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The pattern of stillbirth in a secondary and a tertiary hospital in Ibadan, Nigeria

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Summary

Stillbirths contribute a remarkable proportion to perinatal mortality in developing countries. Perinatal mortality rate (PMR) is still very high in these countries, ranging from 60 to 120 per 1000 total births, compared with 10 to 20 per 1000 total births in Europe. A descriptive review epidemiological study was carried out over a 3 year period, 1978-1980 inclusive, in two major hospitals in Ibadan city, capital of Oyo State in the South Western part of Nigeria, using structured questionnaires. The study revealed an overall prevalence rate of stillbirths of 63/1000 total births. Fresh stillbirths with no visible congenital malformations predominate. Some of the risk factors observed from this study to be associated with stillbirths in Nigeria include teenage and advanced maternal age (≤ 19 years and ≥ 35 years), high parity and past history of spontaneous abortions. As preventive measures, efforts should be made to improve antenatal and obstetric services. The data collected serves as a baseline for further research on this topic

Keywords: *stillbirths, congenital abnormality, perinatal mortality rate, developing countries.*

Résumé:

L'accouchement des morts-nés contribue à une proportion remarquable de la mortalité pré-natale dans les pays sous-développés. Le taux de mortalité pré-natale (TMP) est encore élevé dans ces pays, variant entre 60-120 pour 1000 cas de naissance, comparé à 10-20 pour 1000 naissance en Europe. Cette étude descriptive de révue épidémiologique dans 2 hopitaux de référence dans la ville d'Ibadan, capitale de l'état d'Oyo, Sud ouest du Nigéria a été effectuée en utilisant des questionnaires structurés durant une période de 3 ans de 1978-1980. Cette étude montre une prévalence totale de des morts-nés de 63/1000 naissance; ces morts-nés sans déformations congénitales prédominante. Certains facteurs à risque observés dans cette étude, associés avec les cas de morts-nés au Nigéria incluent les adolescents mères ($=19$ ans), l'âge avancé ($=35$ ans), plus associés à l'histoire d'avortements spontanés. Des mesures préventives doivent être prise pour améliorer les services antenatales et obstétriques. Ces résultats serviront comme la base pour les recherches futures.

Introduction

Perinatal mortality rate (PMR) is generally defined as the number of stillbirths (late fetal deaths plus the number of early neonatal deaths of infants weighing 1000g or more at birth per thousand total births). According to the World Health Organization, the perinatal period extends from gestation age at which the fetus attains the weight of 1000g (equivalent of 28 weeks of gestation) to the end of the 7th completed days (168 hours) of life [1]. However, PMR varies from country to country [2]. In Europe, PMR ranges from 10 to 20 per 1000 total births whereas in developing countries their rate ranges between 10 and 120 per 100 total birth [2-7,24].

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Stillbirths contribute significantly to perinatal mortality [2,3,6-10,25-29]. While intrapartum asphyxia, macerated fetuses and congenital malformation are the common cause of stillbirths in the United Kingdom, in the developing countries on the other hand, antepartum haemorrhage and fetopelvic disproportion remain the most important causes of fetal death [4-9].

The relatively high incidence of stillbirths in developing countries calls for effective preventive measures. However, in order to institute meaningful preventive measures, it is necessary to carry out baseline studies to identify the risk factors involved. This study was therefore planned to fulfill this objective.

Materials and methods

The study was carried out in Ibadan city, the capital of Oyo State of Nigeria, and the most populous indigenous city in West Africa. The only tertiary hospital in the city, the University College Hospital (U.C.H) was selected being a referral hospital that caters for the cross section of the population from all around Ibadan as well as from outside. The other hospital, the Catholic Hospital, Oluyoro, a secondary health institution, was chosen by simple random sampling from among the total of four (4) secondary level hospitals in Ibadan. The Catholic Hospital, Oluyoro (hereafter referred to as Oluyoro), is located near the inner core of Ibadan city and serves as a largely low and middle-income level population.

Using structured questionnaires, relevant information was extracted from available records of deliveries in the two hospitals from January 1978 to December 1980 inclusive. Some of the items in the questionnaire included demographic information on maternal age and parity, and past history of abortion.

