



## INCIDENCE AND PREDICTORS OF MATERNAL AND PERINATAL MORTALITY AMONG THE MATERNAL NEAR MISS CASES.

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**ABSTRACT** Worldwide about half a million women die as results of complications of pregnancy and childbirth.<sup>1</sup> We have been impressed that the same obstetric conditions that kill mothers are also responsible for most of the stillbirths and many of the neonatal deaths as well.<sup>2</sup> Maternal mortality is a vital index of the effectiveness of obstetric services prevailing in country. The study aims at identifying the Incidence and predictors of maternal and perinatal mortality among the maternal near miss cases. In our study we found that there were 204 cases of severe maternal affection with 26 cases (12.74%) of maternal mortality and 176 cases (86.27%) of perinatal mortality. We can conclude that our study helps in identifying the risk factors that has an effect on the health of both mother and baby.

**KEYWORDS :** Maternal mortality, perinatal mortality, maternal near miss

### INTRODUCTION

Worldwide about half a million women die as results of complications of pregnancy and childbirth. We have been impressed that the same obstetric conditions that kill mothers are also responsible for most of the stillbirths and many of the neonatal deaths as well.<sup>2</sup> Mother and baby must be considered as one unit. Health of the baby and the mother are so closely linked that each has the capacity to influence the other. The outcome of pregnancy in terms of a healthy newborn is dependent on the physical, physiological, mental and nutritional state of the mother during pregnancy. Early identification of risk factors is necessary to develop comprehensive intervention strategies for reducing pregnancy-related complications. Pregnant women's health status is not reflected by mortality indicators alone hence the concept of severe acute maternal morbidity is an apt for the present health providing system.<sup>3,4</sup>

Maternal mortality is a vital index of the effectiveness of obstetric services prevailing in country. In India it has been observed that there is an appreciable decline in the MMR from 677 in 1980 to 254 in 2004-2006 to 212 in 2007-2009 and 167 in 2010-2015 however currently maternal mortality ratio of India as of 2015 is 174.<sup>5,6,7</sup> A maternal near-miss case "a woman who nearly died but survived a complication that occurred during pregnancy, childbirth or within 42 days of termination of pregnancy". In practical terms, "women are considered near miss cases when they survive life-threatening conditions (i.e. organ dysfunction)". Perinatal deaths include intrauterine deaths and early neonatal deaths. Recent estimates show that the perinatal mortality rate in high income countries of the world is about 10 per 1000 live births compared with 50 per 1000 live births in low income countries.<sup>9</sup>

### AIMS AND OBJECTIVES:

The study aims at identifying the Incidence and predictors of maternal and perinatal mortality among the maternal near miss cases

### MATERIALS AND METHODS:

All the cases with getting admitted in our institute are analyzed for maternal and fetal outcome. It is a tertiary care institution with primary health centers attached to it. It is a referral hospital for both public and private hospitals. The indicators and predictors of maternal and perinatal mortality among women with severe maternal outcomes are analyzed. Detailed history including In patient number, address, parity are taken and primary examination is done to form a provisional diagnosis. The patient through the process of labor is observed including labor induction, progression of labor, mode of delivery [vaginal or caesarean section], any intrapartum complications, postpartum complications are recorded. Date and time of delivery, delivery details, baby weight, APGAR score at birth and need of NICU care or mortality of the baby is noted.

Statistical analysis was conducted using SPSS 20.0 software package. Statistical significance was determined using appropriate statistical tests.

### RESULTS

During the study period of 18mths, there were 204 cases with severe

maternal affection. In the present study, out of 204 cases of severe maternal outcomes, there were 26 cases where maternal mortality was there accounting for 12.74% cases and 178 cases of maternal morbidity i.e near miss cases, accounting for 87.25% of cases. (Table 1)

**Table 1: Maternal Outcome**

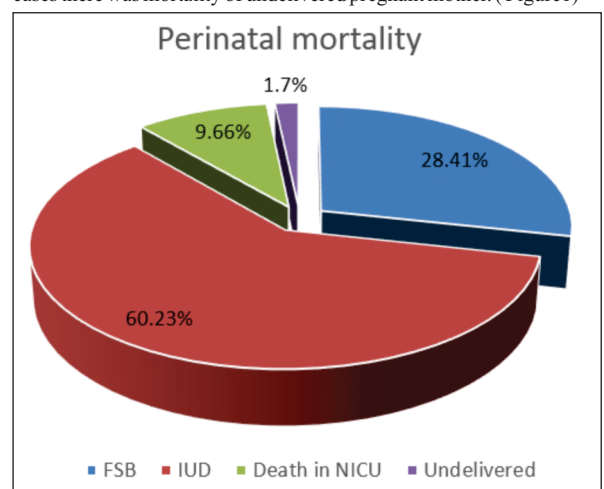
Maternal outcome:	No of cases	Percentage (%)
Maternal mortality	26	12.74%
Maternal morbidity	178	87.25%
Total	204	100%

In our study there were 176 cases of perinatal mortality [86.27%] and 28 cases of perinatal morbidity [13.72%]. (Table 2)

**Table 2: Perinatal Outcome**

Perinatal outcome:	No of cases	Percentage (%)
Perinatal mortality	176	86.27%
Perinatal morbidity	28	13.72%
Total	204	100%

