Original Research Article

Audit of perinatal mortality in a tertiary care centre

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Abstract

Background: Perinatal mortality was observed in less than 10 per 1000 births in developed countries, In India, 32-35 per 1000 perinatal deaths were observed**.** The most common cause of perinatal mortality is preterm birth, causing almost 30 percent of neonatal deaths. **Aim:** The aim of the study was to identify the causes of perinatal morbidity and mortality, to study the socio-demographic factors leading to PNMR and to assess the level of antepartum, intrapartum care and its effect on PNMR and the required interventions needed. **Materials and Methods:** This study was a hospital based retrospective observational carried out in Osmania Medical College, Hyderabad which is a tertiary care during the period of 6 months i.e. from March 2016 to August 2016. **Results:** Total deliveries were 7535, total number of still births were 229, out of which still birth rate were 29.4/1000, total number of perinatal deaths were 241, perinatal mortality rate was 31/1000. Still births were due to 72 women had preeclampsia and eclampsia, 46 women had abruption placenta, 28 women had IUGR, 35 women had oligo, 9 each of the women had congenital A and severe anaemia, 7 each of women had preterm and unexplained and 12 women had mechanical. The total number of deaths were 12 in early neonatal deaths (1st week of life), out of which deaths due to respiratory distress were 5, low birth weight were 5 and due to meconium aspiration syndrome were 2. **Conclusion:** To create awareness about antenatal health care, high risk mothers identification, in time referral, life support of preterm neonates in advance is the need of the hour to strengthen and help in reducing PMR.

Key Words: Neonatal Deaths, Perinatal Mortality, Still Births.

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INTRODUCTION

According to World Health Organisation, all foetal and neonatal deaths weighing 1000 g or more between 28 weeks of gestation to first week of neonatal life. Perinatal mortality rate is expressed in terms of perinatal deaths per 1000 total births.[1] In developed countries, perinatal mortality was observed in less than 10 per 1000 births. In India, 32-35 per 1000 perinatal deaths were observed. In rural areas, 47 per 1000 total births were observed, In urban areas, 30 per 1000 total births were observed. In both rural and urban combined, 44 per 1000 total births were observed, there has been a set target of 7-8 per 1000 total births to be achieved by 2030 in India. Still births were 22 per 1000 births, and a target of 12 per 1000 births was the target set to be achieved by 2030.[2] Preterm birth is the most common cause of perinatal mortality, causing almost 30 percent of neonatal deaths. Infant respiratory distress syndrome, in turn, is the leading cause of death in preterm infants, affecting about 1% of newborn infants. Birth defects cause about 21 percent of neonatal death. The PNMR refers to the number of perinatal deaths per 1,000 total births[3,4]. It is usually reported on an annual basis. It is a major marker to assess the quality of health care delivery.[5] Comparisons between different rates may be hampered by varying definitions, registration bias, and differences in the underlying risks of the populations. PNMRs vary widely and may be below 10 for certain developed countries and more than 10 times higher in developing countries. The WHO has not published contemporary data. The aim of the study was to identify the causes of perinatal morbidity and mortality, to study the socio-demographic factors leading to PNMR and to assess the level of antepartum, intrapartum care and its effect on PNMR and the required interventions needed.

MATERIALS AND METHODS

This study was a hospital based retrospective observational carried out in Osmania Medical College, Hyderabad which is a tertiary care during the period of 6 months i.e. from March 2016 to August 2016. Inclusion criteria was antenatal women of GA > 28 weeks who delivered a still born baby or lost a baby in the first week of life. Data was collected from the hospital case records. Institutional ethics committee approved the study. Informed consent was taken from all the patients. The total number of deliveries were 7535, out of which, the total number of perinatal deaths was 241, out of which total number of still births were 229. Still birth rate was 29.4/1000, perinatal mortality rate was 31/1000.

RESULTS

Table 1: Still birth rate and perinatal mortality rate in the audit.