Results

Table 1 shows the frequency of stillbirths in both hospitals over the three years study period. Out of a grand total of 29,065 deliveries recorded, 1,068 were stillbirths giving an overall prevalence of stillbirths of 3.7% or 37/1000 total births.

The table also reveals that the prevalence of still births in U.C.H over the 3 year period was 6.3% or 63/11000 total births while the prevalence at Oluyoro Hospital was 2.4% or 24/1000 total births. Table 2 shows that there were more male stillbirths in both Oluyoro and U.C.H., with an overall male frequency of 53.1% and female still births frequency of 46.9%, giving a male to female ratio of 1.13:1, $P = 0.04$.

As shown in Table 3 fresh stillbirths with no visible congenital malformations predominate, with frequency of 63.7% in Oluyoro and 64.8% in U.C.H. There is no statistically significant difference in frequency of fresh S.B in both institutions ($P = 0.70$).

Table 4 shows that the prevalence of still births was significantly higher among teenage mothers and among mothers who are 35 years and above compared with mothers aged 20-34 years (OR = 2.58 (95% CI 2.1 - 3.08) $P < 0.00001$) and (OR = 3.3 (95% CI 2.8 - 3.9) $P < 0.0001$) respectively. Teenagers however had lower risk compared with women >34 years (OR = 0.79 (95% CI 0.63 - 0.99) $P = 0.03$).

Table 1: Frequency of still births (S.Bs) with no visible congenital malformations at Oluyoro and UCH, Ibadan 1978-1980

Year	Place of delivery	Total No of deliveries	No. of S.Bs without malformation	S.Bs. as % of total deliveries	Statistical analysis (Chi-square with linear trend)
1978	Oluyoro	4,592	106	2.3	$X^2 - 68.15$ $P < 0.0001$
	UCH	3,333	195	5.9	
1979	Oluyoro	6,343	175	2.8	$X^2 - 77.3$ $P < 0.0001$
	UCH	3,411	221	6.5	
1980	Oluyoro	8,372	167	2.0	$X^2 - 130.4$ $P < 0.0001$
	UCH	3,014	188	6.2	

Table 2: Sex distribution of the still birth, 1978-1980

Sex of baby	Oluyoro (n = 457)		U.C.H. (n = 611)		Oluyoro and UCH combined (n = 1068)	
	No.	%	No.	%	No.	%
Male	249	54.5	318	52.0	567	53.1
Female	208	45.5	293	48.0	501	46.9
Total	457	100	611	100	1068	100

Table 3a: Frequency distribution of fresh and macerated still births seen at Oluyoro and UCH, 1978-1980.

Type of still birth (S.B.)	Oluyoro		UCH	
	No.	% of total	No.	% of total
Fresh S.B. without any visible congenital malformation	291	63.7	396	64.8
Macerated S.B. with visible congenital malformation	157	34.3	208	34.0
Fresh S.B. with visible congenital malformation	3	0.7	2	0.4
Macerated S.B. with visible congenital malformation	6	1.3	5	0.8
Total	457	100.0	611	100.0

Table 3b: Frequency of congenital in fresh and macerated stillbirths (S.B.)

With or without congenital malformation	Oluyoro		UCH	
	Fresh	Macerated	Fresh	Macerated
With visible congenital malformation	3	6	2	5
Without visible congenital malformation	291	157	396	208

Table 4: Frequency of still births and maternal age at Oluyoro and UCH 1978-1980.

Age of mother (maternal age)	Normal live births		Stillbirths		Total No. of normal live births and stillbirths		Odds ratio
	No. and % of Total	No. and % of Total	No. and % of Total	No. and % of Total			
15-19	222 92.9	171 7.1	2387 100.0	1.0			
20-24	9432 97.3	260 2.7	9644 100.0	0.36			
25-29	7603 97.2	216 2.8	7819 100.0	0.37			
30-34	6832 96.6	238 3.4	7070 100.0	0.45			
35-39	1545 93.6	106 6.4	1651 100.0	0.89			
More than 40yrs	328 81.2	77 18.8	405 100.0	3.05			
Total	27,963 96.3	1068 3.7	29,031 100.0				

Similarly, it has been revealed in Table 5 that primiparous women (Primips/Para 0) and women who were para 4 and above had significantly higher frequencies of stillbirths compared with women who were para 1 and 2; with para 5 and above recording more than 3 times the stillbirths frequency rate of para 2; $P = 0.0001$.

