



# Benefits of Breast Milk in Extreme Premature Newborns: Clinical Case

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## Summary

**Introduction:** Late preterm infants are those born between 34 to 36 weeks and 6 days of gestation. The incidence of these premature babies reaches up to 20% between 1990 and 2006 in the United States. Although these premature babies may be born with similar size to term children, they are less mature and suffer from greater morbidity and mortality.

**Clinical case:** Female of 29 weeks of gestation with weight of 495 g, size of 30.5 cm, product of mother of 32 years of age. At birth, it requires mechanical ventilation and presents grade III necrotizing enterocolitis, jaundice of the newborn at one week of age and hypoglycemia, patent ductus arteriosus, bronchopulmonary dysplasia and grade I retinopathy in zone II of both eyes. Receive ibuprofen for pharmacological closure of permeability, glucose solution /kg /min> 6 and phototherapy for 7 days. It begins orally after 26 days of being born with homologous breast milk in a progressive manner; the mother-babysitter program was indicated for 25 days and breast on demand. He graduated after 79 days of hospitalization with a weight of 1750 g and a corrected gestation week of 40.2 with breast milk exclusively.

**Discussion:** The nutrient content of human milk varies with the age of the product whether it is term or preterm and the protein content decreases after birth, becoming less than half of its content in colostrum. Donated human milk has been shown to have protective properties against necrotizing enterocolitis, bronchopulmonary dysplasia, serious infections, and neurodevelopmental disorders.

**Keywords:** Human Milk; Donor Human Milk; Growth Morbidity; Very Low Birth Weight; Breast Milk

## Introduction

In the life of a premature newborn the first days of life are vital, and the provision of nutrients is essential because the flow of nutrients in utero is abruptly suspended and must be compensated as soon as possible. Failure in such restoration to administer adequate amounts of protein and energy carries serious consequences. While nutrient restoration has primacy, its follow-up should be very narrow to establish the enteral route and this is where human milk plays a leading role, a role that is not always fully understood [1].

Late preterm infants are those born between 34 to 36 weeks and 6 days of gestation and immature premature infants all those born <32 weeks gestation (SDG). The incidence of these premature babies reaches up to 20% between 1990 and 2006 in the United States. Although these premature babies may be born with similar

size to term children, they are less mature and suffer from greater morbidity and mortality [2]. However, children born <32 SDG called immature premature babies have a higher morbidity and mortality.

Human milk provides the ideal nutrition and provides immune protection that children need for their healthy development and the benefits of this diet in those born prematurely with their own mother's milk are unquestionable and widely documented. This protection includes the decrease in the incidence of necrotizing enterocolitis, late onset sepsis, food intolerance as well as additional protection against hypertension and cardiovascular diseases in adolescence and adulthood. However, when breast milk is not available for multiple reasons, donated milk from the milk bank should be the first alternative mainly in premature newborns instead of artificial milk formulas [3].

## Clinical Case

Female of 29 weeks of gestation (SDG) with birth weight of 495 g, height of 30.5 cm, product of a 32-year-old mother with complications of severe pre eclampsia, restriction of uterine growth and loss of fetal well-being that is obtained by operation Caesarean section. At birth it requires mechanical ventilation and presents the following complications: grade III necrotizing enterocolitis on the third day of life with fasting status, (prior to the start of the oral route) jaundice of the newborn at the week of life and hypoglycemia, patent ductus arteriosus (PCA), bronchopulmonary dysplasia and retinopathy grade I in zone II of both eyes. Receive treatment with ibuprofen for the pharmacological closure of the ductus arteriosus, glucosada solution/kg/ min<sup>> 6</sup> and phototherapy for 7 days. Starts orally after 26 days of being born with homologous and pasteurized breast milk from the Human Milk Bank (BLH) progressively, a 25-day mom-kangaroo program and breast on demand and pasteurized BLH milk were indicated. He graduated after 79 days of hospitalization with a weight of 1750 g and a week of corrected pregnancy of 40.2 with breast milk exclusively, currently without complications. After 42 days of birth, pasteurized human milk was given for seven days in order to gain weight.

## Discussion

The nutrient content of human milk varies with the age of the product, whether it is term or preterm and the protein content decreases after birth, becoming less than half of its content in colostrum. It is known that most of the differences in the true protein content in milk in the preterm and term period is 0.2 g / dL and around 3 months of age the product the milk protein content is similar between both periods in such a way that the protein content of breast milk is variable [4].

At birth there is a decrease in clostridia's in those born of preterm itself that initiate a progressive recovery for the maturation of the intestinal barrier, but they remain low in those products with intestinal permeability which favors the presentation of necrotizing enterocolitis during the first 2 weeks of life in such a way that feeding with breast milk and short periods of antibiotics favor the early colonization of the intestinal microbiota [5].

Similarly, human milk of mothers of preterm children has temporary and interindividual variations of macronutrients and it is thought that without fortification it is unlikely that this milk meets the nutritional requirements of preterm infants [6]. However, other authors argue that donated milk favors the microbiome in a similar way to breast milk despite the difference between the two so that donated milk has a potential benefit [7]. Lately, the use of pasteurized donation milk has been the standard for newborns with very low birth weight (<1500 g) where their mothers cannot feed them and milk banks have been established even in countries that they use their own breast milk in the neonatal intensive care units and there are studies that show that breastfeeding during critical periods in the neonatal intensive care units reduce the frequency of complications of premature infants, these results have not been observed with feeding with donated milk [8].

However, when comparing both milks it is known that homologous human milk meets the needs of extreme preterm infants because donated pasteurized human milk has fewer nutrients and bioactive factors and does not promote the growth, development and health of the newborn, so providing breastfeeding can be seen as an example of personalized medicine [9]. But when the mother is unable to breastfeed her baby, pasteurized milk from milk banks is an option for feeding preterm infants and should be obtained at no cost [10]. Donated human milk has been shown to have protective properties against necrotizing enterocolitis [11], bronchopulmonary dysplasia [12], severe infections [13], and neurodevelopmental disorders [14].

In the study by Ford et al. [15] found that when comparing the feed with pasteurized milk donated with the mother's own milk there is an increase in community microbial diversity in phylogenetic and gender levels at 4 and 6 weeks of life as well as a better tolerance to food. Obtaining greater growth as well as a lower incidence of necrotizing enterocolitis in premature extremes fed exclusively with fortified human milk. Therefore, the American Academy of Pediatrics recommends feeding the mother's own milk supplemented with milk from. Donor and fortified only when strictly necessary in extreme premature as in our case.

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