Lethal Congenital Malformations in the Greater Harare Obstetric Unit during 1983

by

CAROLINE CROWTHER

Department of Obstetrics and Gynaecology
University of Zimbabwe
P.O. Box A 178, Avondale
Harare, Zimbabwe

and

R. GLYN-JONES

Department of Paediatrics and Child Health
University of Zimbabwe

SUMMARY

There were 97 perinatal deaths attributed to congenital malformations in the Greater Harare Obstetric Unit during 1983. This gives an incidence of 2.14/1 000 total births.

The central nervous system was the most frequently involved system, affected in 40 (41.2%) of the deaths. The commonest malformation was anencephaly present in 17 (42.5%) of the central nervous system defects. Mothers of babies dying from a lethal congenital malformation tended to be older than the general obstetric population.

INTRODUCTION

Genetic and environmental factors determine the risk of congenital malformations. The incidence varies between populations and different racial groups.[1] A recent survey in Scotland showed that congenital malformations accounted for 26.2% of all perinatal deaths in singleton pregnancies. The death rate was 4.3/1 000 total births.[2] In England and Wales 15.9% of perinatal deaths were attributed to congenital malformations.[3]

Pre-natal screening programmes for malformations by biochemical and ultrasonic methods may permit diagnosis in the early part of the second trimester. Termination of pregnancy in affected cases may produce a fall in the perinatal mortality rate from congenital malformations.[4] There has be no previous known written report of lethal congenital malformations in Harare. The aim of this paper was to calculate the incidence of lethal congenital malformations within the Greater Harare Obstetric Unit, to determine the contribution of such defects to the overall perinatal mortality, and to document the types of congenital malformations found.

PATIENTS AND METHODS

Harare Maternity Hospital is a high obstetric risk referral centre. The majority of referrals are from the Municipality-run urban maternity clinics. The Municipality clinics and Harare Maternity Hospital constitute the Greater Harare Obstetric Unit (GHU).

All of the perinatal deaths attributed to congenital malformations within the GHU during 1983 were reviewed. The deaths were analysed to determine the type of malformation present, the age and parity of the mother, and the sex and birthweight of the baby. The results using the data available are presented. Statistical analysis was by the X^2 test.

DEFINITION

The definition of perinatal death as recommended by the World Health Organization[5] was used in this paper. This defines perinatal death as a stillbirth (an infant born dead weighing >500g) or early neonatal death (an infant dying within the first week of life weighing >500g).

RESULTS

There were 97 perinatal deaths classified as congenital malformations amongst 1 563 perinatal deaths, and 45 343 total births within the Greater Harare Obstetric Unit during 1983. Lethal congenital malformations accounted for 6.2% of the total perinatal mortality, and the incidence of lethal malformation was 2.14/1 000 births. (Table 1).

Of the 97 deaths due to congenital malformation 38 were stillbirths and 59 were early neonatal deaths. The type of malformation, or the system with the defect if no specific details were available, is given in Table 2. Central nervous system malformations were the most common defects accounting for 40 (41.2%) of the deaths. Table 3 shows the different types of CNS defect

TABLE 1

Contribution of Congenital Malformations to Perinatal Mortality

Total deliveries GHU	45 343
Total perinatal deaths	1 563
Deaths from congenital malformations	97 (6.2%) of total perinatal mortality
Incidence of lethal congenital malformations	2.14/1 000 births

resent. Anencephaly was the most common esion, present in 17 (42.5%) of the CNS nalformation deaths. Abnormalities of the alimentary tract were present in 17 (17.5%) deaths. The majority 10 (76.9%) of cases were early neonatal deaths. The specific alimentary tract lesion is given, where known, in Table 4. Chromosomal abnormalities were considered to be the major abnormality in 13 (13.4%) of the deaths. Eight deaths were attributed to Trisomony 18 and 5 deaths to Trisomony 21.

Diagnosis of specific pathological abnormality in the cardiovascular system and urogenital system deaths, without the aid of a post mortem was not possible. The maternal age and parity distribution is given in Table 5 and Table 6. A comparison is made to the age and parity of the general obstetric population with data derived from the use of a minimum basic data set.[6] Mothers who had a congenital malformation perinatal death were of significantly greater parity ($p<0.005$) than mothers in the general obstetric population.

Of the 97 deaths 48 were male infants, and 44 female infants. In 5 cases the sex was indeterminate. The birthweight distribution of the babies dying from congenital malformations is given in Table 7. The majority 60 (62.1%) were of low birthweight (weighing less than 2 500kg). Compared with the birthweight distribution in the general obstetric population this is highly significant ($p<0.0005$).

