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AN ANALYSIS OF CAUSES OF STILLBIRTH AND PREVENTION STRATEGIES

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ABSTRACT

BACKGROUND- The stillbirths are still a major concern in developing countries. The identification and proper classification of causes is important to cut down the stillbirths.

AIMS AND OBJECTIVES- To identify the causes of stillbirth and to classify the causes according to CODAC system of classification.

MATERIALS AND METHODS- This study is observational study, done in Patna Medical college and Hospital, Patna from August-2020 to August-2021. This study includes all stillbirth between this period. A detailed history, examinations and, investigations were done. Any intrapartum complications were noted, fetus and placenta were examined. The cause of stillbirth was classified according to CODAC system.

RESULTS- The stillbirth rate was 5.6% during this period. In the maternal cause hypertensive disorder of pregnancy is the foremost cause of stillbirth and in neonatal causes extreme prematurity is the main cause for stillbirth.

CONCLUSIONS-The most important strategy to reduce stillbirth is to identify and to classify the cause according to uniform system.

KEYWORDS : stillbirth, CODAC system

INTRODUCTION

The term stillbirth is defined as the delivery of a fetus after 28 completed weeks of gestation, weighing 1000 gm or more, crown-heel length more than or equal to35 cm with new born showing no sign of life after delivery.[1]Currently, 98% of stillbirths occur in low-to-middle-income countries [2] India has the highest number of stillbirths, with an estimated death of 22 per 1000 live births. The government of India has developed an Indian New born Action Plan which includes efforts to reduce stillbirths to < 10 per 1000 livebirths by 2030.[3]

The causes of stillbirths are influenced by a wide range of maternal, fetal, social and circumstantial factors. The lists of causes have been framed to classify and identify the reason of these deaths so as to avoid them in future. Accurate classification of causes of perinatal deaths helps obstetricians understand what went wrong during pregnancy and thus modify in their clinical practices. However, knowledge about distal factors would also enhance the understanding about stillbirths. It is shown by previous studies that the factors such as poverty and inequity, and traid of low socioeconomic status, illiteracy and inadequate antenatal care is what contributes most of the likelihood of stillbirths.[4] The prevalence of stillbirths varies from region to region, therefore prevention strategy also varies.

The aim of this study is to identify the epidemiological factors, antenatal risk factors and delivery related factors for stillbirths in tertiary health centre of Bihar.

MATERIALS AND METHODS

This study is a cross-sectional observational study, done at Patna medical college and hospital, Patna. This study includes all stillbirths which occurred in the hospital during the period August-2020 to August-2021. A detailed maternal history including the socioeconomic status, literacy, previous obstetrical history and medical and surgical history were taken. General physical and systemic examination of the mother was done. Antenatal papers were reviewed for any abnormal findings. All routine investigations were done. The evaluation of baby was done whether the baby was macerated or not, for any gross abnormality, preterm or term or growth restricted. The placenta and cord were examined and placental membrane was sent for culture and sensitivity if there was history of premature rupture of membrane. Finally, the cause of stillbirth is classified according to CODAC (cause of death and associated conditions) system.

CODAC- causes of death and associated conditions for stillbirths

0. Infections
1. Neonatal-Cardio-Respiratory failures
   Extreme Prematurity
   Infections
2. Intrapartum-Fetal distress
   Malpresentations
   Obstructed labour
3. Congenital anomaly
4. Fetal-Isoimmunizations
   Hydrops
5. Maternal-Hypertensive disorder
   Diabetes
   Liver disorders
6. Placental -Abruptio
   Previa
7. Cord- Loop around the neck, knots
8. Unknown
9. Terminations-congenital causes, maternal causes
10. Associated Perinatal- small for gestational age, suboptimal care
11. Associated Maternal-smoking, poverty

RESULTS

This study was carried out from August 2020 to August 2021, during this period total 1732 deliveries occurred in which 97(5.6%) was stillbirth. The table 1 shows epidemiological profile of patients with stillbirth. This table shows that 25-35years age group has maximum number of stillbirths. Primigravida had maximum number of stillbirth and illiteracy of mother had direct impact for stillbirth.