Total Deliveries	7535
Total no. of still births	229
Still birth rate	29.4/1000
Total no. of perinatal deaths	241
Perinatal mortality rate	31/1000

Table 1 shows that total deliveries were 7535, total number of still births were 229, out of which still birth rate were 29.4/1000, total number of perinatal deaths were 241, perinatal mortality rate was 31/1000. Socio-Demographic profile of women with PNMR. The modifiable factors were delaying age of marriage and first pregnancy, birth spacing, and the nutrition related factors were peri-conceptional folic acid, iron-calcium supplementation, balanced energy protein supplementation.

Table 2: Socio-demographic profile of women with PNMR

Age (Years)	Number of women with PNMR
<20	45
21-30	177
>31	19
Parity	Number of women with PNMR
Primigravida	110
Multigravida	131
Booking Status	Number of women with PNMR
Booked	44
Unbooked	197
Residence Status	Number of women with PNMR
Urban	93
Rural	146
Birth weight	Number of women with PNMR
1000-1499 gms	66
1500-2499 gms	128
>2500 gms	47
Gestational Age	Number of women with PNMR
28-37 weeks	148
37-42 weeks	90
>42 weeks	3

Table 2 shows that age in years of 45 women with PNMR was less than 20 years, 177 women with PNMR were within the range of 21-30 years, 19 women with PNMR were having greater than 31 years. Primigravida was seen in 110 women with PNMR, multigravida was seen in 131 women with PNMR. 44 women with PNMR were booked and 197 women with PNMR were unbooked. 93 women was living in urban area and 146 women were living in rural areas. 66 women had a birth weight of 1000-1499 gms, 128 women had a birth weight of 1500-2999 gms and 47 women had a birth weight of greater than 2500 gms. 148 women had a gestational age of 28-37 weeks, 90 women had a gestational age of 37-42 weeks and 3 women had a gestational age of greater than 42 weeks.

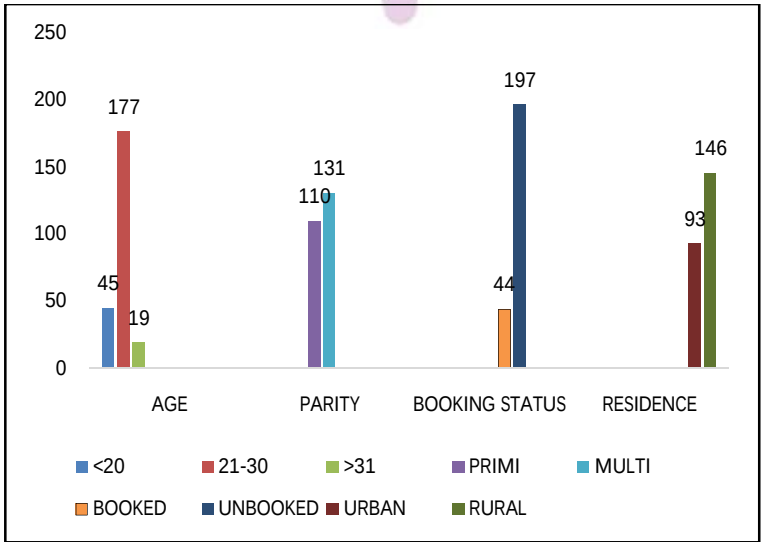

Figure 1: Socio-demographic profile of women with PNMR.

Table 3: Distribution of still births (229) as per etiology

Etiology	Number of women with PNMR (%)
Preeclampsia and eclampsia	72, 32%
Abruptio placenta	46, 20%
IUGR	28,13%
Oligo	35,16%
Congenitalia	9,4%
Severe anaemia	9,4%
Preterm	7,3%
Unexplained	7,3%
Mechanical (Obst+NIH+DM)	12,5%

Table 3 shows that 72 women had preeclampsia and eclampsia, 46 women had abruption placenta, 28 women had IUGR, 35 women had oligo, 9 each of the women had congenital A and severe anaemia, 7 each of women had preterm and unexplained and 12 women had mechanical.

Table 4: Still births as per booking status.

