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CROSS SECTIONAL STUDY OF CAUSES AND DETERMINANTS OF STILLBIRTHS AT TERTIARY CARE TEACHING HOSPITAL

Obstetrics And Gynaecology

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ABSTRACT

Introduction- Stillbirth rates are unacceptably high in developing countries. It reflects the suboptimum quality of maternal and child health services. **Material And Methods-** Prospective observational cross sectional study, carried out for one year duration at tertiary care referral hospital in central India. **Results-**There were 9165 deliveries and 9318 babies born in the hospital.There were 318 stillbirths of which 245(77%) were ante-partum stillbirths and 73(23%) were intra-partum stillbirths. The stillbirth rate in the present study was 34/1000 births. Ante-partum haemorrhage (36%) and pregnancy induced hypertension (21%) were most common causes of ante-partum stillbirths where as extreme prematurity with very low birth weight (41%), birth asphyxia, meconium aspiration (21%) and intra-partum haemorrhage (15%) were common causes of intra-partum stillbirths. **Conclusion-** There is high rate of stillbirths in the present study. Health education, improvement of maternal nutrition, regular antenatal check-ups, high risk pregnancy identification and timely referral and institutional deliveries will help in preventing large number of stillbirths.

KEYWORDS

Stillbirth, Ante-partum Haemorrhage, Pregnancy Induced Hypertension, Cord Accidents, Birth Asphyxia

INTRODUCTION

Occurrence of stillbirth is a tragic event faced by the obstetrician. It has many implications for the couple, family and the health care provider. It reflects a failure or lapse in implementation of maternal and child health care programme. It is estimated that approximately 3.2 million stillbirths occur in the world every year. Majority of them take place in under developed and developing countries.[1]

Globally, India has been ranked first in the absolute number of stillbirths. [2,3] However, the sample registration system (SRS) of India has estimated stillbirth rate to be only 5 per 1000 births in 2013.[4]Whereas, Blencowe et al. have estimated it to be 23 per 1000 live births [3,4]. Wide range of variation in stillbirth rate (12.5 to 26.48) has been reported across the states of India. [5-9]Recently, Government of India has set a target for bringing down the stillbirth rate to single digit by 2025.[10] In response to the commitment to the 67th World Health Assembly held in May 2014, New-born Action Plan (INAP) has been launched in India to end preventable newborn deaths and stillbirths by 2030.[11,12]

Stillbirths contribute to more than half of the peri-natal deaths .More than two third of the stillbirths take place during pregnancy and remaining during course of labour.[13,14]Suboptimum care during pregnancy and labour results in macerated stillbirths and fresh stillbirths respectively.[15,16]Stillbirths during pregnancy are usually due to lack of adequate nutrition ,hypertensive disorders, ante partum haemorrhage, genetic abnormalities in fetus, maternal infections and exposure to some toxic agents.[17] Intra-partum deaths are usually related to prolong and neglected labour ,mal-presentations and cord related complications.

Present study was carried out to find out different medical and obstetric causes of stillbirths. Preventive measures are suggested in the end to reduce the perinatal mortality due to stillbirths.

MATERIALAND METHODS

This study was carried out in a 1250 bedded tertiary care teaching hospital located in rural area of central India. This multi specialty hospital get referral of high risk obstetric cases from neighbouring villages and townships. Approximately 10,000 deliveries take place per year in hospital. The hospital has round the clock availability of the facilities like well equipped obstetric and neonatology critical care unit, blood bank and operation theatre.

A prospective observational, cross sectional study was carried out in the Department of Obstetrics and Gynaecology of Pravara Rural Hospital, Loni. Pertinent data of stillborn babies and their mothers, who delivered either by vaginal route or by caesarean section during a study period of 1st January 2020 to 31st December 2020 was collected using a pre-validated and pre-tested study tool. Sources of data collection were hospital records.

Data related to variables like age, parity, education, occupation, socio-economic class, place of residence, high risk factors, number of antenatal visits, antenatal complications,complications during delivery, type of delivery was collected in a structured pre-tested and pre-validated proforma. Relevant data was compiled in Microsoft office excel and was analyzed using descriptive methods of statistical analysis.

