"A CLINICAL STUDY OF STILLBIRTH IN RELATION TO RISK FACTORS IN A TERTIARY CARE HOSPITAL"

Dr. B. P. Das*	Associate Professor, Department of Obstetrics and Gynaecology , Gauhati Medical College and Hospital, Guwahati. *Corresponding Author
Dr. S. K. Das	Assistant Professor, Department of Obstetrics and Gynaecology , Gauhati Medical College and Hospital, Guwahati.
Dr. R. Newme	PGT, Department of Obstetrics and Gynaecology , Gauhati Medical College and Hospital, Guwahati.

ABSTRACT

BACKGROUND: Stillbirth is an indicator of maternal health care services. Evaluation of the risk factors for stillbirth is required for prevention, management and to plan for better maternal health care.

METHODS: It is a Hospital based observational study, conducted from 1st July 2017 – 30th June 2018. All singleton and multifetal pregnancy with a gestational age ≥ 28weeks with a birth weight of ≥1000gm were included.

RESULTS: Total birth during the study period was 16713 and stillbirth was 510. Stillbirth rate was 30. 51 per 1000 livebirth. Causes of stillbirth were classified according to ReCoDe classification. Majority of patients were multigravida (57%).62% cases were antepartum stillbirth. Maternal hypertension(25.5%) was the most common risk factor.

CONCLUSION: Majority of the risk factors for stillbirth found in the study were preventable. Stillbirth rate can be reduced by proper management of these risk factors during antenatal care and intrapartum care.

KEYWORDS : Stillbirth, Riskfactors,ReCoDe classification.

INTRODUCTION: Stillbirth is a tragic event faced by the obstetrician and has many implications for the couple, family and the health care provider. World Health Organization (WHO) defines stillbirth, as a baby born dead at 28 weeks of gestation or more, with a birth weight of ≥1000 g, or a body length of ≥35 cm.[1] Of the 130 million babies born worldwide every year, approximately 4 million are stillborn, more than 98% of these occur in developing countries. Stillbirth accounts for more than half of perinatal mortality in developing countries.[2]

Despite improvement in antenatal and intrapartum care, stillbirths remain an important and poignant problem worldwide especially in developing countries like India. The global stillbirth rate (≥28 completed weeks gestation) is estimated to be 18.4 per 1000 births, or around 2.6 million stillbirths each year. From 2000 to 2015 there has been a reduction of 25.5% in the rate of stillbirth. In 2015, 2.6 million stillborn occurred. India, with 592 100 stillbirths, accounted for 22·6% of the global burden of stillbirths in 2015. The Indian government has adopted a target of <10 stillbirths per 1,000 births by 2030 through the India Newborn Action Plan (INAP).[3]

Few studies have been carried out in the recent few years in Assam. Furthermore the studied conducted were decade old, and over the decade antenatal care has improved significantly, especially in referral and teaching hospital. In our Medical College approximately 500-600 stillbirths are registered annually. Although, it is a tertiary teaching hospital, it mainly caters to a huge rural part of whole Kamrup and lower Assam and unfortunately, it is from those villages where all the etiological conditions for stillbirths are prevailing.The causes of stillbirth differ in different parts of the world and are affected by poverty social factors and type of antenatal and intrapartum care. The study is carried out to determine the characteristics of stillbirth and to do an analysis of the causes and risk factors in order to implement preventive measures.

Aims and objective: We have analyzed the still birth over a period of 1 year from 2017 to 2018 in Gauhati Medical college which is a tertiary care teaching hospital of Kamrup District, Assam,India. Our goal in this study was to-
1) To find out the proportion of still birth out of total birth in this tertiary care hospital
2) To identify the timing of foetal death in relation to duration of pregnancy and labour –antepartum or intrapartum.
3) To identify the causes and risk factors (medical, obstetrical, social, economical) of stillbirth.

MATERIALS AND METHOD: A Hospital based observational study was conducted from 1st July 2017 – 30th June 2018 in Gauhati

Medical College,Guwahati, Assam.There were total of 16713 live birth and out of them 510 cases were stillbirth. All singleton and multifetal pregnancy with a gestational age ≥ 28weeks with a birth weight of ≥1000gm were included. Out of the total 510 stillbirth cases over the study period of one year, 50% of the cases (255) were taken by random sampling for the study. The cause of stillbirth was classified according to ReCoDe classification(relevant condition at birth). Data was collected with predesigned and pretested proforma after taking informed consent from all the participants. The proforma contain details regarding patients particulars, obstetrics history, medical history, current pregnancy details, antenatal history, onset of labour, intrapartum care, any induction or augmentation, mode of delivery and details of stillborn baby. These women were examined and relevant investigations done including screening for pre-eclampsia, diabetes, thyroid dysfunction, ultrasound reports and other investigations if indicated.

After delivery, the stillborn baby, placenta and umbilical cord and presence of any congenital anomalies were examined. Examination of stillborn babies included estimation of fetal weight with special note on morphology, skin staining, maceration and colour (pale or plethoric) of the newborn. Placenta was weighed and examined for blood clots, staining with meconium, infarcts, edema, hydropic changes and for structural abnormalities like circumvallate placentae or accessory lobes. Umbilical cord was examined for entanglement, knots (true or false), number of vessels and insertion abnormalities. Amniotic fluid was noted for volume, colour and odour.