Still births	Unbooked	Booked
Antepartum	130	40
Intrapartum	55	4
Total	**185(80%)**	**44 (20%)**

Table 4 shows antepartum still births as unbooked in 130 women and booked in 40 women; Intrapartum still births were as unbooked in 55 women and booked in 4 women. Antepartum unbooked still births were due to delay in seeking health care, delay in reaching care, proper screening at referral centers, counselling on danger signs and prompt referral. Eclampsia was seen in 42 (32%), abruptio placents was seen in 29 (22%), IUGR was seen in 16 (12%), oligo was seen in 29 (22%), Congenital A was seen in 7, (6%), Unexplained in 7, (6%).

Table 5: Intrapartum still births in unbooked cases (55) and analysis of booked antepartum still births (40).

Intrapartum Still Births	Number of women in UB cases (%)
Eclampsia	26, 47%
Abruptio placenta	17, 31%
Preterm	6,11%
Cord Prolapse	4,7%
Congenital anomalies	2,4%
Antepartum Still Births	**Number of women in UB cases (%)**
Eclampsia	2,5%
Abruptio placenta	10, 25%
IUGR	12, 30%
Oligo	6,15%
Hydramnios	3,7%
Hypothyroidism	4,10%
Cod prolapse	3,8%

Table 6: Analysis of booked intrapartum still births (Total-4), perinatal morbidity (586-7.7%)

Gestation Age	Birth Weight (Kgs)	Mode of delivery	Cause
TG,PROM	2.5	Vaginal	Chorioamnionitis
TG	2.4	Vaginal	Unexplained
TG	2.4	Vaginal	True Knots
TG	2.5	Vaginal breech	Mechanical
Causes for SNCU referral		Number of cases	
Respiratory distress		154	
Perinatal Asphyxia		137	
Meconium aspiration syndrome		118	
Sepsis		12	
Hypoglycemia		4	
Neonatal Jaundice		163	

Table 6 shows the causes of SNCU referral were respiratory distress which accounted for 154 cases, perinatal asphyxia (137), meconium aspiration syndrome (118), sepsis (12), hypoglycaemia (4), neonatal jaundice (163).

Table 7: Referals to NICU (210).

Causes for NICU referral	Number of cases
Severe Respiratory distress (Preterm)	81
Low birth weight	58
Niconium aspiration syndrome	27
Perinatal asphyxia	13
Sepsis	12
Neonatal Jaundice	7
Birth injury	1
High birth weight	5
Neonatal convulsions	4
Hypoglycemia	2

Total number of cases who were under steroid usage were 81 within less than 34 weeks, 29 cases were under antenatal steroids, booked cases were 29, unbooked cases were 52.The total number of deaths were 12 in early neonatal deaths (1st week of life), out of which deaths due to respiratory distress were 5, lowbirth weight were 5 and due to meconium aspiration syndrome were 2. SBR and PNMR rate was found to be higher in 54.3% of multiparous women, 81.7% of unbooked women, 89 % of socio-economic class 4 and 5, 65 % of rural residence, 70% of antepartum SBR (unbooked -70%, booked-30%), intrapartum SBR-30% (unbooked-93%, booked-7%), 35.8% of births<34 weeks were given antenatal steroids.

DISCUSSION

In our study, total deliveries were 7535, total number of still births were 229, out of which still birth rate were 29.4/1000, total number of perinatal deaths were 241, perinatal mortality rate was 31/1000. SBR and PNMR rate was found to be higher in 54.3% of multiparous women, 81.7% of unbooked women, 89 % of socio-

