

# Pale to Pink: Where are we going with the fetomaternal care? A perinatal mortality audit of a tertiary care hospital in coastal Karnataka in India for 2019-2020 By Dr. S. Kanchan (SR), Dr. V. Jatana (JR), Dr. MV Pai (HOD) Dept of OBG, KMC Manipal,

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## Abstract

Perinatal Mortality Rate is an important epidemiological indicator of Maternal and Child Health care because of its sensitivity for both maternal and new-born care. To analyse trends of perinatal morbidity and mortality, 4177 deliveries were studied across 18 months in a tertiary care hospital in Karnataka. Fetal growth restriction accounted to more than 50% of the perinatal deaths. Maternal morbidities were associated with up to 40.6% of causes for still birth. Preterm births account to 45.3% of neonatal deaths, sepsis accounting to 20.31%. Early recognition and intervention for these conditions seemed to be the mainstay in improving perinatal outcome.

## Pale to Pink: Where are we going with the fetomaternal care?

### A perinatal mortality audit of a tertiary care hospital in coastal Karnataka in India for 2019-2020

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## Introduction:

Perinatal mortality rate measures the ratio of the number of late- fetal deaths (at or after 28 weeks gestation) and deaths within the first 7 days after birth per 1,000 live births. Perinatal period accounts for just 0.5% of the average life span, but deaths in this period are more than that in the next 30-40years.<sup>[1]</sup> With the reduction of national IMR below 50, Perinatal Mortality Rate is being considered as an important epidemiological indicator of Maternal and Child Health care of the country because of its sensitivity for both maternal and new-born care.<sup>[2]</sup> Deaths during this period can result because of inadequate care of both mother and new-born. While the causal relationship between perinatal mortality and level of socioeconomic

development and environmental conditions is not perfect, the perinatal mortality rate is commonly used as a general indicator of socioeconomic well-being and of general medical and public health conditions in a country.<sup>[3]</sup>PMR is included as one of the components of “standard of living” evaluations of countries. Child Mortality is an important MDG since it affects the improvement in the living standards of a country. Reducing the perinatal mortality rate worldwide and particularly in the developing nations has been a key globe issue. Almost all countries showed significant improvement in tackling child mortality.<sup>[4]</sup>

Hence, a study was instituted within the premise of the Labour ward and Neonatal ICU of Kasturba Hospital, Manipal to analyse the causative factors and trends associated with perinatal deaths with an objective to devise methods to be able to improve standards of healthcare within.

## Material and Methods:

### Study Design:

Retrospective study

### Study Setting:

Department of Obstetrics and Gynecology

Department of Neonatology

### Data Collection Methods:

Medical Records,

### Patient and Procedure Details:

4177 deliveries from January 2019 – June 2020 were studied, and the neonatal outcomes were noted. This retrospective study was performed using monthly perinatal audit data, both hardcopy and electronic data. Perinatal audit data for the months of Jan 2019 – June 2020 was used for analysis. Course of treatment of the neonates admitted to NICU secondary to various morbidities was taken from the Neonatal Intensive Care Unit admission registers, in-patient charts, and discharge summaries of these neonates.

### Results:

*Table1:* The deaths noted in the perinatal period were a total of 101 (37+64). The perinatal mortality rate calculated as Number of perinatal deaths (still births + early neonatal deaths) / total number of births (still births + live births) x 1000 =  $101/4226 \times 1000 = 23.9 \%$ . Amongst the still-borns, 14 (37.8%) were fresh still born while 23(62.2%) were macerated. Out of the 101 perinatal deaths, 40 (39.6%) were from the booked cases while 61(60.4%) were of the mothers referred from other hospitals.

**PMR (Booked Cases)- 9.46 per 1000**

**PMR (Un-booked Cases)-14.4 per 1000**

FIGURE1: the lowest PMR was noted in the month of February 2019 and highest in July 2019. This was in spite of any significant difference in the total birth rate.

FIGURE 2 shows a slow and steady decline in the trend of still birth rate between the year 2016 and 2020. (KH)

*Table2 :* The leading cause for antepartum fetal deaths was noted be due to disorders related to **fetal growth** . There was also significant relationship between the period of gestation, fetal weight, and the chances of fetal survival. A change in the pattern of antepartum deaths was seen, as congenital malformations and infections had taken a backseat as the causes of perinatal deaths. This could be attributed to the more effective diagnosis of the anomalies by ultrasonography and biochemical screening with an effective prevention and treatment of infections associated with perinatal mortality.

Acute intrapartum insults were noted to be the most significant causative factor responsible for deaths during this period contributing 70% to the total mortality. Birth asphyxia correlated the maximum with these deaths.

The most important cause of neonatal deaths was noted due to low birth weight and pre-maturity mostly secondary to deliveries done for maternal medical and surgical conditions.