No perinatal autopsy was carried out as consent could not be obtained from the couple. If an obvious cause of death was not found, then by way of exclusion, stillbirth was usually considered unexplained.

RESULTS: During the study period, total number of deliveries were 16713 and stillbirths were 510 .The stillbirth rate was 30.51 per 1000 live births. 57% of the study population were multigravida.

Table 1 shows that 80% of the cases are from the rural areas, 69% cases were unbooked and only 31% were booked cases. Maximum cases were from low socio-economic status (73%) and most of them are illiterate(75%). 4% of the cases had previous history of stillbirth in the previous pregnancy.

Table 1: Demographic profile

Demographic profile	Number	Percentage
Rural areas	204	80%
Unbooked cases	176	69%
Low socio-economic status	186	73%
Illiterate	191	75%
Previous history of stillbirth	10	4%

Table 2 shows that, majority of the cases belonged to the age group of 20-24 years(44%), followed by the age group of 25-30 years(38%).15% belonged to age group of <20years and lastly 3% belonged to age group of >30 years. Overall 82% of the cases belonged to the age group of 20-30 years.

Table 2: Distribution of Maternal age

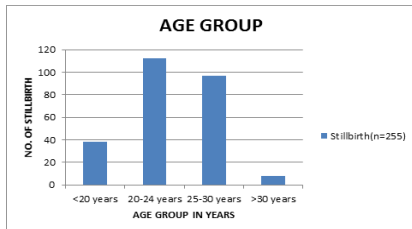| Maternal age(years)	Stillbirths (n=255)	Percentage (%)
<20 years	38	15%
20-24years	112	44%
25-30 years	97	38%
>30 years	8	3%
Total	255	100%

Figure 1:

Table 3 shows that stillbirth is common in women belonging to the gestational age group of 36-39 weeks i.e., 49% ,followed by 29% in the gestational age group of 32-35 weeks,13% of stillbirth cases in 28-31 weeks and lastly 9% of stillbirth cases is seen in women with gestational age of >40weeks.

Table 3 : Distribution of gestational age

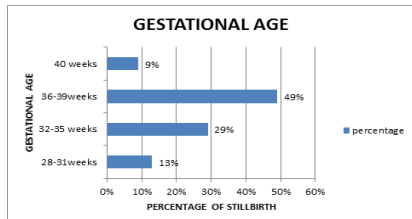| Gestational Age	Stillbirth(n=255)	Percentage%
28-31 weeks	33	13
32-35 weeks	74	29
36-39 weeks	125	49
>40 weeks	23	9
Total	255	100

Figure 2:

Table 4 shows that 27.2% cases of stillbirth had a fetal weight between 1-1.49 kg,49.8% between 1.5- 2.49kg and the rest 23% had fetal weight more than 2.5kg.62% cases of stillbirth were male and 62% cases occurred during antepartum period.50% of the cases were delivered vaginally following induction,36% were delivered by spontaneous vaginal delivery,10% by LSCS, 3% delivered as assisted breech delivery and the rest 1% by caesarean hysterectomy.

Table 4 :Fetal characteristics.

|	Number	Percentage(%)
Birth weight		
1-1.49 kg	70	27.25
1.5-1.99 kg	58	22.8
2-2.49 kg	68	27
≥2.5kg	59	23
Sex of the fetus		
Male	133	52
Female	122	48
Mode of delivery		
Spontaneous vaginal delivery	92	36
Vaginal delivery following induction	128	50
Assisted breech delivery	7	3
Cesarean section	25	10
Casarean hysterectomy	3	1
Timing of fetal death		
Intrapartum/ fresh	97	38
Antepartum/ macerated	158	62

Figure 3:
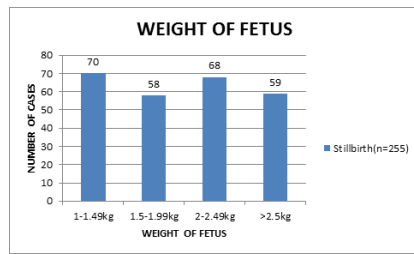
Figure 4:
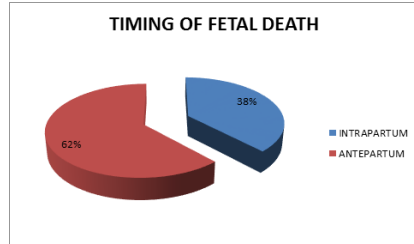
Table 5 depicts the different risk factors of stillbirth. In the present study, hypertensive disorder (25.5%)was found to be the most common risk factor followed by anemia (16.3%), abruptio placentae (10%), Gestational Diabetes Mellitus (7%), Jaundice in pregnancy (4.2%), Oligohydramnios (3.1%), Infection (3.35%), Congenital Anomaly (2%), IUGR (3.47%), Placenta praevia (2.5%), Obstructed labour (4.8%), Meconium stained liquor (4.8%),Cord prolapsed(3.90%),Complicated breech delivery(3%),Rupture uterus (1%) and unexplained(5.47%)

