Low Birth Weight Baby

Waribam Aruna Devi
Vice Principal
Department of Obstetrics & Gynecological Nursing
Shivalik Institute of Nursing, Shimla

Abstract

Low birth weight is one of the major problems for the new born baby throughout its life. It is the single most important factor determining the survival chances of the child. Many of them die during their first year. The weight of the baby is the best indicator to evaluate the newborn as well as the maternal health and the nutritional status of the mother. Most of the extreme low birth weight baby dies in the early months or year. And those who survive will have various health problem in their future life like muscle weakness, low IQ, heart problem, diabetes etc. Low birth weight can be prevented by providing proper nutrition and avoiding various unwanted things like smoking, alcohol consumption, medication without prescription & over exertion of the body which will lead to tiredness & weakness. Various research studies were also done to find the causes, prevention & treatment of Low birth weight.

Keywords: Low birth weight, IUGR, KANGAROO MOTHER CARE, NICU

I. INTRODUCTION

A baby spend around 9 months and 7 days inside the mother uterus during its intrauterine life to be fully grow and developed, but sometime due to various factors the baby cannot be able to developed properly leading to low birth weight. A neonate is called low birth weight baby when its birth weight is less than normal which is 2,500 grams. According to WHO “Low birth weight neonates are those weighing less than 2,500 grams at birth. The definition helps in identifying neonates requiring special care. Low birth weight babies are more likely to have health and developmental problem including learning difficulties, hearing and visual impairments, chronic respiratory problems etc. later in life. Thus, the babies require specialized and proper care. Babies with low birth weight look much smaller than other babies of normal birth weight. A low birth weight baby’s head may appear to be bigger than the rest of the body and he/she often looks thin with little body fat. In India it is common observation that neonates weighing 2,000 gram or less show increased risk of perinatal mortality and morbidity and require special care. The tremendous advances in care of sick and premature babies leads to the survival of more and more despite being born early and being born very small. However, prevention of preterm births is one of the best ways to prevent babies born with low birth weight. Prenatal care is a key factor in preventing preterm births and low birth weight babies. At prenatal visits, the health of both mother and fetus can be checked. Because maternal nutrition and weight gain are linked with fetal weight gain and birth weight, eating a healthy diet and gaining the proper amount of weight in pregnancy are essential. The incidence of low birth weight neonates in India is 16% to 30% taking 2500g and less as the criteria. This is three to four times higher as compared to developed countries 4.5% to 7% and 2.5% to 4.5% [1] During pregnancy, a baby's birth weight can be estimated in different ways. The height of the fundus usually corresponds with the weeks of pregnancy after the 20th week. If the height of the fundus is low compared to the weeks of pregnancy, the baby may be smaller than expected. Ultrasound is also a more accurate method of estimating fetal size.

Babies are weighed within the first few hours after birth. The weight is compared with the baby's gestational age and recorded in the medical record. Birth weight less than 2,500 grams is diagnosed as low birth weight. Babies weighing less than 1,500 grams at birth are considered very low birth weight. Low birth weight is an increased risk for complication as their tiny body may have a harder time eating, gaining weight and fighting infections because they have so little body fat, low birth weight babies often have difficulty staying warm in normal temperatures so nearly all low birth weight babies need specialized care in the neonatal intensive care unit (NICU) until they gain weight. The risk of mortality remains to be high in low birth weight infant than the infant with normal weight at birth. In the neonate period, when most infant deaths occur, the proportion of low birth weight infants, especially those with very low weight is the major determinant of the magnitude of the mortality rates.

Low birth weight is the single most important factor determining the survival chances of the child. Many of them die during their first year. The infant mortality rate is about 20 times greater for all low birth weight babies than for other babies. The lower the birth weight, the lower is the survival chance. Birth weight is thus an important guide to the level of care needed by individual babies. Care of the low birth weight babies by the mothers mostly during their first and second year of life seems to be very difficult. The mothers have difficulties in breastfeeding, maintaining the babies’ diet and medication use. So, need for professional support and proper care in order to evaluate and follow the growth and development of children within the families’ everyday life is very important.

The common problems of low birth weight babies are

1) low oxygen levels at birth(asphyxia),
2) inability to maintain body temperature after birth,
3) difficulty feeding and gaining weight,
4) infection,
5) breathing problems such as respiratory distress syndrome (a respiratory disease of prematurity caused by immature lungs),
6) neurologic problems such as intraventricular hemorrhage (bleeding inside the brain),
7) Gastrointestinal problems such as necrotizing enterocolitis (a serious disease of the intestine common in premature babies),
8) Sudden infant death syndrome (SIDS).
9) Anemia,
10) Low blood sugar (hypoglycemia),
11) Newborn jaundice.

