

FACTORS CONTRIBUTING TO PERINATAL MORTALITY: OPTIMIZING OUTCOME

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ABSTRACT: OBJECTIVE: To evaluate the various causes of perinatal deaths and adopt strategies to improve perinatal outcome at a referral teaching hospital in North Kerala. **METHODS:** A prospective observational study conducted at Institute of Maternal and Child Health, Government Medical College, Kozhikode. All perinatal deaths during the period January 2013 to December 2014 were analysed and from this factors responsible for perinatal deaths were identified. **RESULTS:** Out of total 30,042 deliveries, there were 966 perinatal deaths during the study period. 566 were still births and 400 early neonatal deaths. The perinatal mortality rate was 31.1 per 1000 live births. Perinatal asphyxia was the major cause of perinatal mortality. The important factors contributing to perinatal asphyxia were prematurity (39%), abruptio placenta (19%) and MSAF (12%). Among the antenatal factors, hypertensive disorders of pregnancy leading to iatrogenic elective preterm delivery were the most important. **CONCLUSION:** Perinatal asphyxia due to prematurity and low birth weight emerged as the most important cause of perinatal mortality in this study and hypertensive disorders of pregnancy were the most important antenatal complication leading to prematurity.

KEYWORDS: Perinatal mortality, perinatal asphyxia, risk factors.

INTRODUCTION: Perinatal mortality is the most sensitive index of the quality of obstetric and neonatal services in a community. By definition it is the number of perinatal deaths per 1000 live births. For International comparison WHO defines perinatal period as between "28 weeks of gestation and seven days after life". The PNMR of developing countries is 3-5 fold higher than that in developed countries. The current PNMR in India is 48 and in Kerala it is 15 per 1000 live births. The various social factors contributing to perinatal mortality are low socioeconomic status, illiteracy, teenage pregnancies, high maternal age, poor antenatal care, malnutrition and severe anaemia. The causes can also be classified as antenatal, intrapartum and post natal. The important among them are prematurity, perinatal asphyxia, low birth weight and infections. The present study was undertaken to analyse the risk factors in our institution and adopt strategies to improve perinatal outcome.

METHODS: A hospital based descriptive observational study was undertaken. All perinatal deaths over a period of 24 months from January 2013 to December 2014 were included. Still birth was defined as foetal death, 28 weeks and beyond and early neonatal death as occurring in the first 7 days of birth. Details like maternal age, parity, booked or unbooked, gestational age, birth weight, mode of delivery and antenatal complications were noted and data analysed.

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RESULTS: During the study period, there were 30,042 deliveries and 966 perinatal deaths. Out of this 566 were still births and 400 early neonatal deaths. The perinatal mortality rate was 31.1 per 1000 live births (Table 1).

The profile of women studied is tabulated as follows.

According to gestational age 81% were preterm and only 19% term, maximum being in the group 28-34 weeks (Table 2). 59% were referred cases and 41% booked cases (Table 3). Majority of deaths occurred in low birth weight babies (Fig.1) emphasizing that prematurity was the leading cause of birth asphyxia (Fig.2). Mode of delivery whether vaginal or caesarean did not have a significant impact on mortality. Among the antenatal complications, hypertensive disorders were the most common followed by IUGR and abruption (Table 4).

DISCUSSION: Perinatal loss is traumatic both for the couple and the obstetrician. In spite of improved antenatal and neonatal care services, it still continues to be high. The PNMR in this study was 31.1 per 1000 live births, mainly because of the referral status of our hospital. Hospital based data on perinatal mortality are not truly representative of the community at large because the data often pertains to selective population of high risk mothers. Other factors like poor socioeconomic status, female illiteracy, malnutrition, severe anaemia and poor antenatal care were not significant factors in this study unlike in some similar studies reported from other states.^{1,2,3}

Perinatal asphyxia due to prematurity and low birth weight emerged as an important cause of perinatal mortality in this study⁴. Hypertensive disorders of pregnancy was the most important antenatal complication leading to prematurity.^{5,6} Sachar et al also reported prematurity to be the leading cause of perinatal mortality in their study.⁷ This was directly attributable to iatrogenic elective preterm delivery undertaken for maternal complications.

Pre-eclampsia is a multisystem disorder unique to pregnancy and a leading cause of fetomaternal morbidity and mortality. Obstetricians must balance the need to achieve foetal maturity and the risks of continuing pregnancy including progression to eclampsia, abruption and HELLP syndrome. Though 34 weeks is considered as a marker for foetal maturity, recent evidence suggest that infants born between 34 and 36 weeks are physiologically immature compared to term infants.⁸ Our observation was also similar to this. Saha and Saha have shown a maximum perinatal mortality rate at <37 weeks of gestation.⁹ Pre-eclampsia might further aggravate the damage by disrupting the mechanisms regulating foetal growth.

