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Original Research Article

## Retrospective analysis of stillbirth at a tertiary care hospital

Sarika Gautam\*, Vandana Rani, Monika Dalal

Department of Obstetrics and Gynecology, Pt. B D Sharma PGIMS, Rohtak, Haryana, India

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**\*Correspondence:**

Dr. Sarika Gautam,

E-mail: sarika.gautam07@gmail.com

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### ABSTRACT

**Background:** Stillbirth is a matter of concern for mother and family as it leads to mental trauma and requires a supportive counselling about the cause of death, management of current pregnancy and future of next pregnancy.

**Methods:** Present retrospective observational study was conducted at a tertiary care hospital over a period of 3 years which include 1765 females who had foetal death. Pregnancy of  $\geq 28$  week or fetal weight  $\geq 1000$  gram were taken as inclusion criteria.

**Results:** Total number of births in above said period were 32085 and number of total stillbirth reported were 1765 that is 5.5% of total birth. Maximum cases had their first pregnancy (45.3%) and of were of 20 to 25-year age group (61.02%), and most of them were illiterate (63.96%) and belong to low socioeconomic status (95.8%). The causes for stillbirth were divided into four groups - medical, obstetrical, placental and unexplained causes which were 6.96%, 31.38%, 14.10%, and 47.53% respectively. Management of stillbirth was done as per standard protocol for the department and 90.9% cases had vaginal deliveries, 8.8% cases had caesarean section, and 0.16% had operative vaginal delivery.

**Conclusions:** Stillbirth is a hidden component of new born health status which is often neglected when we talk about perinatal mortality and infant mortality. Majority of case had hypertensive disorders of pregnancy followed by antepartum haemorrhage, infection and congenital malformations.

**Keywords:** Antepartum haemorrhage, Hypertensive disorder of pregnancy, Infection, Stillbirth

### INTRODUCTION

Stillbirth is a devastating situation for a mother as well as for the family. It leads to psychological impact on the family specially the couple in terms of future pregnancy outcome and existing pregnancy treatment and management. An obstetrician is also in dilemma to break this bad news and counselling for these woeful couple. The definition recommended for international reference of stillbirth is "a baby born without signs of life at or beyond 28 weeks."<sup>1</sup> The American College of Obstetricians and Gynaecologists (ACOG) defines stillbirth as delivery of fetus which shows no signs of life e.g. absence of breathing, heart beats, pulsations in

umbilical cord are absent, no voluntary movement of muscle. The suggested requirement is to report fetal deaths at 20 weeks or greater of gestation (if the gestational age is known) or a weight greater than or equal to 350 g if the gestational age is not known. The cut-off of 350 g is the 50th percentile for weight at 20 weeks gestation.<sup>2</sup> The United Kingdom defines stillbirth as fetal death at 24 or more completed weeks of gestation.<sup>3</sup> The incidence of stillbirth also varies from developed countries to developing countries, higher rate seen in developing countries than developed countries simultaneously the causes are also varied from developing to developed countries. The global estimate is 18.4/1000 live birth and it varies from 2/1000 to 40/1000

live birth from developing to developed countries.<sup>4,5</sup> The multiple definition of stillbirth led to confusion and quite uncertainty in their registry system and exact load of burden is still unclear.

## METHODS

This study is retrospective observational study of case files with mention of stillborn fetus. The study includes three-year retrospective data from January'2015 to December'2016 at Dept. of Obstetrics and Gynaecology, Pt. B D Sharma Post Graduate Institute of Medical Sciences, Rohtak, Haryana.

The aims and objective of the study were to know the incidence of stillbirth occurred or reported at institute and to analyses the causes of stillbirth.

The inclusion criteria were taken all those cases who reported at study site with the report of stillbirth or stillbirth occurred during the course of hospital stay. It includes all those case files which had diagnosis of  $\geq 28$  weeks or birth weight  $\geq 1000$  grams.

The data were analyzed for their booking status, demographic profile in terms of their age, parity, residential area, and literacy status, their economic status and number of members in the family.

Data was analyzed for their previous or existing medical history, obstetrical history in terms of their gestational age at still birth, history of previous caesarean section, previous fetal death, and previous history of abortions. The causes of stillbirth classified into medical causes, obstetrical causes, placental causes and unidentified causes.