Table :5 Risk factors of stillbirth.

| Risk Factors	Numbers	Percentage (%)
Hypertensive Disorder of pregnancy	65	25.5
Severe Anemia	41	16.3
Gestational Diabetes Mellitus	18	7
Jaundice in pregnancy	11	4.2
Oligohydramnios	8	3.1
Infection (Chorioamnionitis)	9	3.35
Congenital Anomaly	5	2
IUGR	9	3.47
Abruptio placentae	26	10
Placenta praevia	6	2.5
Obstructed labour	12	4.8
Meconium stained liquor	12	4.8
Cord prolapsed	10	3.90
Complicated breech delivery	7	3
Rupture Uterus	2	1
Unexplained	14	5.47

Table 6 Shows classification of stillbirth according to ReCoDe. The most common cause was found to be maternal (53.13%) followed by placental cause(12.5%)

Table 6:ReCoDe classification of stillbirth

Code	Component	Spectrum of diseases	Numbers	Percentage (%)
Group A	Fetus	Lethal congenital anomaly, Rh isoimmunisation, Fetal growth restriction	14	5.47
Group B	Cord	Cord prolapsed	10	3.90
Group C	Placenta	Placenta praevia, Abruptio placentae	32	12.5
Group D	Fluid	Chorioamnionitis, Oligohydramnios,	17	6.25
Group E	Uterus	Rupture, Uterine Anomaly	2	1
Group F	Maternal	Diabetes Thyroid diseases Hypertensive disorder of pregnancy Cholestasis Anemia Others	135	53.13

Group G	Intrapartum	Asphyxia Birth trauma	31	12.28
Group H	Trauma	External or Iatrogenic	0	0
Group I	Unclassified	No relevant condition identified or no information found	14	5.47

Figure 5:

ReCoDe CLASSIFICATION
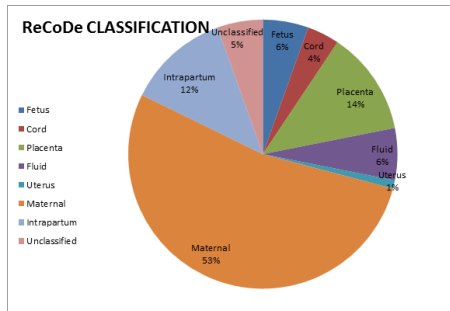
DISCUSSION: Stillbirth is a high magnitude public health issue and an important indicator of maternal health, availability and accessibility of healthcare delivery system and socioeconomic condition. In the present study, stillbirth rate was 30.51(510 stillbirths out of 16713 deliveries).The incidence is almost similar to different studies ,35.2 in a study by Korde-Nayak et al (2007)[4] ,33 in a study by Bangal et al (2012)[5]. The high rate found in this study might be because this hospital is functioning as the lone referral hospital for a large area including neighbouring states and all the high risk cases are referred to this hospital.

Overall 82% of the cases fall in the age group of 20-30years and is almost similar to the study by Avachat et al(2015)[6] and Mustafa M et al(2016)[7].80% of the cases were found to be from the rural areas.Study by Parihar B et al(2017)[8] and Ajini K et al(2017)[9] also show similar result.73% of the cases were from lower socioeconomic class and 75% were illiterate.Maximium cases of stillbirth were common in multigravida(57%) compared to primigravida(43%).Sidhaye P et al ((2012)[10] and Ajini K et al(2017)[9] shows similar observations.69% of the cases were unbooked cases and 4% of the cases had previous history of stillbirth. Studies by Agabata A et al (2017)[11] and Kothiyal S et al (2018)[12]show similar result.

Majority of the women belonged to the gestational age group of 36-39 weeks ie.49%.The stillbirth were common during the antepartum period(62%) than during the intrapartum period(38%). 52% of the fetus were male and overall 49.8% of the cases had fetal weight between 1.5-2.49kg. 50% cases were delivered vaginally following induction,36% were delivered by spontaneous vaginal delivery ,3% as assisted breech delivery,10% by LSCS and the rest 1% by cesarean hysterectomy.

Commonest cause of stillbirth according to ReCoDe classification was found to be the maternal complication (53.13%) and among the maternal complications, maternal hypertension and its complications were the leading cause contributing to about 25.5% of all the stillbirth.

CONCLUSION: Majority of women were from rural background and belonged to lower socioeconomic section of society. So the issue of availability and accessibility of adequate antenatal care for the socioeconomically weaker section of society need to be addressed. Prevention of stillbirth should be a holistic approach, and should include, preconceptional counselling and care,early detection of the maternal and fetal complications,confirmation of fetal growth restriction and hypoxia and fetal distress.organised referral system for problem delivery and for feto-maternal complications, prompt detection and intervention of intrapartum complications. It should involve community awareness, quality improvement of obstetric care and resources mobilization for maternity services in periphery area.

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