RESULTS –

During the study period, the total number of deliveries were 9165 and total number of babies born were 9318.There were total 318 stillbirths that included 245 ante-partum stillbirths (77%) and 73 intra-partum stillbirths (23%). The overall stillbirth rate was 34.10 per thousand births. **(Table-1)**

Table 1- Showing Delivery And Stillbirth Statistics

Sr. No	Delivery and Stillbirth statistics	Number or Rate or Percentage
1	Total number of deliveries	9165
2	Total number of babies born	9318
3	Total Live births	9000
4	Total stillbirths	318
5	Total Number of IUDs	245
6	Total number of fresh stillbirths	73
7	Total stillbirth rate Ante-partum stillbirth rate Intra-partum stillbirth rate	34.1 / thousand total births 26.4 / thousand total births 7.7 / thousand total births
8	Percentage of Ante-partum stillbirth	77.00%
9	Percentage of Intra-partum stillbirth	23.00%

It was observed that and ante-partum haemorrhage (33%) and pregnancy induced hypertension (21%) were the commonest obstetric problems related to causation of stillbirths. Ante-partum haemorrhage, especially accidental haemorrhage resulted in acute placental insufficiency and foetal deaths. Other causes being maternal medical disorders like severe anaemia, un-controlled maternal diabetes, hepatitis, post-maturity ,IUGR,PROM, foetal congenital anomalies were collectively responsible for 30 percent of ante-partum stillbirths. Extreme prematurity with low birth weight (41%), birth asphyxia , meconium aspiration (21%) and intra-partum haemorrhage (15%) were most common causes of intra-partum stillbirths. Cord related

accidents like multiple tight loops of cord around neck (9.58%) and foetal congenital abnormalities (5.47%). In 15 percent cases, cause of stillbirth could not be detected. **(Table-2)**

Table 2- Causes Of Stillbirths

Type and Cause of stillbirth	Number of stillbirths (n=318)	%
I-Ante-partum Stillbirths	**245**	**77.00**
1-Antepartum haemorrhage -Accidental haemorrhage -Placenta praevia	82 14 03	33.47
2-Pregnancy induced hypertension -Severe pre eclampsia -Eclampsia	53 04 06	21.64
3-Maternal anaemia, diabetes, hepatitis, fetal congenital anomalies, postmaturity, IUGR, PROM	73	29.79
4-Unknown cause	37	15.10
Total ante-partum stillbirths	**245**	**100.00**
II-Intra-partum Stillbirths	**73**	**23.00**
1-Extreme prematurity , low birth weight	30	41.09
2-Severe birth asphyxia/ Meconium aspiration	16	21.91
3-Antepartum haemorrhage	11	15.06
4-Cord accidents	07	9.58
5-Fetal congenital anomalies	04	5.47
6-Unknown cause	05	6.84
Total intra-partum stillbirths	**73**	**100.00**

Out of 318 macerated stillbirths, 32 percent were seen in women below 20 years of age and 9 percent were among elderly women. Majority of women were in their third decade of life (59%).Multi-gravida women delivered more stillborn babies than primigravidas. The women with less number of antenatal visits and who were un-registered, had more stillbirths than their counterparts. Highest number of stillbirths (68%) were observed in the seventh and 8th month of pregnancy (28-34 weeks).**(Table-3)**

Table 3- Distribution Of Cases Of Stillbirth

Patient characteristic	Percentage
1-Age distribution in years	
• Below 20	31.91
• 20-25	36.17
• 26-30	23.40
• Above 30	08.51
2-Parity distribution	
• Primi	42.55
• G2-G4	51.06
• G5 and above	06.38
3-Antenatal Booking status	
• Booked	29.78
• Un booked	70.22
4-No of antenatal visits	
• No visit	29.78
• 1-3 visits	40.42
• 4-5 visits	25.53
• More than 5 visits	04.25
5-Duration of pregnancy	
• 28-34 weeks	68.08
• 35-37 weeks	21.27
• 38-40 weeks	08.51
• More than 40 weeks	02.12

DISCUSSION

Present study of stillbirths was carried out at tertiary care teaching hospital, where large number of high risk pregnancies and obstetric emergencies are referred from private practitioners and different levels of government hospitals for further management.

Stillbirth Rate

Worldwide reported stillbirth rate (SBR) was 18.4 per 1000 total births.[18] The progress in reducing stillbirth since 1990 has been slower than reductions in neonatal and under-five child mortality.[19] Currently, 98% of stillbirths occur in low-to-middle-income countries (LMICs) and India has the highest number of stillbirths, with an estimated 592 100 deaths per year, and a WHO estimated rate of 22 per 1000 total births. [18,20]

There is a wide range of variation in the stillbirth rate in various states and union territories of India (12.5 to 26.48/1000 births).Some of these variations may also reflect differences in methodologies that were adopted for gathering information on stillbirths. [4-9]In the present study, the total stillbirth rate, ante-partum stillbirth rate and intra-partum stillbirth rate were 34.1 per thousand total births, 26.4 per thousand total births and 7.7 per thousand total births respectively.

