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FEEDING OF LOW BIRTH WEIGHT INFANT - A REVIEW

Dr. Shubhangi Kapil Thakur*

Assistant Professor, Kaumarabhritya Department, R.A. Podar Medical College (Ayu) Worli, Mumbai.

***Corresponding Author: Dr. Shubhangi Kapil Thakur**
Assistant Professor, Kaumarabhritya Department, R.A. Podar Medical College (Ayu) Worli, Mumbai.

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ABSTRACT
22 million infants are born with a birth weight of les than 2500gm every year, with India having the third highest incidence of low birth weight infants in the world.[1] Though these lbw infants constitute only about 14% of the live births, they account for 60-80%of the total Neonatal death.[2] Lbw infants are increased risk for morbidity and mortality, developmental delays, long term neurological sequale, and chronic medical problems. To decrease morbidity and mortality of lbw infants, care and support of their feeding needs must be provided with high quality.[3] Nutritional management influences immediate survival as well as subsequent growth and development of lbw infants. Simple interventions such as early initiation of breastfeeding and avoidance of pre lacteal feedings have been shown to improve their survival in resource restricted settings.[4] Early nutrition could also influence the long term neurodevelopmental outcomes; malnutrition at a vulnerable period of brain development has been shown to have deleterious effects in experimental animals.[5]

KEYWORDS: Feeding, LBW infants, Nutrition.

INTRODUCTION
Over 20 million low-birthweight (LBW) infants are born each year, with over 90% of these in developing countries. Low birthweight can be a consequence of preterm birth (defined as birth before 37 completed weeks of gestation), small size for gestational age (defined as weight for gestation below the 10th percentile), or both. LBW infants are at higher risk of neonatal hypothermia, hypoglycaemia, sepsis, and newborn death. They are also at higher risk for long-term effects, such as cerebral palsy, learning impairments and developmental delays, visual and hearing disorders, and for noncommunicable diseases later in life, such as diabetes and cardiovascular disease. Low birthweight is a significant contributor to under-5 mortality. Newborn and infant mortality rates can be reduced by providing appropriate Care to LBW infants, including temperature maintenance; optimal feeding;Cord and skin care; and prevention, early detection, and treatment of Infections.

Term infants with normal birth weight require minimal assistance for feeding in the immediate postnatal period they are able to feed directly from mother's breast. In contrast, feeding of LBW infants is relatively difficult because of the many LBW infants are born premature and have inadequate feeding skills; they might not able to breastfeed and would require other methods of feeding such as spoon or gastric feeding,they are prone to have significant illness which often precludes enteral feeding of the first few weeks of life, preterm very low birth weight infant have higher fluid requirements due to excessive insensible water loss, because of the gut immaturity, they likely to expiernce feed intolerance necessitating adequate monitoring and treatment.Hence, we need to focus feeding of LBW infants.

Before deciding the initial methods of feeding, it is essential to categorize LBW infants into sick and healthy infants.

Sick infant
This group constitutes infants with significant respiratory distress requiring assisted ventilation, shock requiring inotropic support, seizures, symptomatic hypoglycaemia, electrolyte abnormalities, renal and cardiac failure, surgical conditions of gastrointestinal tract, necrotising enterocolitis, etc. These infants are usually started on intravenous fluids. Enteral feeds should be initiated as soon as they are hemodymically stable. Oral feeds should not be delayed in them without valid reason.

Healthy lbw infant
Enteral feeding should be initiated immediately after birth in healthy infants with the appropriate feeding methods determined by their gestational age and oral feeding skills.

Choice of milk

Breast milk –low birth weight infants, including those with very low birth weight, should be fed their own mother's milk.[6]

Donor human –milk –feeding heat treated donor human milk to lbw infants is associated with lower incidence of Infections and NEC during the initial hospital stay after birth compared with infant formula.[6]

Infant formula feed –sick mother's or contraindications to breastfeeding use infant formula feeds in the form of preterm formula feeds, term formula feeds and cow's milk.[6]

Initial methods of feeding

- Breast feeding - All lbw infants, irrespective of their initial feeding method should be put on their mother's breast.
- Spoon or paladi feeding – spoon or paladi feeding is used in lbw infants who are not able to feed directly from the breast.
- Nasogastric – orogastricfeeding –This method is used in sick infants.
- Parental nutrition – in extremely low birth weight infants usually started on parental nutrition from day one of life.

