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Original Research Article

A study of perinatal mortality with obstetrics point of view with etiological factors and preventive approach

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ABSTRACT

Background: Perinatal mortality rate (PNMR) serves as the most sensitive index, directly reflecting prenatal; intrapartum and newborn care. In order to reduce perinatal mortality, it is necessary to study the various factors influencing perinatal deaths.
Methods: It was a retrospective study done over the period of 1 year from January 2021 to December 2021. Total 4389 deliveries were included out of which 228 perinatal deaths occurred. Causes of perinatal deaths were identified and studied.
Results: Results showed that perinatal mortality rate was 17.5 per 1000 live births. Incidence of early neonatal death was 17.5% per total admissions. Majority of perinatal deaths occurred due to preterm, low birth weight. Maternal factor associated with perinatal mortality were antepartum haemorrhage, eclampsia, obstructed labour, malpresentation, medical problems in pregnancy.
Conclusions: The perinatal mortality could be prevented with strengthening of antenatal care screening, educating pregnant women to recognize the signs of complications of pregnancy, timely access to obstetric care, monitoring of labour for fetal distress, and proper newborn resuscitation. With proper coordination of neonatologist and obstetrician, sizeable reduction in perinatal mortality can be achieved.

Keywords: Newborn care, Perinatal mortality rate, Stillbirth

INTRODUCTION

Perinatal mortality serves as the most sensitive index, which directly reflects prenatal, intrapartum and newborn care. World Health Organization (WHO) defines perinatal mortality as the number of fetal deaths and deaths in the first week of life per 1000 total births. The perinatal period commences at 22 completed weeks (154 days) of gestation and ends seven completed days after birth. In developing countries like India, stillbirth is defined as deaths after 28 weeks of gestation. The current perinatal mortality rate (PMR) of India (2013) is 26 per 1000 births.[1] It ranges from 16 per 1000 births in urban areas to 28 per 1000 births in rural areas. More than 4 million of 130 million newborns born in year would die in the first year of life and 99% of mortalities occur in developing countries.[2,3] PNMR is widely used as a health indicator in international comparisons, and within countries and regions to estimate quality of care in pregnancy and childbirth. Identification of etiological factors and improving them is one of the most effective methods of reducing perinatal mortality.[4] Because of the contribution of perinatal mortality to child mortality the United Nations (UN) in year 2000 made a declaration to include maternal and child mortality reduction as a target in its millennium development goals (MDGs 2011). Preterm low birth weight is single most important factor associated with perinatal mortality with or without associated factor. Other main causes of fetal death are placental insufficiency, intrauterine infection, and severe congenital abnormalities. In premature neonates, respiratory distress syndrome, severe immaturity, and intracerebral haemorrhage; and in term newborns, congenital abnormalities, asphyxia, and infection were the main causes of mortality.[5] Maternal complications

associated with perinatal mortality are antepartum haemorrhage, pre-eclampsia, eclampsia, obstructed labour, malpresentation, medical problem in pregnancy.

This study was conducted in tertiary centre of Gujarat to identify the magnitude of perinatal deaths, their etiological factors, so it will help to prevent it in subsequent pregnancies.

METHODS

This study was retrospective study done over a period of last one year from January 2021 to December 2021 in department of Obstetrics and Gynaecology, Sola GMERS medical college, Ahmedabad. All the deliveries took place during this period were studied. Cases were defined as deaths of fetuses and infants from the 28th week of gestational life through the 7th day after birth (purposive sampling). Data about maternal and fetal neonatal demographic characteristics and mother's clinical and obstetric condition were collected from hospital files and NICU and was compared with other studies.

Inclusion criteria

All stillborn babies delivered with gestational age >28 week and birth weight >1 kg. All live births delivered in our hospital during study period that died within 7 days of delivery

Exclusion criteria

Cases with gestational age <28 completed week or birth weight (<1 kg), neonates more than 7 days after birth, babies delivered outside Sola civil hospital.

The cause of perinatal mortality was determined and effect of various factors like status of antenatal care, socioeconomic status, maternal age, parity, birth weight, obstetrical complications on PNMR were studied.

Simple descriptive statistics and percentage method were used for data analysis.

RESULTS

The total number of deliveries during last one year from January 2021 to December 2021 in this study, PNMR was 17.5 per 1000 births. Early neonatal mortality rate was 17.5 per 1000 births.

Table 1: Distribution of perinatal death.