The Government of India has developed an Indian Newborn Action Plan which includes efforts to 'reduce stillbirths to <10 per 1000 births by 2030'.[21] A modest reduction in India's stillbirth rate would translate into thousands of lives saved.

Types And Causes Of Still Births

In the present study, ante-partum stillbirths were found to be nearly 77%, where as the intra-partum stillbirths were 23%.The rate of ante-partum stillbirths (26.4 per 1000 births) was comparable to the rates reported by other authors.[22-25] and was much less than reported by few authors. Lawn et al.[1] have estimated intra-partum stillbirths to be 39% in middle-income countries .[2] The present study was undertaken in a tertiary care hospital, where large number of obstetric emergencies like severe pre eclampsia ,eclampsia and all varieties of ante-partum haemorrhage are referred, resulting into higher stillbirth rates than some of the studies mentioned above.

Ante-partum haemorrhage, mainly accidental haemorrhage and severe pre eclampsia /eclampsia were responsible for 60-70% of total stillbirths. Other causes of stillbirth were maternal medical disorders like severe anaemia, uncontrolled diabetes, hepatitis. Fetal congenital malformations, fetal growth restriction, multiple loops of cord around neck contributed in the causation of stillbirths. Common causes of ante-partum stillbirths were placental insufficiency secondary to hypertension, an ante-partum haemorrhage mainly of accidental haemorrhage variety. Similar observations were reported by Ravikumar, Nayak and Dalal and Uchil.[22,25-26] Congenital malformation of fetus were responsible for 4 percent of stillbirths. Ravikumar et al and Korde et al reported slightly higher rates of malformations causing stillbirths.[23,25]

While various studies have examined the immediate pregnancy-related risk factors for stillbirth such as infections during pregnancy and hypertensive disorders,[27] knowledge about distal risk factors such as socioeconomic, lifestyle related and co-morbidities is limited.[28.] The Indian government recognises the need to improve pregnancy care and institutional delivery among disadvantaged socioeconomic groups, who have a higher risk of maternal and fetal death.[4] Since 2005, the government has made several efforts including cash assistance and dedicated services through community health workers with a stronger focus in the states with poor health and development indicators.[29]

Three key preventable factors in our study were maternal hypertension, accidental haemorrhage and fetal congenital malformations. Like other studies, present study also reported association of stillbirth with foetal growth restriction. [30-32] Many of the stillbirths can be avoided by proper nutrition, adequate rest during pregnancy, regular antenatal check up. Early detection of high risk factors and their prompt management can prevent many ante-partum fetal deaths due to placental insufficiency. Modern gadgets like color doppler, non stress tests can detect the fetal jeopardy before occurrence of stillbirth. Carefully performed obstetric ultra-sonography can detect nuchal cord position and cord entanglement around body parts. Sonologist must alert the obstetrician of such occurrence, so that necessary care is taken.

In order to move towards the single digit stillbirth rate target, in addition to intra-partum care, ante-partum care will also plays an important role, as complications during the ante-partum period are associated with the poor outcome of the pregnancy. Recently Government of India Ministry of Health and Family Welfare has formulated new guidelines for management of diabetes, hypothyroidism, calcium & iron supplementation and de-worming during pregnancy under the Janani Suraksha Yojna (Maternity Security Program). A once-a-month fixed-day antenatal check-up campaign has also been launched (Pradhan Mantri Surakshit Matritva Abhiyan – Prime Minister Secure Motherhood Campaign). [33]These initiatives can have impact on major causes of stillbirth reported in the present study (medical disorders, growth restriction, placental insufficiency etc).

CONCLUSION

The incidence of stillbirth was 34/1000 births in the present study. High rate of ante partum stillbirths was due to referral of large number of high risk cases of severe hypertension and ante-partum haemorrhage from nearby villages and townships.Large numbers of stillbirth can be prevented by regular antenatal check up, high risk pregnancy identification, timely referral and institutional delivery. Improvement in female literacy, prevention of teenage pregnancies, improving access to antenatal care, health education and periodic departmental audits of all stillbirths can help in reduction of stillbirths.

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