Volume of feeds

Parenteral nutrition

The daily fluid requirement is determined based on the estimated insensible water loss, other losses, and urine output. Extreme preterm infants need more fluids in the initial Weeks of life because of the high insensible water loss.startfluids at 80 ml /kg/day in infants of birth weight less than 1.5 kg and 60ml/kg/day in infants of birth weight between 1.5 kg -2.5 kg. The daily increment would be about 15-20 ml /kg/day so that by the end of first week, 150 ml /kg/day is reached in both the categories. Reach a maximum of 180 ml /kg/day by day 14.[7]

Feed volume –Lbw infants who are fully or mostly fed by on alternative oral feeding method should be fed based on infants hunger cues, expect when the infant remains asleep longer three hours since the last feed.[8]

Nutritional supplementation in lbw infants

Lbw infants, especially those who are born premature require supplementation of various nutrients to meet their high demands.Multinutrientsupplementation can be ensured by –

- Supplementing individual nutrients –e.g. Calcium, phosphorus, vitamins, etc.
- Fortification of breast milk by using either human milk fortifiers or preterm formula.

Vlbw infants should be given vit-D at a dose ranging from 400 i.u. to 1000i.u./day until 6 month of age. Vlbw infants who are fed mother's own milk or donor human milk should be given daily calcium 120 -140 mg/kg/day , phosphorus 60-90 mg /kg/day for first month of life. Iron 2-4 mg/kg/day starting at 2 weeks until 6 month of age.[8]

DISCUSSION

Optimal feeding of lbw infants is important for the immediate survival as well as for subsequent growth. Simple interventions such as early initiation of breastfeeding and avoidance of pre lacteal feedings shown to improve their survival in resource settings, also helps to improve their feeding skills by maturation of sucking reflex and helps to improve milk secretions in their mother's. Breast milk fed babies have lower mortality and lower incidence of Infections and necrotising enterocolitis (NEC) than those fed with infant formula.[9] Breast milk is biological complex, species specific ,and serves both as a source of nutrition and immunogenic support for the developing infant. Among these benefits to providing human milk to premature infants are decrease risk for perinatal infections and NEC, shorter hospital stay and improved developmental outcomes,[9] so initiation of breastfeeding to lbw infants is beneficial .So all Lbw, irrespective of their initial feeding method should receive ONLY breast milk.[6] The baby has not taken "enough" the baby can then fed by an alternative feeding method to supplement such as spoon feeding or gavage feeding.So identify the lbw infant is whether sick or healthy and depends on babies condition ,decide the initial methods of feeding according to gestational age and weight.[9]

Lbw infants, especially those who are born preterm require supplementation of various nutrients to meet their high demands. Infants who are usually born before 32-34 weeks gestation have inadequate body stores of most of the nutrients. The amount of protein, energy, calcium, trace elements and vitamins present in breast milk is often unable to meet their daily requirements .Hence these infants require multinutrient supplimentation till they reach term gestation. expressed breast milk with human milk fortifiers increases the nutrient content of the milk without compromising it's other beneficial effects. The Cochrane database on fortification found short term improvement in weight gain, linear and head growth without any increase in adverse effects such as NEC. Regular growth monitoring helps in assessing the nutional status and adequacy of feeding; it also identifies thise infants with inadequate weight gain. Lbw infants should be discharged after they reach 34 weeks of gestation and show consistent weight gain for atleastthree consecutive days.

CONCLUSION

Optimal feeding of lbw infants is important for the immediate survival as well as for subsequent growth. Unlike their normal birth weight counterparts, these infants have vastly different feeding abilities and nutritional requirements. They are also prone to develop feed intolerance in the immediate postnatal period. So it is important for all health care providers caring for such

infants in necessary skills offeeding methods and preterm care. And also counseling and encourage to mother's for initiation of breastfeeding and for expressed breast milk. We can prevents neonatal mortality and morbidity through methods of feeding and nutritional supplements to lbw infants according to birth weight and gestational age.

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