DISCUSSION

This review found an incidence of 2.14/1 000 births for lethal congenital malformations within the Greater Harare Obstetric Unit (GHU). Lethal congenital malformation accounted for 6.2% of the total perinatal mortality. The incidence is low compared to other studies. Aggarwal, V.P. and Mati, J.K.G.[7] in a review of perinatal mortality at Kenyatta National Hospital, Nairobi, Kenya, found the incidence of lethal congenital malformation to be 3.5/1 000 births. Congenital malformations accounted for 3.7% of the overall perinatal mortality. The Scottish perinatal mortality survey found an incidence of 4.3/1 000 births.[2] The actual incidence within GHU may well be higher. The largest cause of perinatal mortality in the GHU is unexplained intrauterine death. It is probable that detailed post mortem examination of these deaths would in some cases reveal congenital malformations not evident on macroscopic examination.

Central nervous system defects were the most common malformations. The Nairobi perinatal mortality review,[7] Scottish perinatal mortality survey[2] and the British perinatal mortality survey[3] report the same finding. The most common central nervous system lesion was anencephaly again the same as that found in the British and Scottish perinatal surveys.[2, 3]

TABLE 2

Distribution of Lethal Congenital Malformation by System Involved with Mortality Rate

	Stillbirth	Early neonatal deaths	Perinatal deaths	% Total	Mortality rate/1 000 births
Central nervous system	29	11	40	41.2	0.88
Alimentary system	3	14	17	17.5	0.37
Cardiovascular system	0	9	9	9.3	0.20
Urogenital system	0	3	3	3.1	0.07
Other (including chromosomal deaths)	6	22	28	28.9	0.62
TOTAL	38	59	97	100.0	2.14

TABLE 3

of Lethal Central
ystem Malformations

Still-birth	Early neonatal deaths	Perinatal deaths
13	4	17
9	1	10
5	3	8
0	2	2
2	1	3
29	11	40

f some congenital abnormalities
somal abnormalities, increases
maternal age. This review
mothers of infants with a lethal
mation tended to be older than
ric population. They were also
reater parity.

TABLE 4

Type of Lethal Alimentary System Defect

	Still-birth	Early neonatal deaths	Perinatal deaths
Tracheo-oesophageal fistula	1	2	3
Diaphragmatic hernia	0	4	4
Jejunal atresia	0	2	2
Exomphalos	2	1	3
Gastroschisis	0	2	2
Other	0	3	3
TOTAL	3	14	17

ACKNOWLEDGEMENTS

I am grateful to the Secretary for Health fo permission to publish. Special thanks to M I. McL. Brown for permitting inclusion of th perinatal data collection figures and Mis S. Zwangobani for the typing.

TABLE 5

Maternal Age Distribution in Congenital Malformation Deaths Compared to the General Obstetric Population[6]

<15	15 – 19	20 – 24	25 – 29	30 – 34	35 – 39	>40	Unknown	Total
0	13	23	26	12	7	1	15	97
0	13.4	23.7	26.8	12.4	7.2	1.0	15.5	100.0
0.3	18.0	40.0	23.0	12.0	5.0	1.7	0	100.0

TABLE 6

Parity Distribution in Congenital Malformation Deaths Compared to the General Obstetric Population

	0	1 – 3	>4	Unknown	Total
lformation	19	39	31	8	97
malformation	19.6	40.1	32.0	8.2	100.0
		51.0	21.0	0	100.0

TABLE 7

Birthweight Distribution in Congenital Malformation Deaths Compared to the General Obstetric Population

Birthweight (g)	Congenital malformation infants	%	% general obstetric population
<1 000	10	10.3	1.3
1 000 – 1 499	12	12.4	0.8
1 500 – 1 999	24	24.7	2.0
2 000 – 2 499	14	14.7	7.2
2 500 – 2 999	20	20.6	28.3
3 000 – 3 499	5	5.2	40.6
3 500 – 3 999	2	2.1	17.1
>4 000	4	4.1	2.7
Unknown	6	6.2	0
TOTAL	97	100.0	100.0

REFERENCES

Chamberlain, G.V.P. (1981) "The epidemiology of perinatal loss." *Progress in Obstetrics and Gynaecology*, ed. John Studd. Churchill Livingstone, London.

McLlwaine, G.M., Howat, R.C.L. *et al.* (1979) *Br. Med. J.* **2**, 1103.

Butler, N.R. and Alberman, E.D. (1969) *Perinatal Problems. The Second Report of the 1958 British Perinatal Mortality Survey*. Livingstone, London.

4. Geirsson, R.T. and Patel, N.B. (1983) "How can we reduce perinatal mortality." *Progress in Obstetrics and Gynaecology*, ed. John Studd. Churchill Livingstone, London.
5. *Report of the FIGO Committee on Perinatal Mortality and Morbidity from the Workshop on Monitoring and Reporting Perinatal Mortality and Morbidity*. (1982) Chameleon Press Limited, London.
6. Brown, I., Elbourne, D. and Mutch, L. (1981) *Community Med.* **3**, 298.
7. Aggarwal, V.P. and Mati, J.K.G. (1982) *J. Obstet. Gyn. East. Cent. Afr.* **1**, 1.