Addressing the Nutritional Emergency of the Very Low Birth Weight Infant

Establishing a SPIN (Supporting Premature Infant Nutrition) Program
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Human milk saves babies’ lives!

Rationale

The Nutritional Emergency of Preterm Birth

Preterm infants suffer from one of the most serious nutritional emergencies affecting newborns. This is most dramatic for the smallest group of infants who almost uniformly suffer growth failure by the time they go home from the hospital. Inadequacies in nutrition can lead to major long-term neurodevelopmental and growth consequences. In these infants, head growth, which is tightly linked with brain development, as well as body growth is reduced compared with healthy term counterparts. Most babies are going home before they are full term (40 weeks gestation) and therefore must still grow at a very fast rate at home. Preterm infants are also at significantly high risk of developing rickets that makes them prone to fractures, and of anemia due to their limited iron stores. Much more attention and emphasis needs to be placed on nutrition both in the hospital and once infants have gone home.

Human Milk is Best!

Human milk is superior to all other forms of nutrition we have available for premature infants. Human milk not only promotes better health for premature infants by offering optimal nutrition but it contains multiple biologically active factors that provide protection against infection and stimulate the immune system. It is important, however, to recognize that for the incredibly fast growing premature infant, even human milk cannot supply everything they need for optimal growth. Fortification of human milk with extra calories, protein, minerals and vitamins is essential both in the hospital and at home. The American Academy of Pediatrics supports the use of fortified human milk or nutrient enriched formula for the first 9 months for premature infants. Breastmilk needs to be fortified (by the addition of concentrated formula to pumped milk) to boost the calories and nutrient content for the best growth of these infants. Mothers are required, therefore, to pump frequently throughout the day and night even after the baby leaves the NICU. The highest exposure to human milk will pass on the greatest benefits to these small vulnerable infants.

Nutrition

Early aggressive parenteral nutrition

Standardized Feeding Protocol

Routine skin-to-skin care

Milk logging

Maternal support for lactation

Safety and Milk Quality
Optimize quality of milk handling and delivery

Lactation

Infant Driven Feeding

Nutrition Discharge Plan

SPIN Mission
To create a Center of Excellence in neonatal nutrition focused on the provision, analysis, and research of human milk to improve nutritional and neurodevelopmental outcomes in preterm babies

Lactation

Nutrition Quality Initiative Project
Creating a Nutritional Dashboard

Nutrition

EARLY, STANDARDIZED NUTRITION
- Early parental protein and energy administration in the first week of life
- Standardized feeding advancement
- Early and exclusive human milk
- Early and consistent nutrient fortification in hospital
- Standardized responses to in-hospital growth
- Standardized post-discharge fortification and discharge nutrition plans

INCREASED HUMAN MILK EXPOSURE
- Develop a supportive NICU environment for human milk nutrition
- Establish and maintain milk production
- Get babies to the breast
- Optimize quality of milk handling and delivery

Research Themes

Nutrition
- Early priming milk feeding
- Milk enterolytic
- Individualized fortification of human milk
- Protein and intestinal permeability
- Human milk based human milk fortifier
- Feeding during the treatment of the arterial ductus
- Oligosaccharide research

Lactation
- Pumping techniques
- Prooing daily milk

Teamwork

The SPIN program is a new initiative from the University of California San Diego Medical Center.

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