Unidentified cases were labelled "Unidentified" when the cause of stillbirth could not be traced.

Management was done as per standard protocol for the department and 90.9% cases had vaginal delivery while 8.8% cases had caesarean section and 0.16% cases had operative vaginal delivery.

## RESULTS

Total number of deliveries occurred during the study period were 32085 out of which 1765 cases were identified as stillbirth as per inclusion criteria. On calculation the rate of stillbirth for the institute it was 55 per 1000 live birth. Demographic details are depicted in Table 1.

Most of the females were primi gravida (45.3%) of age group of 20 to 25 years (61.02%), belong to low socioeconomic (67.9%) status.

Most of the females were un-booked cases (84.98 %) and belong to rural area (71.0%) and were illiterate

(63.96.0%) and of large family that is family more than 5 members (67.9%). Majority were referred cases (67.98%) while (24.87%) cases reported directly in OBG casualty and (7.13%) cases were indoor hen they had still birth.

**Table 1: Demographic details.**

Demography	Number of patients	%
<b>Age (Years)</b>		
<20	37	21.0
20-25	1077	61.02
26-30	501	28.39
31-35	120	6.80
>35	30	1.70
<b>Parity</b>		
G1	800	45.3
G2	416	23.5
G3	370	20.4
G4	153	8.6
>G4	120	6.75
<b>Residential area</b>		
Rural	1253	71.0
Urban	512	29.0
<b>Booking status</b>		
Unbooked	1500	84.98
Booked	265	15.01
<b>Literacy status</b>		
Illiterate	1129	63.96
Literate	636	36.03
<b>Socioeconomic status</b>		
Lower	1695	95.8
Upper lower	16	0.90
Lower middle	23	1.3
Upper middle	19	1.07
Upper	3	0.20
<b>Family Member</b>		
<5	565	32.01
>5	1200	67.9
<b>Status of cases</b>		
Referred cases	1200	67.98
Directly reported	439	24.87
Indoor cases	126	7.13

In the review of previous obstetrics history (14.9%) cases had previous abortions, (3.17%) cases had history of previous birth defect, and history of previous stillbirth was seen in (1.47%) case as show in Table 2.

**Table 2: Review of obstetric history.**

Obstetric events	Number	%
Abortions	264	14.9
Previous stillbirth	26	1.47
Previous birth defects	56	3.17
Previous LSCS	37	2.09

Medical cause was traced in (6.09%), obstetrical causes were seen in (31.38%) placental causes were (14.10%)

while (47.53%) cases remains unidentified. Major cause of still birth was Antepartum haemorrhage (8.8%) and hypertensive disorders of pregnancy (21.4%) and infections (3.0%) and (2.54%) cases had congenital malformation as shown in Table 3.

**Table 3: Causes of stillbirth.**

Causes	Number	%
Medical causes	123	6.96
Cardiovascular disorder	3	0.16
Neurological disorder	10	0.56
Pulmonary disorder	2	0.11
Endocrine disorder	10	0.56
Haematological	13	.73
Infection	53	3.00
Autoimmunological	1	0.056
Previous history of illness	31	1.75
Placental causes	249	14.10
Cord prolapse	19	1.08
Abruptio placenta	42	2.37
Placenta Previa	115	6.50
IUGR	73	4.13
Obstetrical causes	554	31.38
PTLP	10	0.56
PROM	61	3.45
Cholestasis of pregnancy	5	0.28
Multiple pregnancy	12	0.67
ABO Rh incompatibility	5	0.28
Trauma	2	0.11
Previous LSCS	18	1.01
Major congenital malformation	45	2.54
Obstructed labour	2	0.11
Ruptured uterus	10	0.56
Eclampsia and preeclampsia	379	21.4
Chorioamnionitis	1	0.056
GDM	4	0.22
Unexplained	839	47.53

**Table 4: Management Review.**

Management	Number	%
<b>Type of labour</b>		
Induced	1508	85.43
Spontaneous	96	5.4
<b>Mode of delivery</b>		
Vaginal	1606	90.99
LSCS	156	8.8
Instrumental	3	0.16
<b>Birth type</b>		
Macerated	423	23.9
Fresh	1342	76.03
<b>Gender</b>		
Male	901	50.99
Female	834	47.19
ambiguous	32	1.81

Management analysis is shown in table 4 maximum induction of labour has been done (85.43%) by various methods as per department standard protocol and 90.99% had vaginal deliveries, male sex fetus were more stillborn than female foetuses. Fresh stillbirth was seen in 76.03% cases.