Table-1 Epidemiological Profile Of Patients With Stillbirths

Maternal age	Numbers	Percentages
18-25 years	61	62%
25-35years	31	31.9%
>35 years	5	5.1%
Parity		
0	43	44.4%
1	31	31.9%
2	20	20.6%
3or>3	3	30%
Income		
Low	37	38.1%
Middle	48	49.4%
Upper	12	12.5%
Education(mother)		
Illiterate	62	63.9%
Literate	35	36.1%

Table 2 shows the delivery pattern of stillbirths. 64.9% of stillbirth were preterm, 66% had spontaneous onset of labour and 31 % were induced with methotrexate and misoprostol tablets. Vaginal delivery occurred in maximum number of cases but 19.6% required LSCS. In this study 63.9% were freshly dead and 36.9% were macerated. Maximum number of baby weight cases had baby weight ranging from 1001 to 2500 gm. 58.7% had abnormal looking placenta.

Table 2- Shows Parameters Related To Delivery Of Stillbirth

Variables	No. of cases	Percentages
Gestational age		
Preterm (<37 weeks)	34	35.1
Term (37or > 37 weeks)	63	64.9
Labour		
Induced	31	31.9
Spontaneous	66	68.1
Mode of delivery		
Vaginal cephalic	70	72.2
Vaginal breech	8	8.2
LSCS	19	19.6
Birth details		
Fresh stillbirth	62	63.9
Macerated stillbirth	35	36.1
Sex of baby		
Female	64	65.9
Male	33	34.1
Baby weight (in grams)		
500-1000	12	12.5
1001-2500	50	51.5
2501-3000	10	10.3
>3000	25	25.7
Placenta & cord appearance		
Normal appearance	40	41.3
Abnormal appearance	57	58.7

The table 3 shows cause of stillbirth according to CODAC system of classifications. According to this table termination of pregnancy due to fetal or maternal cause were in maximum number i.e 17.5% of total stillbirth studied. In maternal causes hypertensive disorder of pregnancy causes maximum number of stillbirths i.e 14.4%. In neonatal causes extreme prematurity is the cause behind 12.3% of stillbirth.

Table - 3 Shows Cause Of Stillbirth According To CODAC System Of Classification

Causes of stillbirth	No. of stillbirth	percentages
0.Infections	5	5.1%
1.Neonatal-Cardio-Respiratory failures	2	2.1%
Extreme Prematurity	12	12.3%
Infections		
2. Intrapartum-Fetal distress	10	10.3%
Malpresentations	2	2.1%
Obstructed labour	6	6.2%
3.Congenital anomaly	8	8.3%
4.Fetal-Isoimmunizations	3	3.1%
Hydrops		
5.Maternal-Hypertensive disorder	14	14.4%
Diabetes	2	2.1%
Liver disorders	2	2.1%
6.Placental -Abruptio	8	8.3%
Previa	3	3.1%
7.Cord- Loop around the neck, knots		
8.Unknown	3	3.1%
9. Terminations-congenital causes maternal causes	17	17.5%

DISCUSSION

There are more than 30 classifications of stillbirth. After study on comparison of different classifications of stillbirth, Froen et al [5] concluded that the CODAC system was one of the best options to supplement International Classification of Diseases. The WHO also recommended CODAC system of classification.

In this study the stillbirth during the period studied was 5.6% which was quite high because this hospital is a referral central and we get referral from whole state. While many developed countries have stillbirth rates as low as 3-5 per thousand births, but most developing countries have rates that are ten folds higher.[6]

An important cause of stillbirth is hypertensive disorder of pregnancy. In this study its account for 14.4% of stillbirth and in a study from Karnataka, India there were seen 34.6% cases of hypertensive disorder that causes stillbirth.

The extreme prematurity accounts for 12.3% of stillbirth and congenital anomaly accounts for 8.3% of stillbirth. In the study done by Prassana et al [7] accounts for only 4.6% of stillbirths due to birth defects it might be due to large number of referred cases.

Terminations due to fetal causes or maternal causes accounts for 17.5% of stillbirths in this study. Intrapartum causes of stillbirth accounts for18.6% of stillbirth in present study which is quite higher in respect to developed countries. Reduction in stillbirth rates in the developed countries are primarily due to the reduction in intrapartum stillbirth rates.[8] Increased access to obstetric services including better intrapartum fetal monitoring and to caesarean sections appears to associated with decrease in stillbirth[9].

In this study it was seen that illiteracy rate in the patients studied was higher i.e 63.9%. and mostly seen in low-middle socioeconomic. This had major impact as contributing factor for stillbirth.

CONCLUSION

The most important strategies to reduce the stillbirths is the reporting of stillbirth using uniform system of classifications so that data analysis and comparison aid in formatting the strategy to deal with the problem.

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