

## VLBW Babies- Obstetric Dilemma & Pediatric Challenge !

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### Abstract :

*Birth weight is one of the the most important marker of perinatal, neonatal and infantile outcome. Present study aimed at finding out neonatal mortality rate in very low birth weight (VLBW) babies at Pravara rural hospital. It was observed that the overall neonatal mortality in VLBW babies was 44% . Neonatal mortality was 51% in babies with gestational age below 34 weeks as against 27% in above 34 weeks. Neonatal survival rate was better with Caesarean section (66%) as against vaginal route of delivery (41%). Common causes of neonatal deaths in VLBW babies were sepsis, respiratory distress syndrome, birth asphyxia, intra ventricular hemorrhage, disseminated intravascular coagulation and necrotizing enterocolitis. Termination in a high risk pregnancy with an estimated VLBW baby, poses dilemma in the mind of obstetrician regarding timing and mode of delivery. Pediatrician also faces a challenge, as these babies are likely to develop some inherent complication related to VLBW and extreme prematurity. To improve the neonatal outcome in VLBW babies, it is essential that these babies are cared in secondary or tertiary care neonatal units with state of art facilities and trained manpower. Scientific interaction between the members of the team is essential for optimal outcome.*

**Key words:** *Very low birth weight (VLBW), Neonatal mortality.*

### Introduction :

There is no indicator in human biology, which tells us so much about the past events and future trajectory of life, as the weight of newborn at birth.<sup>[1]</sup> The World health organization defines low birth weight as a weight at birth of less then 2500 grams irrespective of gestational age. Indian Academy of Pediatrics defines low birth weight as weight less than 2000grams. More than 20 million babies world wide, representing 15.5% of all births, are born with low birth weight.<sup>[2]</sup>

The highest prevalence is observed in Africa & South East Asia<sup>[3]</sup> the incidence of LBW continues to be 33% in India<sup>[4]</sup>. The etiology is multifactorial. Important causes being prematurity & intra uterine growth restriction. LBW babies account for 80% or perinatal mortality.<sup>[5]</sup> Decision of termination of pregnancy with LBW baby for obstetric or medical reason remains a dilemma for obstetrician, as subsequent chances of neonatal survival depend on variety of factors.

Care of newborn with LBW continues to remain a

challenge to Pediatricians. As per the FOGSI report, more than half (52.2%) of perinatal deaths were linked with LBW (200gms or less). Babies with birth weight less than 1500 grams are at more risk of development of neonatal complications and its long term sequelae. Resuscitation is required in more than 30% of VLBW babies. These babies need to be managed at high risk perinatal centre<sup>[6]</sup>.

The study aimed at finding out the neonatal mortality in VLBW babies at Pravara Rural Hospital, which can guide the obstetrician in decision making ( in relation to gestational age and fetal weight) regarding timing of delivery and route of delivery in pregnancies complicated by various medical and obstetric problems.

Present study was carried out with following objectives

- I. To study neonatal mortality in VLBW babies.
- II. To analyze the obstetric and medical factors associated with birth of VLBW babies.
- III. To study neonatal mortality in relation to birth weight and gestational age.
- IV. To suggest measures to improve neonatal outcome.

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V . To estimate cut off level of birth weight in relation to chances of survival.

### Materials and Methods

It is a retrospective analytical study of 50 VLBW babies born at Pravara Rural Hospital (PRH) over a period of six months. Pravara rural hospital is located in rural area of Ahmednagar district of Maharashtra. Many high risk mothers, who are underweight and are likely to deliver LBW babies, are referred to Pravara Rural Hospital for further management. Neonatology unit of PRH is the only level III care facility available for high risk newborns in Ahmednagar District.

All live born babies with birth weight less than 1500 grams irrespective of gestational age were included in this study. Intrauterine death, fresh still born babies and babies with major congenital malformations were excluded. All deliveries were attended by pediatrician and babies were handed over to pediatrician after birth. Babies were kept in neonatal care unit for supervision and essential newborn care. Babies were either given breast milk or intravenous fluids depending upon the condition. All babies were slowly shifted to breast feeding at appropriate time. Babies were under care and supervision of neonatologist till discharge. Babies with weight of 2000 grams and those who were feeding well were discharged from hospital with proper advice regarding care at home and follow up visits.

