

A review of Intra-uterine foetal deaths at the Cape Coast Teaching Hospital

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SUMMARY

Aim: To estimate the rate of IUFD/Stillbirths (SB)

Study design: This is a retrospective review of delivery suite records from Jan 1 2013 to Dec 31 2014.

Methods: Study was undertaken at the Cape Coast Teaching Hospital (CCTH) in the Central region of Ghana. All pregnant women who had their babies at the delivery suite of CCTH have their records hand written in Ghana health service approved and distributed delivery records book. We identified all patients with IUFD/SB from this delivery suite record book which is kept on the delivery suite. The data collected included the age, parity, mode of delivery, total blood loss, sex of the foetus and condition of foetus i.e. Macerated stillbirth (MSB) or fresh still birth (FSB).

Of the 315 IUFDs found in the records book, 26 were incompletely filled, and 13 were abortions (<28 weeks) and therefore excluded. The analysis is therefore based on 276 completed documentations. The data collected from the delivery suite records were analysed using STATA version 11.0.

Results: Of the 315 IUFD/SBs documented in the delivery suite record book, 13 were abortions (<28 weeks), leaving 302 IUFD/SBs. Of this number, 26 had incomplete data and were excluded from the analysis. The analysis was thus based on 276 IUFD/SBs with complete data. Over the study period there were 5176 deliveries, giving a still-birth rate of 58.5/1000 deliveries. Majority of the IUFD occurred in women 20-35 years of age (74.7%), and who have had two or less births (66.7%). The mean maternal age at which IUFD occurred was 29 years.

Conclusion: Our review shows that the SBR of 58.5/1000, over the two years, at CCTH is high. We suggest further studies to focus on the reasons for IUFDs and what interventions can be applied to reduce it.

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Keywords: Stillbirth, foetal death, pregnancy outcome, parity, caesarean delivery.

INTRODUCTION

At least 2·65 million stillbirths (range 2·08 million to 3·79 million) were estimated worldwide in 2008. Ninety-eight percent of stillbirths occur in low and middle income countries, and numbers vary from 2·0 per 1000 total births in Finland to more than 40 per 1000 total births in Nigeria and Pakistan.¹ The SBR in Ghana is trending lower, at 1.8% (18/1000), according to the Ghana Health Service Annual Reproductive and Child Health report, 2013.² Worldwide, 67% of stillbirths occur in rural areas; 55% in rural sub-Saharan Africa and south Asia, where skilled birth attendance and caesarean sections are much lower than for urban areas.¹

Estimating the prevalence of and causes of stillbirth is hampered by the lack of a clear or standard definition of stillbirth and the numerous classification systems in existence.³

Using the definition recommended by WHO for international comparison—a baby born with no signs of life at or after 28 weeks' gestation—is the most practical in low income settings since few babies born before this age are likely to survive in low-income countries.³

Knowing the causes of stillbirth is essential when designing interventions.⁴ Distinguishing between causes and associations leads to problems in classification, which are manifested by the presence of more than 40 current classification systems.⁵ The one commonly used in low-income and middle-income countries performed badly on an analysis of relative usefulness, yet the more reliable systems have been developed for high-income countries and rely on advanced diagnostics that are unavailable in the highest-burden settings.⁴

More than 85% of women with an IUFD go into labour spontaneously within three weeks of diagnosis.⁶ If the woman is in good health, her membranes are intact and there is no evidence of pre-eclampsia, infection or bleeding, the risk of complications with expectant management for the first 48 hours is low.⁶ “There is a 10% chance of maternal Disseminated Intravascular Coagulation (DIC) within four weeks from the date of foetal death and the probability increases thereafter”.⁶

Although the recommended mode of delivery of IUFD is vaginal, caesarean section becomes necessary in certain cases. In a study by Sampaio et al, 27.5% of pregnant women with foetal deaths underwent caesarean section,⁷ with the main indications being antepartum haemorrhage and previous two or more lower segment caesarean sections in which vaginal route of delivery was not a recommended option. Majority of the IUFD occurred in women 20–35 years of age, (74.7%) and who have had two or less births (66.7%). The mean maternal age at which IUFD occurred was 28 years.⁷

This study was motivated by an apparent rise in stillbirths in the first quarter of 2015. The aim of the study was to establish the stillbirth rate over the two-year period which can serve as a basis for more in-depth studies into causes and risk factors for stillbirth in CCTH.

METHODS

The study was carried out at the Cape Coast Teaching Hospital (CCTH) in the Central Region of Ghana. Permission to access the records of patients was obtained from the hospital administration. Cape Coast is the capital of the Central Region of Ghana and is a popular tourist destination. The indigenous people are mainly farmers, traders or fishermen.