Characteristics	Frequency	Percentage
>35 years	24	10.5
≤35 years	204	89.47
Lower	114	50
Middle	80	35.08
Upper	34	14.91
Booked	58	25.43
Un-booked	170	74.56
Rural	140	61.4
Urban	88	38.6
Parity of mother		
Primi	80	35.08
Multi	154	67.50

Table 2: Distribution of perinatal mortality with associated intrapartum factors.

	Frequency	Percentage
<34 weeks	86	37.7
34-36 weeks	74	32.45
>37 weeks	68	29.8
Cephalic	207	90.78
Non cephalic	21	9.21
Vaginal	120	52.63
LSCS	108	47.36

Table 3: Maternal medical and obstetric complications associated with perinatal mortality.

	Frequency	Percentage
Pre-eclampsia and eclampsia	10	13.51
Abruptio placenta	25	33.78
Placenta previa	5	6.7
Oligohydroamnios	8	10.8
Polyhydroamnios	4	5.4
PROM	2	2.7
Rupture uterus	2	2.7
Cord prolapse	2	2.7
Multiple gestation	1	1.35
Congenital malformation	6	8.10
GDM	1	1.35
Jaundice	1	1.35
Cardiac disease	1	1.35
Others	160	70.17

Table 1 shows that perinatal loss was more in patients having age <35 years, lower socioeconomical class, no antenatal visits and multi gravida.

Table 2 shows that perinatal loss more in patient with <34 weeks pregnancy, cephalic presentation, vaginal delivery.

Table 3 shows that most common cause of perinatal loss was idiopathic (70.17%), followed by abruptio placenta (33.78%), followed by pre-eclampsia (13.51%), oligohydramnios (10.8%) and congenital malformation (8.10%).

Table 4 shows that most common cause of perinatal loss was extremely low birth weight.

Table 4: Relationship of birth weight with perinatal mortality.

Weight in grams	Frequency	Percentage
<1000	74	32.45
1000-1499	71	31.14
1500-2499	43	18.85
≥2500	40	17.54

Table 5: etiological factors for early neonatal death.

	Frequency	Percentage
Birth asphyxia	11	16.92
Septicemia	12	18.5
Aspiration pneumonia	0	0
Prematurity	30	46.15
Respiratory distress syndrome	11	16.9
Congenital anomaly	1	1.53

Table 5 shows that most common cause of perinatal loss was prematurity (46.15%) followed by septicaemia (18.5%), birth asphyxia (16.9%).

DISCUSSION

This study has demonstrated that perinatal mortality remains a significant problem. Perinatal mortality rate was 17.5 per 1000 live birth. This study finding was greater than the study conducted in Ethiopia (12.60%) and less than west-Gojjam (27.10%). Many studies have demonstated the role of lack of antenatal care in poor perinatal outcome.[6,7] It not only detects complications earlier but also helps in education of patients.[7] In Pancholi et al study, PNMR was 63.6%. The institutional perinatal mortality rate in selected government hospitals of Rajasthan was estimated to be 35.8 per 1000 births. According to Daftary et al and Chakarvati et al, 40% of all stillbirth and 80% of all neonatal deaths were associated with birth weight less than 2.5 kg.[8] In this study, perinatal mortality was more associated with birth weight <1.5 kg. This study showed that the most common cause of perinatal loss was abruptio placenta (25%), followed by preeclampsia-eclampsia (10%), oligohydramnioss (8%). In Pancholi et al study, most common cause of PNMR was idiopathic (26%), followed by preeclampsia (14%), oligohyadramnios and APH. According to WHO estimates, in developing countries, asphyxia caused around 7 deaths per 1000 live birth, where as in developed countries this portion was less than 1.[9]

CONCLUSION

The perinatal deaths could be prevented with improvement in education, socioeconomic status, adequate antenatal visits, adequate nutrition of mother, identifying high risk pregnancy, intra-natal care and management of neonates. Perinatal mortality can be reduced by strengthening of health care system which includes provision of sufficient number of well-equipped health facilities with well trained hospital staff to meet local needs. Health care facilities should be available for the management of uncomplicated pregnancies for every woman of society. So, by decreasing the number of home deliveries, perinatal death can be reduced. The peripheral centres should be linked to centrally-located secondary level health facilities with capacity for assisted or operative deliveries and some advanced care for the new-borns. Regional tertiary centres with facilities to manage high risk pregnancies and deliveries as well as special care baby units with facilities for neonatal intensive care should also be established. Reduction in perinatal mortality rate can be achieved with co-ordination of neonatologist and obstetrician.

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