economic class 4 and 5, 65 % of rural residence, 70% of antepartum SBR (unbooked -70%, booked-30%), intrapartum SBR-30% (unbooked-93%, booked-7%), 35.8% of births<34 weeks were given antenatal steroids. 72 women had preeclampsia and eclampsia, 46 women had abruption placenta, 28 women had IUGR, 35 women had oligo, 9 each of the women had congenital A and severe anaemia, 7 each of women had preterm and unexplained and 12 women had mechanical among a total of 229 still births. antepartum still births as unbooked in 130 women and booked in 40 women; Intrapartum still births were as unbooked in 55 women and booked in 4 women. Antepartum unbooked still births were due to delay in seeking health care, delay in reaching care, proper screening at referral centers, counselling on danger signs and prompt referral. Eclampsia was seen in 42 (32%), abruptio placents was seen in 29 (22%), IUGR was seen in 16 (12%), oligo was seen in 29 (22%), Congenital A was seen in 7(6%), Unexplained in 7,(6%). The main cause of NICU referral was preterm severe respiratory distress. In early neonatal deaths in their 1st week of life, the total number of deaths were 12 out of which deaths due to respiratory distress were 5, lowbirth weight were 5 and due to meconium aspiration syndrome were 2. Delaying age of marriage and first pregnancy, birth spacing, and the nutrition related factors were peri-conceptional folic acid, iron-calcium supplementation, balanced energy protein supplementation were the modifiable factors in women with PNMR. Hema Patil *et al*;[6] conducted a study in which it was shown that 47.95 per 1000 births had the PMR. During 2008, the PMR was at peak with 58.72 per 1000 births which gradually showed a trend towards reduction with minimum at 39.57 per 1000 births during 2012. Among the women who were aged between 20 to 30 years, the PMR was high while it was comparable in women with primi and multi parity. Most of the mothers were unregistered for ANC (64.84%) and in 76.65% of the mothers, vaginal delivery was noted. In fetus < 1 kg (31.08%), the mortality was found to be high and least in those with > 3.5 Kgs (1.24%). The commonest cause of PMR was placental abruption (17.6%), Bassaw B *et al*;[7] conducted a study in which there were 469 stillbirths and 391 early neonatal deaths, out of a total of 30,987 births, giving a perinatal mortality rate of 27.7 per 1000 total births. Hypertensive disorders of pregnancy, abruptio placentae, diabetes mellitus, intrapartum foetal distress and lethal congenital anomalies were the leading causes of stillbirths. Neonatal deaths were mainly due to the respiratory distress syndrome (57.8%), birth asphyxia (22.2%) and sepsis (13.5%). Korejo R *et al*;[8] observed that there were 7743 deliveries and 753 perinatal deaths, during the one year period from 1st January to 31st December, 2001. Five hundred and sixty nine were still born and 184 died within 7-days of birth. The perinatal mortality rate (PNMR) was 97.2/1000 total births and still birth rate 73.4/1000 total births. Hypertensive disease of mother in 180 (24%) was the leading cause of stillbirth which were categorised into Pregnancy Induced Hypertension (PIH) 106 (14%) and eclampsia 74 (10%). Mechanical, accounted for 161 (21.4%) was the next common cause. 151 (20%) perinatal deaths were due to Antepartum haemorrhage (APH) and low birth weight (LBW) was identified in 108 (14.4%). Congenital malformation caused deaths in 47 (6.2%), maternal medical disorders as jaundice, anaemia and diabetes in 24 (3.2%) and neonatal infections as Respiratory Distress Syndrome (RDS), probable pneumonia, bleeding disorders and septicaemia caused deaths in 35 (4.8%). In a study conducted by Bamji MS *et al*;[9] Women were selected from five villages who had delivered between June 1998 and September 2003, were identified. Those who had lost a child before one month (28 days), including stillbirths, (group 1-mortality group), who could be contacted and were willing to participate, were compared with those who had not lost a child (group II- no mortality), through a structured questionnaire and physical examination for anthropometric status and signs and symptoms of nutritional deficiency. Categorical data were analysed using Pearson chi square analysis. Continuous data were analysed using Student's t test. Das Lucy *et al*;[10] observed that the PMR in the present study decreased from 138.23 in 1992 to 70.2 in 2002. Primiparity, low socio-economic status, poor antenatal attendance, and risk factors like pregnancy inducred hypertension, antepartum hemorrhage, prematurity and birth trauma, particularly asphyxia, were the major factors responsible for perinatal mortality.

CONCLUSION

To create awareness about antenatal health care, high risk mothers identification, in time referral, life support of preterm neonates in advance is the need of the hour to strengthen and help in reducing PMR.

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