There are about 2600 deliveries a year at CCTH, some of which are high risk patients referred from smaller hospitals in the region. The delivery suite record books of 2013 and 2014, which are kept confidential and secure, were thoroughly reviewed by two of the authors and cases with IUFD/SB were identified. The Ghana Health Service to all delivery suites supplies this record book so that the same data can be collected in all delivery units. The pages have fixed columns to collect data including the age, parity, mode of delivery, total blood loss, sex of the foetus, condition of foetus at delivery (macerated or fresh IUFD) and their birth weights.

For the purposes of anonymity and confidentiality of patient information, the names of patients were replaced with identification numbers.

Data analysis was done using STATA version 11.0. Univariate and bivariate analysis was used to describe the data and any other association. A total of 302 IUFDs were identified over the two-year period using the study definition of IUFD. Twenty-six had incomplete data which would affect validity, and so were not included in the descriptive analysis. They were counted as cases of IUFD only. Apart from the IUFD/SB rate all other analysis is based on the 276 completely documented cases.

Definitions

IUFD/SB: Stillbirth is the delivery of a baby showing no signs of life at or beyond a given gestational age threshold, or threshold of birthweight.⁸ <http://onlinelibrary.wiley.com/doi/10.1111/tog.12197/full-tog12197-bib-0001> The thresholds employed vary internationally but we used the WHO definition - a baby born with no signs of life at or after 28 weeks' gestation.³

Extremely preterm: less than 28 weeks

Very preterm: 28 - 32 weeks

Moderate to late preterm: 32 - less than 37 weeks⁹.

Complete data: no more than one variable of interest was missing/omitted.

Incomplete data: two or more variables of interest missing/omitted

Parity: number of deliveries beyond 28 weeks' gestation

RESULTS

There was a total of 5176 deliveries from Jan 1st 2013 to Dec 31st 2014, of which 302 were IUFD/SB. Having taken out the extremely preterm ones (13 of them), this translates to a still birth rate of 58.3/1000 births over the two-year period (or 29/1000 per annum). The mean maternal age at which IUFD/SB occurred was 29 years and the mean parity was two. Fifty percent of mothers with IUFDs were between the ages of 25 and 34 years. Those 35yrs and above accounted for just over 20% of cases. (Table 1.) Nulliparous women made up a quarter (24.9%) of the total number of cases with a trend of decreasing IUFD events with increasing parity, except in the grand multiparous (5 or more previous deliveries) women.

The greatest number of IUFDs occurred in the very preterm (28-31st) period however more than half the total number of IUFDs did not have their gestational ages (57.4% [166]) and modes of delivery (54.4% [157]) recorded.

Table 1 Description of cases

Characteristic	No.	%
Age of mother		
15-19	20	6.9
20-24	57	19.7
25-29	77	26.6
30-34	72	24.9
35-39	43	14.9
40+	20	6.9
Sex of IUFD		
Female	140	48.4
Male	149	51.6
Parity of mother		
0	72	24.9
1	57	19.7
2	51	17.7
3	35	12.1
4	27	9.3
5+	47	16.3
Maturity of IUFD		
Very early preterm	12	4.2
Early preterm	48	16.6
Late preterm	34	11.8
37+ weeks	29	10.0
Unknown	166	57.4
Mode of delivery of IUFD		
SVD	42	14.5
C/S	90	31.1
Not recorded	157	54.3
Status of IUFD		
FSB	147	50.9
MSB	142	49.1
Total	289	100.0

Table 2: Associations between case characteristics and status of IUFD

Characteristic	FSB		MSB		Total
	No.	%	No.	%	
Age of mother					
15-19	11	55.0	9	45.0	20
20-24	23	40.4	34	59.7	57
25-29	42	54.6	35	45.5	77
30-34	38	52.8	34	47.2	72
35-39	21	48.8	22	51.2	43
40+	12	60.0	8	40.0	20
X² = 3.9193, P-value = 0.561					
Sex of IUFD					
Female	73	52.1	67	47.9	140
Male	74	49.7	75	50.3	149
X² = 0.1774, P-value = 0.674					
Parity of mother					
0	26	36.1	46	63.9	72
1	28	49.1	29	50.9	57
2	35	68.6	16	31.4	51
3	20	57.1	15	42.9	35
4	15	55.6	12	44.4	27
5+	23	48.9	24	51.1	47
X² = 13.6380, P-value = 0.018					
Maturity of IUFD					
Very early preterm	7	58.3	5	41.7	12
Early preterm	17	35.4	31	64.6	48
Late preterm	15	44.1	19	55.9	34
37+ weeks	13	44.8	16	55.2	29
Unknown	95	57.2	71	42.8	166
X² = 8.5835, P-value = 0.072					
Mode of delivery of IUFD					
SVD	21	50	21	50.0	42
C/S	69	76.67	21	23.3	90
Not recorded	57	36.31	100	63.7	157
X² = 37.3017, P-value = 0.000					
Total	147	50.87	142	49.1	289