II. CAUSES

1) Premature birth (being born before 37 weeks gestation) - Being born early means a baby has less time in the mother’s uterus to grow and gain weight. Most of the baby’s weight is gained during the later part of pregnancy.
2) Intrauterine growth restriction (IUGR) - This occurs when a baby does not grow well during pregnancy because of problems with the placenta, the mother's health, or birth defects. A baby can have IUGR and be born at full term (37 to 41 weeks). Premature babies can also have IUGR - these babies are both very small and physically immature.
3) Mothers who are exposed to illicit drugs, alcohol, and cigarettes are more likely to have low birth weight.
4) Mothers of lower socioeconomic status are also more likely to have poorer pregnancy nutrition, inadequate prenatal care, and pregnancy complications - all factors that can contribute to low birth weight.
5) Hemorrhage associated with pregnancy.
6) Hypertensive disorder of the mother during pregnancy.
7) Obstetric complication.
8) Systemic disease of mother like renal disease, diabetes etc.
9) Congenital abnormality of fetus.
10) Infection (both mother & fetus).
11) Inadequate weight gain during pregnancy.
12) Previous pregnancy resulted in a low birth baby or premature birth
13) Multiple fetuses (twins, triplets, etc.)
14) Uterus abnormalities.
15) Cervix abnormalities.
16) All women under 17 are at an increased risk of delivering a low birth weight baby.
17) Lack of prenatal care.

III. CARE OF LOW BIRTH WEIGHT NEONATES

A. Feeding:

1) Breastfeeding:
Feeding is the centerpiece of care for the low birth weight newborn. Many terms low birth weight babies can initiate breastfeeding immediately but many preterm low birth weight baby are not able to breastfeed in the first days or weeks, but they can be benefited greatly from expressed breast milk. The baby should be breastfeed as often as he/she wants and should wake him/her up for a feed if he goes more than 4 to 5 hours sleep at night. Breast milk promotes the adequate growth of low birth weight babies.

2) Cup Feeding:
When a low birth weight baby is fed by cup, he or she initially “laps” the milk with the tongue. This action does not interfere later with attachment when the baby is ready to feed at the breast.

3) Spoon Feeding:
Spoon feeding is safe, but many people find it more difficult than using a cup. For babies with breathing problems, spoon feeding may be the best approach until the breathing problem is cure. Preterm babies can have breathing problems because of immature lungs. Low birth weight babies born at term may have breathing problems from other causes, such as a severe infection (pneumonia) or meconium aspiration. Care should be taken not to pour the milk from the spoon into the baby’s mouth. The baby should be allowed to sip the milk from the spoon, or very small amounts can be put into the baby’s mouth.

4) Paladai:
In India, a paladai is traditionally used for feeding babies. The paladai looks like a very small cup with one side extended out into a narrow channel, the narrow channel should be kept on the baby’s lips. The paladai is completely open like a cup, so it is easy to keep clean. Similar devices may be found in other countries. Large amounts of milk should not be poured into the mouth of a Low birth weight or sick baby. A study was conducted on Post natal peer counseling on exclusive breastfeeding of low-birth weight infants. Results show that twenty-four infants who were exclusively breastfed for 6 month did not have any major health
problem. All groups had improved mean weight-for-age, so this study has provided fundamental evidence of successful intervention to achieve 6 months of exclusive breastfeeding [2]

**B. Keep the Baby Warm or Maintenance of Temperature in Low Birth Weight Babies:**

Hypothermia or rapid loss of heat is common in the low birth weight babies as they have less subcutaneous fat and its one of the major complications among low birth weight babies, which needs to be prevented. Make sure that baby is warm when they sleep, but take great care that they don’t get too hot. A room thermometer can be used to maintain the temperature at 18°C (65°F). Tuck the blanket firmly in and around the baby to prevent heat loss.

1) **Temperature should be Monitor Regularly. It can be Check by Sole Colour and Temperature:**
   
   If the sole is pink, the baby will be warm. A blue sole suggest hypothermia or early sickness in the baby. If the sole is cold that it indicates the need to rewarm the neonates.

2) **Use the Hand to Detect Warmth:**
   
   The dorsum of human hand is a sensitive thermometer using the dorsum the mother or the health worker can feel the warmth on the baby’s abdomen. The baby must feel as warm as the adult hand or slightly warmer, if the baby is having normal temperature. Otherwise the temperature of the baby must be monitored at least 3 – 4 hours with clinical thermometer placed in the axillae. Temperature should be between 36.5°C – 37.0°C. Any temperature below 36.5°C is hypothermia. So, steps must be taken immediately to rewarm the baby.