*TABLE 3:* PPROM has significantly come down as a cause of neonatal death while prematurity and low birth weight remain the leading cause of early neonatal deaths as well. Maternal hypertensive diseases had significant effect on the Still birth rate (52.47%) in the above study. However, Diabetes contributed only 14.85% unlike the major contributor around the globe for stillbirth. IUGR was significantly linked to the cause of stillborns 66.67% both macerated and fresh.

### Analysis:

The period and cause behind the perinatal death were studied by the means of **(ReCoDe)** Classification of stillbirth by Relevant Condition at Death. This system seeks to identify the condition(s) which existed at the time of death in-utero and is based on the following principles. **Stillbirths** are distinct from neonatal deaths and warrant their own classification. There is no need for a sub-classification according to gestation, as **'prematurity'** is not a relevant cause or condition for stillbirths. There is no sub-classification according to weight, but one related to fetal growth status, based on weight-for-gestation.

### Discussion:

Perinatal Mortality Rate (PMR) forms an essential parameter for assessment of healthcare in a country as it is a global marker and reflects on both the antenatal and postnatal care effectively.

Infant Mortality Rate of the World over the years from 2011 to 2019 have shown a remarkable but gradual fall from 45.1 in 2011 to 28.23 in year 2019.

However, due to limited data on PMR across countries, it is more feasible to compare SBR (Still Birth Rate) and NMR (Neonatal Mortality Rate). the stillbirth rate in 2019 or India was reported to be 13.93 which was less compared to most of the other South Asian countries like Pakistan(30.63), Afghanistan (28.38), Nepal (17.46), Bangladesh (24.28), Myanmar (14.13) but higher than Bhutan (9.66) and China (5.54).<sup>6</sup>

Similarly, the Neonatal Mortality Rate(NMR) in 2019 was reported as 21.66 for India and for other South Asian countries with higher NMR rates Pakistan (41.22), Afghanistan (37.1), Myanmar (22.45) while in Bhutan (16.57) and China (3.86), Nepal (19.78), Bangladesh (19.06) had lower NMR rates.<sup>7</sup>

The trend of both Still Birth Rate & Neonatal mortality Rate has significantly reduced in the country as compared to itself as well as the neighboring countries by the application of various schemes and health measures. Hence, the assessment of the factors responsible for this reduction and the hurdles in achieving this goal becomes more essential. The NMR fall is as significant as 21.66 in year 2019 from 66.6 in year 2010.

SDG target goal for till 2030 is Reduce NMR <12 deaths per 1000 births. Based on the current rate of NMR the expected rate is to fall to 15.7 and with accelerated levels to achieve global targets its 9.9.

The **PMR for the year 2019 in KH (25.3) and (24.3)** for 6 months of 2020 was found to be lower when compared to the overall stats for the state of Karnataka (**30**) but a little higher than the national PMR (**25**).<sup>1</sup> <sup>5]</sup>The NMR for the year 2019 in KH (19.04) was lower than both Karnataka state (22) and national (21.6) data.<sup>5]</sup>The Still Birth Rate (SBR) for the year 2019 in KH (6.23) was way lower when compared to the state of Karnataka (12) and slightly lower when compared to national data (7).<sup>5]</sup>

### Figure 3: Comparison of Trends in Kasturba Hospital in comparison to India and Karnataka

PMR continue to show overall fall when compared with last four-year KH data (25.3). The NMR has showed an increasing trend from last two year with a value of 19.04 for 2019 when internal KH data was compared Still Birth Rate continues to fall to its least in last 4 years in KH to 6.23.

Analyzing the causes for perinatal deaths: Congenital anomalies accounts for 7.9% of causes of still birth. **Fetal growth restriction (FGR) accounted to more than 50% of the perinatal deaths** . FGR was noted to be maximally associated to hypertensive disorders of pregnancy. However, sometimes FGR was noted to be an isolated finding or in relation with the other maternal conditions such as autoimmune disorders as well. Maternal medical conditions were associated with up to 40.6% of causes for still birth. Preterm births account to 45.3% of neonatal deaths, sepsis accounting to 20.31%. Delayed referrals for severe pre-eclampsia, eclampsia and uncontrolled hypertension were the most common. Intrapartum- deaths were mostly accounted to acute intrapartum events that eventually lead to hypoxia.

### **Conclusion:**

Improvement of maternal and child health care especially about registration of all pregnant mothers, early identification of high-risk cases and timely intervention is the need of the hour. This can be achieved by adequate antenatal visits, promotion of small family norms, nutritional supplementation, appropriate intrauterine monitoring, and conduction of delivery by trained personnel along with advanced life support for the sick newborn.

**Disclosure of interests:** no conflict of interest .

### **Contribution to authorship :**

Dr.Swati kanchan the main author and corresponding author was mainly indulged in Compiling the data and analyzing the data and doing the comparison with the already available standards .

Dr. Vashnavi Jatana most efficiently and effectively collected the data and helped compiling.

Dr. MV Pai as the guiding source and checking final data authenticity and implementing necessary changes along with the checking facts.

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