Fifty-four percent of deliveries were not categorically classified as Caesarean section (CS) or Vaginal deliveries. Which means the CS rates for IUFD/SB could range from 31.1% to 85.5%. The average CS rate in the unit, as at 2014, was 39.2% (CCTH report, Unpublished)

Table 2 shows that in the 20-24 yr. group there were 54 IUFDs of which 38.9% were FSB and 61.1% were MSB. This was a complete reversal of what was found in the 40+yr group where of the 19 IUFDs 57.9% were FSB and 42.1% MSB. Other than that, there seemed to be a trend of decreasing occurrence of FSB with increasing age although this was not of statistical significance ($X^2=4.514$, $p=0.478$). There was a significant ($p=0.013$) association between parity and status of IUFD, with nulliparous women having more MSB (65.2%) than FSB (34.8%). The highest proportion (68.8%) of FSB occurred in women who have had two previous deliveries.

DISCUSSION

Ninety-eight percent of stillbirths occur in low and middle income countries, and the incidence rates vary from 2.0 per 1000 total births in Finland to more than 40 per 1000 total births in Nigeria and Pakistan.¹ The stillbirth rate in Ghana from 2009 was 22/1000 births having dropped slightly from 23/1000 births in 1999 with a 0.2 fall per annum in that period.¹⁰ The SBR is trending lower, at 1.8% (18/1000), in the Ghana Health Service Annual Reproductive and Child health report, 2013.² In the current study, the IUFD rate of 58.5/1000 (or 29/1000 per annum) births at the CCTH is higher than the national average.

In an unpublished survey done in the same unit in 2014, 78% (43 out of 55) of patients with IUFD were referred from other facilities in the region to CCTH, which also explains the exceptionally high rates observed in our study.

The mean maternal age was 29 years and the mean parity was 2. Most of the IUFD occurred in maternal age group of 20–34 years (71.01%) and maternal parity of 0–2 (61.9%) which is almost the same as reported in a study in 2014 by Sampaio et al.⁷ A quarter of stillbirths occurred in nulliparous women, which is consistent with other reported studies. Nulliparity is one of the most prevalent independent risk factors for antepartum stillbirths in addition to obesity and advanced maternal age.¹¹ It seems that the higher the parity the lower the occurrence of IUFD till one became a grand multiparous (5 or more deliveries) woman, which was a statistically significant finding (Table 2).

There was an increase in the occurrence of MSBs in the 20-24 yr. group most of whom were nulliparous. (Table 2). It may well be that their possible lack of knowledge about pregnancy and the uncertainties about what to do in the presence of reduced or absent foetal movements led to a longer stay at home and therefore later presentation to the facility with MSBs. It could also be that they harboured the faint hope of the foetus being alive and so ended up coming in late with a macerated foetus.

On the other hand, in the over 40 yr. old age group and multiparous women there were more FSBs. These women come in early enough but seem to lose their babies peripartum. This could be because the junior doctors who initially see these patients do not recognise the enormity of the problems at hand and/or do not act quickly enough. It may also be that they get to the facility but a tad too late to be helped. There are several possible reasons for the latter including bad roads, poor transportation networks and unavailability of modes of transport.

The reasons for the high stillbirth rate in this study is not known because the GHS approved and distributed delivery suite record books for collecting the data does not make room for the collection of some relevant data. It is possible that referrals contribute a greater percentage, but this study does not have enough information to come to such a conclusion. Also, extremely preterm IUFDs in the 'unknown' gestational age group, could have contributed to this high SBR. In addition, patients generally decline post-mortems with some of the reasons being 'we've lost our baby, this post-mortem will not bring him/her back to life' or just a blunt 'we don't want to know'. Another reason may be that suggested investigations are too expensive and largely unaffordable by most of the CCTH patient population and so they decline them.

A lot can be done to reduce our IUFD/SB rates from its current level. Skilled attendants at delivery, a key health sector indicator in Ghana, can reduce fresh stillbirths.² Training of our first line personnel will be a key intervention. This should include multidisciplinary education, training and teamwork to recognize and quickly manage emergencies to help reduce the FSB rate and thereby the total SBR.

Limitations of the study

This was a retrospective review of records therefore not all information we set out to find were documented; sources of referrals were not documented in the deliv-

ery records book so we could not estimate their numbers.

This of course will affect our ability to decide on which unit or referral base needs help most since we are a referral centre. Some required data were missing because information was not recorded and cases were excluded from further analysis. This could also be a source of bias in the results.

CONCLUSION

In conclusion, it is unlikely that IUFD/SB will be eliminated completely. Our review suggested that the CCTH stillbirth rate of 58.5/1000 births over two-year period (or 29/1000 per annum) is higher than reported for Ghana, and in most studies. Also, the article highlights some of the associated factors leading to IUFDs. We suggest the need for future studies on the subject, focusing on finding the main causes of IUFD in Ghana, what interventions (if any) and where they should be targeted to comprehensively address and reduce the incidence.

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