominance in many marriages often leaves the wives unable to take a decision for themselves. Improvement in the levels of formal education of females would be helpful in liberating them to take certain decidions which may be vital for their health and the health of their babies.

In conclusion, the vast majority of perinatal deaths in KBTH can be prevented. This can be achieved by early recognition and referral of high risk pregnancy during the antenatal period by all categories of staff rendering antenatal services, and by improvement in the working conditions at the labour wards of the Maternity Unit.

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