In the present study there were 176 cases of perinatal mortality, 60.23% were due to intrauterine fetal demise, 9.66% were due to early neonatal death in NICU, 28.41% cases were fresh stillbirth and in 1.7% cases there was mortality of undelivered pregnant mother. (Figure 1)



**Figure 1: Distribution Of Perinatal Mortality**

Among these cases, there were 19 cases with history of previous LSCS [9.31%], 33 cases had history of hypertension in past pregnancy [16.17%], 22 cases had history of anemia in past pregnancy [10.78%], 9 cases had other significant past history [4.41%] like hypothyroidism, diabetes mellitus and Rheumatic heart disease. In the study it was found that 157 cases [78.11%] were delivered vaginally,

there were 35 cases of LSCS [17.41%], 5 cases needed laparotomy with repair of ruptured uterus [2.49%], 4 cases were delivered by instrumental vaginal delivery [1.99%].

Out of 204 cases with serious maternal outcomes, 146 cases [71.56%] had preeclampsia as risk factor, 68 patients were anemic [33.33%], 14 patients had febrile illness [6.86%], 9 cases were of placenta previa [4.41%], 60 cases had abruptio placenta [29.41%], 11 cases had multiple gestation [5.39%], 28 cases had HELLP syndrome [13.72%], 9 cases had hepatitis [4.41%] as their risk factor. (Figure 2)

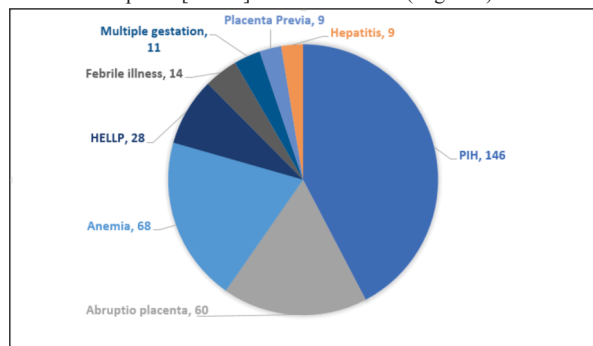


Figure 2: Risk Factors

## DISCUSSION

The high MMR is similarly accompanied by high rates of perinatal mortality.<sup>10</sup> Cases with maternal morbidity and perinatal mortality were more i.e 74.02% and only 0.49% of the cases were of maternal mortality with perinatal morbidity. In the present study there were 176 cases of perinatal mortality, 60.23% were due to intrauterine fetal demise, 9.66% were due to early neonatal death in NICU, 8.2% cases were fresh stillbirth and in 1.7% cases there was mortality of undelivered pregnant mother. In a study by Emma R Allinson et al there were 38.7% cases of perinatal mortality were macerated still birth, 21.8% cases were fresh still birth and 39.4% were early neonatal deaths.<sup>11</sup> As per the study conducted by John W. Bolnga et al, of the 756 perinatal deaths, 32% (244/756) were early neonatal deaths. The majority of the 512 stillbirths were macerated (62%; 317/512).<sup>12</sup> In the study by Rose Mpembeni NM et al, of the 200 perinatal death cases 163 (81.5%) were still births of which 96 were macerated still births and thirty-seven (18.5%) were early neonatal deaths that occurred in the first 24 hours of delivery.<sup>13</sup>

In our study we found that the most common high risk factor in the cases was preeclampsia and eclampsia followed by anemia, abruptio placentae, HELLP, febrile illness, multiple gestation, placenta previa and hepatitis.

In the study by Sahaja Kittur the important direct causes were hemorrhage contributing to 12 deaths (30%), out of which 2 deaths were due to antepartum hemorrhage, 9 deaths due to postpartum hemorrhage and 1 death was due to molar pregnancy. Hypertensive disorders of pregnancy contribute for 12 deaths (30%). Among the indirect obstetric causes, anemia was the leading cause contributing to about 4 maternal deaths. (10%). 1 death (2.5%) occurred due to heart disease. 1 death (2.5%) occurred due to hepatic failure.<sup>14</sup> According to Surendranath Panda et al (2000)<sup>15</sup> and Verma Ashok et al (2008)<sup>16</sup> anemia is the leading indirect cause of maternal mortality.

According to a study by Courage Mlambo et al hemorrhage is the highest cause of maternal deaths.<sup>17</sup> The study conducted by Mansuri et al. (2005) aimed to investigate the causes of maternal mortality and its effective factors; in this work, the most common cause of death was amniotic fluid embolism and hemorrhage. Hemorrhage, amniotic fluid embolism, eclampsia, infection, and other factors were determined as the cause of maternal death, respectively.<sup>18</sup> In the study by Amin T T et al the main causes of death were postpartum hemorrhage (25%), hypertensive diseases (16%), antepartum hemorrhage (8%), and sepsis (8%) and rupture uterus (7%).<sup>19</sup>

## CONCLUSION

“Make every mother and child count”- the slogan for World health day 2005 reflects the reality and need of the society even today. There are many factors that have an affect on both mother and baby which are preventable if detected early and with careful monitoring. We can conclude that our study helps in identifying the risk factors that has an

effect on the health of both mother and baby, to evaluate the complications leading to maternal and perinatal mortality so that timely interventions to prevent maternal and perinatal morbidity and mortality can be made to achieve the goal of obstetric of having a healthy mother with a healthy baby at the end of every pregnancy.

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