## DISCUSSION

In present study, the incidence for the still birth in study period was 5.5% that is 55/1000 live birth. It is comparatively higher than the cumulative incidence for India that is 22/1000 live births.<sup>1</sup> The study site is one of the apices centre for state Haryana and it received most of the referral cases even from other state medical colleges. In present study the number of referral cases were (N=1200, 67.98%). On comparison of incidence with other studies, a study done by Neetu Singh et al, it was 40/1000 live birth for a tertiary care centre.<sup>6</sup> A study done at south India by Divya B et al it was 29.2%.<sup>7</sup> The worldwide estimated still birth rate which was collected from 195 countries by Hannah et al<sup>4</sup> is 18.4/1000 live birth. Most of the females are primi gravida (45.3%) which indicates that they are ignorant about the danger sign of pregnancy. These dangers signs are traced in this study that is antepartum haemorrhage, hypertensive disorder of pregnancy, infections and congenital malformations. In present study 95.8% females belong to low socioeconomic status that is confirmed by a study done at Sweden by Stephansson O. et al also shows the increased stillbirth were seen in low socioeconomic status.<sup>8</sup>

According to Cande V. Ananth hypertensive disorders are major group in contribution of stillbirth 4.8 to 7.8/1000 live birth among primi to multi gravid females.<sup>9</sup> A retrospective analysis done for antepartum haemorrhage and its perinatal outcome done at norther Nigerian teaching hospital indicates the stillbirth rate alone with APH is 42.8% in the study period that is quite high.<sup>10</sup> Infection is associated with stillbirth in present study was 3.0% and infection is also a preventable cause for still birth which need timely identification and intervention to reduce the total incidence of stillbirth. A study done by Goldenberg RL et al has shown in his study that infection is also one of the major sources of stillbirth in developing countries compared to developed countries.<sup>11</sup> Major congenital malformation also contributes 2.45% cases to stillbirth and there is also history of previous malformation in 3.17% which cannot be ignored as contributor in stillbirth. A study done by P. Shayam shows the congenital malformation is 1.45% of total stillbirth.<sup>12</sup> Unexplained stillbirth is one of the major domain of this study which constitute 47.3% cases. A systematic review was done at University of Queensland, Australia by HE Reinebrant et al they classified 50 countries into High income countries (HIC), Middle Income countries (MIC), and Low Middle Income countries (LIC) and found unexplained stillbirth 32.1%, 43.7%, and 41.0% respectively. India was categorized in

Low income country.<sup>13</sup> WHO has launched a programme in year 2014 ENAP i.e. “EVERY NEWBORN an action plan to end preventable deaths”. It came with the vision of “A world in which there are no preventable deaths of new borns or stillbirths, where every pregnancy is wanted, every birth celebrated, and women, babies and children survive, thrive and reach their full potential”. It is having goal of “By 2035, all countries will reach the target of 10 or less stillbirths per 1000 total births and continue to close equity gaps”.<sup>14</sup>

## CONCLUSION

Stillbirth is a hidden component of new born health status which is often neglected when we talk about perinatal mortality and infant mortality.

Most of the cases in the present study belong to low socioeconomic status, illiterate, and were of rural background which indicates outreach facilities are still in need to improve the quality care and awareness of danger signs of pregnancy.

There are some preventable causes like infection, proper monitoring of hypertensive disorder cases, obstructed labour, which could be avoided by proper protocols in hospital.

Lethal congenital malformation is also continuing beyond 20 weeks and patients had to take burden of the pregnancy as well psychological impact of carrying a fetus which is having no fate so every facility mandate awareness programme among family of pregnant females that a malformation scan is mandatory before 20 weeks so that MTP could be offered.

Unidentified stillbirth needs exploration of some identifiable rare causes so that the rate of stillbirth could be reduced and ENAP goal could be achieved. To conclude every birth should be counted upon and to be investigated to prevent the preventable death and a mandatory regular registry system should be made for the state as well as the country.

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