Routine administration of antenatal corticosteroids atleast 12-24 hours before delivery in anticipation of preterm delivery improves survival rates of infants born before 34 weeks. Antenatal magnesium sulphate given to women at high risk for preterm labour decreases the incidence of cerebral palsy. Studies have shown that late preterm infants (33-36 weeks) have higher neonatal and infant mortality rates compared to term infants.⁸ They are more prone for RDS, transient tachypnoea of new born, persistent pulmonary hypertension and respiratory failure.

Though a general recommendation for optimal timing of delivery is not possible, a multidisciplinary approach is necessary to analyze the risks of prolonging pregnancy versus benefits of foetal maturation. Having an institutional protocol and adopting a more conservative

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approach could be thought of when maternal condition is not so severe to warrant immediate termination of pregnancy.

CONCLUSION: Effective antenatal care, early detection and management of pre-eclampsia and IUGR, timely referral of high risk patients, skilled assistance during labour and good neonatal care services would definitely go a long way in reducing perinatal mortality.

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Total number of deliveries	30,042
Perinatal Deaths	966
Perinatal mortality rate	31.1
Total Still Births	566
MSB	366
FSB	200
Early neonatal deaths	400

Table 1: Perinatal mortality rate

Gestational age	Number	Percentage
<28 weeks	145	15%
28-34 weeks	386	40%
34-37 weeks	251	26%
>37 weeks	183	19%

Table 2: Gestational Age

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Details	Number	Percentage
Booked	396	41%
Referred	570	59%
Maternal age		
<20	144	15%
20-25	454	47%
25-35	339	35%
>35	29	3%
Parity		
Primi	415	43%
Multi	434	45%
Grand multi	117	12%

Table 3: Maternal Characters

Hypertensive disorders	341	35.3%
Pre eclampsia	162	16.8%
Eclampsia	123	12.8%
HELLP	56	5.75%
IUGR	115	11.9%
With abnormal Doppler	67	7%
Abruption	67	7%
Gestational Diabetes	116	11.9%
Multiple pregnancy	37	3.9%
Breech	43	4.4%
Congenital anomalies	85	8.8%
Post-dated pregnancy	64	6.63%
Nuchal cord	31	3%

Table 4: Antenatal factors

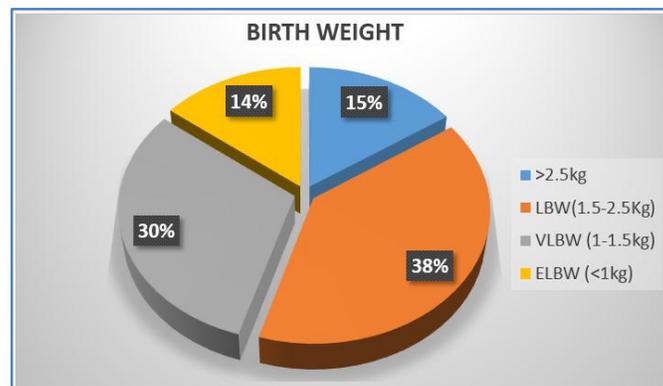


Figure 1

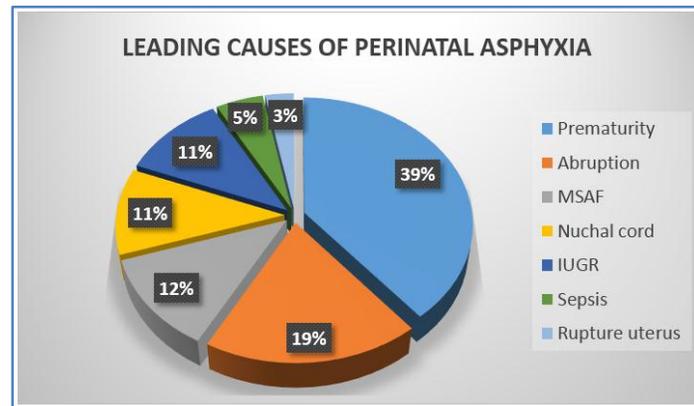


Figure 2

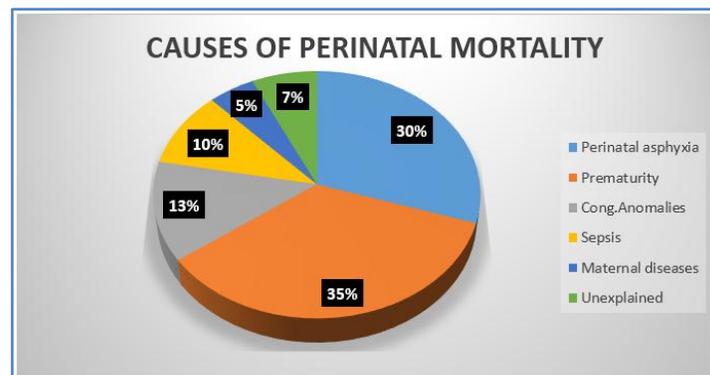


Figure 3

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