### Results

It was observed that the incidence of VLBW babies was 4% (for <1500 grams) There was no significant difference in prevalence of VLBW in male and female babies. Prevalence of VLBW was same in booked & unbooked cases.

Sr. No.	Birth weight (grams)	No. of cases (n=50)	(%)
1.	<1000	5	10
2.	1001 – 1200	9	18
3.	1201 – 1500	36	72

**Table I- Distribution of very low birth weight babies in subgroups**

Table I shows distribution of VLBW babies in subgroups. Seventy two percent of babies had birth weight between 1200 to 1500 grams. Neonatal mortality was 31% in this group as compared to 79% for the group with birth weight less than 1200 grams (Table II).

Sr. No.	Birth weight (grams)	No. of cases	No of Deaths	Mortality (%)
1.	<1000	5	3	60
2.	1001 – 1200	9	8	89
3.	1201 – 1500	36	11	31
	<b>Total</b>	<b>50</b>	<b>22</b>	<b>44</b>

**Table II-Neonatal mortality in relation to birth weight**

Sr. No.	Gestational age	No. of cases (n=50)	No of Deaths
1.	<28 weeks	1	1
2.	28 – 31 weeks	24	13
3.	32 – 34 weeks	10	4
4.	>34 weeks	15	4

**Table III- Neonatal mortality in relation to gestational age**

Table III shows distribution of VLBW babies by gestational age. It was observed that 70 % of babies were upto 34 weeks of gestation and 30% were above 34 weeks. On comparing neonatal mortality with gestational age, it was observed that 70 % of babies were upto 27% in gestational age above 34 wks as against 51% in gestational age upto 34 weeks.

There were 22 (44%) neonatal deaths in VLBW babies. Common causes of deaths were septicemia, disseminated intravascular coagulation (DIC), respiratory distress syndrome (RDS) necrotizing enterocolitis, intraventricular hemorrhage, and birth asphyxia.(TableIV).

Sr. No.	Neonatal Complications	No of cases	Mortality (%)
1.	Septicemia	13	59
2.	Resp. distress syndrome	06	36
3.	Intraventricular haemorrhage	01	27
4.	Disseminated intravascular coagulation	08	14
5.	Birth asphyxia	03	14
6.	Necrotizing enterocolitis	03	05
7.	Meconium aspiration syndrome	01	05

Table IV-Causes of Neonatal Deaths

It was observed that, various medical and obstetrical complications were associated with birth of VLBW babies. Preterm labour was the commonest (48%), followed by pregnancy induced hypertension (22%), premature rupture of membranes (8%), multiple gestation (8%). Other causes were intra uterine growth restriction (6%), anemia (2%), antepartum hemorrhage (2%). In the present study 58% babies were delivered vaginally as against 42% by Caesarean section. Neonatal mortality was 59% for vaginal route of delivery as against 34% by Caesarean section route. There were seven neonatal deaths in babies born by Caesarean section. Six out of seven babies had birth weight of more than 1350 grams. The indications of Caesarean section were pregnancy induced hypertension in five cases, antepartum hemorrhage in one case and twins with antepartum hemorrhage in another case. Causes of death were disseminated intravascular coagulation & septicemia with respiratory distress syndrome in four cases, meconium aspiration in one case, very low birth weight with respiratory distress syndrome in one case. It was observed that 36% babies were in hospital upto one week, 18% upto two weeks, 18% upto four weeks and 28% for more than four weeks. It was observed that 90% of neonatal deaths occurred in first week of life and remaining in second week.

## Discussion

High risk approach aims at finding out high risk pregnancies as early as possible and manage them timely before maternal and fetal complications arise. With

adoption of high-risk approach, we are able to identify many high risk mothers and are able to take them safely, to near term. Many a times, there is need for early termination of pregnancy for maternal and fetal indication. As the pregnancy is far from term, the cervix is usually unfavourable for induction of labor. Fetuses of high risk mother having some medical and obstetrical complications are usually compromised of their circulation due to uteroplacental insufficiency. These small babies cannot tolerate the stress of induction or augmentation of labour during their passage through birth canal. Obstetrician is always in dilemma regarding route of the delivery. Stress of labor to LBW babies can be avoided by delivering them safely by Caesarean Section, at the cost of having scar on the uterus. These babies usually face problems related to immaturity and LBW during early neonatal life.