3) **Skin to Skin Contact (Kangaroo Mother Care):**
   
   In this the naked baby should be put next to the mother’s naked skin with the baby’s head and chest between the mother’s breasts. This method helps in maintaining the temperature. Evidence indicates that using KMC for preterm babies results in stability of cardiac and respiratory function, lower rates of severe infection, increased breast milk supply, higher rates of exclusive breastfeeding, and better weight gain. KMC is a gentle, effective method that leads to earlier discharge for hospitalized babies, encourages frequent observation of the baby by the mother, and fosters bonding. All medically stable LBW babies are eligible for KMC. For most LBW babies, KMC can start immediately after birth. However, very preterm babies who are acutely ill may require specialized care until they are medically stable and ready for KMC. The three key elements of Kangaroo Mother Care are:-
   
   a) **Position:**
      
      During KMC, the baby (wearing only a diaper/nappy, hat, and socks) is placed between the mother’s naked breasts and secured in a pouch or cloth tied around the mother’s chest. The baby is carried continuously in this skin-to-skin position. The mother sleeps and rests in a semi-reclined position. Heat loss is avoided by keeping the baby in skin-to-skin contact inside the mother’s clothing.
   
   b) **Nutrition:**
      
      KMC is helps early and exclusive breastfeeding. When KMC is first started, some preterm babies are unable to suckle at the breast. A mother can express her breast milk directly into the baby’s mouth, or the mother’s expressed breast milk can be given by cup or other appropriate feeding method.
   
   c) **Support:**
      
      Mother and baby are rarely separated. The mother can observe any changes in the baby that may require follow-up care. The father or another family member can provide KMC some of the time. A study was conducted on Kangaroo mother care for low birth weight infants. The study concludes that Kangaroo mother care improves growth and reduces morbidities in low birth weight infants [3]

**C. Prevention of Infection:**

Low birth weight babies can get infection from – the baby handlers like parents, friends, relatives and health workers. So, people with diarrhea, skin and respiratory infection are at risk of transmitting infection to the baby and therefore must stay away from the baby.

**D. Regular Monitoring:**

Low birth weight babies need to be monitored regularly. Contact the doctors in time, if the baby has any of the following symptoms – Jaundice or yellowish colour of the skin, Irregular breathing, Lethargic or poor feeding on the breast, fever & drowsiness.

**E. Regular Visits to the Baby Doctor:**

Low birth weight babies may have a greater risk of developmental problems like gaining height, weight, head circumference, vision and hearing problems or neuron development problems. Ensure that the baby’s get all the vaccines in time. Most low birth weight babies have the same immunization schedule as normal birth weight babies.
IV. PREVENTION OF LOW BIRTH WEIGHT DELIVERY

Actions to reduce the risk of delivering a Low birth weight baby should start long before conception. Women who were born with low birth weight and/or were poorly nourished as an infant, child, and adult are more likely to give birth to LBW babies than those who are adequately nourished from conception and throughout their childhood and reproductive years. Many women come in contact with health workers during pregnancy and it’s the opportunity to get counseling from them on the practices listed below that can reduce the risk of delivering a LBW baby. To enact these recommendations, women need family support and provision of health services.

1) Increased Food Intake during Pregnancy:
Most pregnant women need one or more extra servings of the staple food each day.

2) Adequate Vitamin and Mineral Intake:
Deficiencies in zinc, iron, vitamin A, folic acid, vitamin B6, vitamin B12, vitamin D, calcium, and magnesium might increase the risk of low birth weight and preterm births. A well balanced diet, appropriate supplements, and fortified foods are recommended. Iron folic supplements are needed by all pregnant women to prevent anemia, which contributes to LBW. Prevention and treatment of hookworm infection can improve iron status.

3) Reduced Work Load:
An excessive work load consumes energy that otherwise could support fetal growth and maternal health.

4) Treatment of Reproductive and Urinary Tract Infections:
Reproductive and urinary tract infections increase the risk of preterm labor and delivery.

5) Smoking Cessation:
Mothers who smoke during pregnancy and those who are exposed to tobacco smoke (passive smoking) have a higher risk of giving birth to LBW and preterm babies. A study was conducted on preventing low birth weight by giving effective prenatal care. Finally the outcome of the studies shows that preterm and IUGR can be effectively prevented by prenatal care [4].A study was conducted on maternal psychological stress and distress as predictors of low birth weight, prematurity and intrauterine growth retardation. This study confirmed that distress and increased stress during pregnancy lead to both LBW and prematurity [5]. A study was conducted on Influence of maternal and social factors as predictors of low birth weight. Results show that overall annual LBW rate was 11.8% and younger mothers those who smoked during pregnancy and had fewer prenatal care visits were more likely to deliver a LBW child and preterm newborns [6]. A study was conducted on used of corticosteroids to prevent mortality of low-birth-weight neonates. Results show that mortality rate was 32.5% and the studies concluded that despite of technology advances, low-birth-weight neonate is high so prenatal use of corticosteroids should be encouraged to reduce morbidity and mortality of low-birth-weight neonates[7].

V. CONCLUSION

Neonatal morbidity and mortality, particularly relating to the LBW babies is still unacceptably high and contributes significantly to the under-five mortality. Due to the widespread risk of complication in the later life of the babies, proper observation is needed which involve caring for the LBW babies through preventing and managing Perinatal Asphyxia, Hypothermia, Hypoglycemia, proper feeding and Infection. Neonatal intensive care is to a large extent out of reach for most countries. Training of mid-level health personnel, mother’s and family member on appropriate care of the LBW and providing management protocols /algorithms is of great importance. Record keeping for auditing of care is paramount.

REFERENCES