Table 5: Frequency of still births related to maternal parity at Oluyoro and UCH 1978-1980.

Maternal parity	Normal live births		Stillbirths		Total		Odds ratio
	No.	%	No.	%	No.	%	
Para 0	5425	96.0	227	4.0	5652	100.0	1.0
Para 1	5174	97.6	129	2.4	5303	100.0	0.6
Para 2	5704	97.7	136	2.3	5840	100.0	0.57
Para 3	4865	96.7	165	3.3	5030	100.0	0.89
Para 4	3179	95.6	171	4.4	3890	100.0	1.29
Para 5	3076	92.8	240	7.2	3316	100.0	1.86
Total	27963	96.3	1068	3.7	29031	100.0	

Table 6 shows that mothers who had a past history of abortion(s) had a significantly higher incidence of stillbirths compared with women who had no past history of abortion, with mothers who have had three or more abortions recording almost three times the frequency of still births of those who had no abortion. ($X^2 = 57.96$; $df = 3$; $P = 0.0001$)

Table 6: Past history of spontaneous abortion related to the occurrence of still births at Oluoyoro and UCH, 1978-1980

No Spontaneous abortions	Normal live births		Stillbirths		Total No. of Live birth and stillbirths	
	No.	%	No.	%	No.	%
No abortions	23,429	96.6	826	3.5	24,255	100.0
Had 1 abortion	3,183	95.7	142	4.3	3,325	100.0
Had 2 abortions	953	94.0	61	6.0	1,014	100.0
Had 3 abortions	398	91.1	39	8.9	437	100.0
Total	27,963	96.3	1068	3.7	29,031	100.0

Discussion

In this study, the prevalence of still births of 63/1000 total births recorded at U.C.H is higher than the 23/1000 total births recorded at Oluoyoro. Similar studies carried out in U.C.H by Ojo and his colleagues [4], and Adewunmi and his co-workers [6] recorded high stillbirths rates of 45/1000 total births and 94/1000 total births respectively. The high stillbirths rate recorded in U.C.H is not surprising as U.C.H is a referral tertiary hospital and more serious cases are often sent there.

The stillbirths rates recorded in both U.C.H and Oluoyoro are higher than those recorded in the United Kingdom [2]. This may be a reflection of late antenatal booking, and in some cases, total lack of antenatal care by many Nigerian pregnant women.

This study has also revealed that fresh stillbirths predominate in both institutions. This finding is similar to what has been reported in other studies from Nigeria and other parts of Africa [3-8,14-16,18]. The high proportion of fresh stillbirths suggests that the causative factor(s) could be avoided or prevented if adequate supervision is provided through early and regular antenatal care, and by early operative intervention (Caesarian section) when necessary.

This study has confirmed that maternal age influences the outcome of pregnancy. In this study, the extremes of reproductive life, teenagers (15-19 years), and women aged 35 years and above, are high risk groups, with high frequencies of stillbirths, while the 20-29 years are relatively safe years for reproduction. This is similar to the observation of other workers [9,16-20,28].

Similarly, parity has significant influence on outcome of pregnancy. The finding that primipara, para 4 and multipara, para 5 and above in particular, have the highest frequencies of stillbirths is also in keeping with the findings of other workers [9,16-22]. Mothers who ended up with stillbirths had a significantly higher frequency of past history of spontaneous abortions than mothers who delivered normal live babies. Larsen and Muller [23] in their study in South Africa also observed that a past history of one or more abortions is a high-risk indicator.

It is suggested from the findings of this study, that efforts should be made to improve antenatal and obstetric care within primary and secondary health care systems. Education of the girl child should increase the age at first pregnancy. Efforts should also be made to improve fertility regulation through effective and accessible family planning services.

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