## VLBW babies - Can caesarean section

**save these lives** - Obstetrician is tempted to terminate high risk pregnancies with VLBW babies by caesarean section, with a belief that caesarean section has better chances of neonatal survival as compared to vaginal route of delivery. We observed that the neonatal mortality was less (34%) when these babies were delivered by Caesarean section rather than by vaginal route (59%). Study revealed that the mean birth weight of the babies who survived subsequently was 1390 grams for vaginal route of delivery as against 1335 grams for caesarean route, similarly, the mean gestational age of the babies who survived subsequently

was 34.8 weeks for vaginal route as against 32.4 weeks for caesarean route. The study further revealed that the neonatal mortality was very high when the birth weight was less than 1200 grams. Thus, it is important for obstetrician to counsel the patient and relatives about the chances of neonatal survival and the long term sequelae in this VLBW group, especially, if Caesarean section is being planned<sup>[7]</sup>. Neonatal mortality was 44% in our study. Neonatal mortality reported by various authors<sup>[8]</sup> like K.K.Roy, Jinee Baruah was 15.7% in VLBW babies and 33.3% for extreme low birth weight babies. In the present study 59% babies died due to sepsis. Abhay Bang<sup>[9]</sup> and K.K.Roy reported 52.5% and 14.2% incidence of sepsis. As 90% of babies died during first week of neonatal period and remaining in second week, it is very crucial for the babies to get the best possible life support in immediate and early neonatal period.

For effective delivery of perinatal services and to improve the management and outcome of newborn babies, there is need for scientific interaction between pediatricians, Obstetricians, nurses, pediatric surgeons, anesthetists and pediatric radiologists. Among these specialists, co-operation and interaction between pediatrician and obstetrician is very crucial. It is often forgotten that discredit for death of a baby or credit for his ultimate survival, usually goes to the obstetrician because mother has put her confidence and full faith in her obstetrician who had provided all the care to her and baby throughout pregnancy and delivery. Losing a Caesarean baby is always a matter of concern to obstetrician. It brings a feeling of guilt to Obstetrician for giving patient a scar rather than a live baby. Pediatrician must also appreciate the faith that the obstetrician repose in them by handing over the baby. It is therefore, obvious that pediatrician and obstetrician must join hands with each other. This will not only improve the neonatal survival, but also improve the quality of life among the survival. It is very essential that obstetrical units handling high risk pregnancies are backed up with adequate secondary or tertiary level neonatal care units.

## Conclusion

Management of VLBW babies continues to be a

challenge to pediatricians. Their survival depends on the quality of neonatal care in the hospital. In the present study, the neonatal mortality was extremely high in babies with birth weight below 1200 grams and gestational age below 32 weeks. Neonatal sepsis, disseminated intravascular coagulation and respiratory distress syndrome were the commonest causes of neonatal deaths. Considering the high incidence of deaths due to sepsis, it is very important to take all possible preventive steps to avoid infection during delivery and early neonatal period. Majority of babies died during first week of life. Neonatal mortality was less with caesarean route than with vaginal route of delivery.

In a developing country like India, a large number of salvageable babies are dying in the community without receiving even basic or essential care. In view of the fact that over 60% of infant deaths are accounted by neonatal deaths. There is an urgent need to establish special care neonatal units to reduce neonatal mortality. These care units should be authorized at all levels like primary health centre, community health centre, district hospital and medical college. In order to stabilize the population dynamics, there is need to reduce neonatal mortality rate because, enhanced survival of babies would discourage parents to produce more children.

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## Medical Quotes

Reality is a crutch for people who can't cope with drugs.

**-Lily Tomlin**

One has a greater sense of intellectual degradation after an interview with a doctor than from any human experience.

**-Alice James**

Let's not kid ourselves. Whatever we diagnose, most patients, if they don't die, get well by themselves. Our job is mainly to try to make them feel better; do no harm.

**-Diane Frolov and Andrew Schneider**

One of the first duties of the physician is to educate the masses not to take medicine.

**-Sir William Osler**

The desire to take medicine is perhaps the greatest feature which distinguishes man from animals.

**-Sir William Osler**

To perceive is to suffer.

**-Aristotle**

Never to suffer would never to have been blessed.

**-Edgar Allan Poe**

A neurosis is a secret that you don't know you are keeping.

**-Kenneth Tynan**