Indian Farmer
Volume 9, Issue 05, 2022, Pp. 187-192.
Available online at: www.indianfarmer.net
ISSN: 2394-1227 (Online)

ORIGINAL PAPER

Mother's Milk: A Blessing for the infants

Shailesh Kumar Meena and Neelam Upadhyay*

Dairy Technology Division, ICAR-National Dairy Research Institute, Karnal

** Corresponding author- icar.neelam@gmail.com*

Article Received: 22 May 2022 *Published Date: 26 May 2022*

INTRODUCTION

Mother's milk is the best suited and ideal formulation for meeting the nutritional requirements of the newborn. It is the body fluid that is essential for optimal growth and development of infants as is a complete food for the baby, which is used for transmission of immunity (especially for babies who are unsecured, i.e., those born prematurely and/ or have low birth weight, and/ or are sick or malnourished). Besides, this mother's milk also provide the infants an idea of taste, food recognition and is the first operator of food rules and regulation. Along with nutritional point of view, breast milk is natural, convenient, cheap and also a medium to provide opportunity for a tenacious bonding between mother and baby. However, the decision to breastfeeding is individual and is influenced by numerous factors. For example, under certain circumstances breastfeeding may not be possible, it may be inappropriate or insufficient, resulting in inability to breastfeed. As per World Health Organization (WHO) report, globally only 40% of babies are exclusively breastfed. About 4.5 million neonatal deaths occur every year, the leading cause of which is premature birth. It is suggested that most of these deaths are preventable (WHO, 2018). Among the various possible interventions, feeding human milk to infants, especially in the first hours, days and months, has been shown to have a positive effect on their survival and development. A 12% increased mortality risk has been reported for those not receiving breastmilk over the breastfed infants. In this context, various agencies around the world have advocated breastfeeding for infants. WHO recommends exclusive breastfeeding from the first hour of birth until the baby is 6 months old. WHO urges that infants should be fed breast milk along with nutritious foods until the child is 2 years of age or older.

Ministry of Health and Family Welfare, Government of India launched India Newborn Action Plan (INAP) in June 2014 at the 67th World Health Assembly, with the goal of achieving the 'Single Digit Neonatal Mortality Rate' and 'Single Digit Stillbirth Rate' by 2030 and to advance the Global Strategy for Women's and Children's Health. Government of India launched Mothers' Absolute Affection (MAA) programme on 5th August 2016 for promotion of breastfeeding**.** The Mothers' Absolute Affection (MAA) programme promotes optimum Infant and Young Child Feeding (IYCF) practices such as early initiation of breastfeeding within one hour, exclusive breastfeeding up to six months, age appropriate and adequate complementary feeding after six months, and continuation of breastfeeding for two years and beyond. According to the National Family Health Survey-5 (2019-21), only 41.8 percent of newborns started breastfeeding within one hour of birth, while 63.7 percent of children breastfed exclusively until they were six months old (NFHS, 2022). Breastfeeding within an hour of birth could prevent 20% of newborn deaths. Babies who are exclusively breastfed for the first six months of age are 11 times less likely to die from diarrhea and 15 times less likely to die from pneumonia, which are two leading causes of death in children under-five years of age (NHM, 2016).

Organization	**Recommendations**	**References**
American Academy of Pediatrics	Babies should be breastfed for at least 12 months	(AAP, 2022)
Academy of Nutrition and Dietetics	Mother's milk + dietary supplements at 6 to 12 months of age	(Eat right, 2022)
World Health Organization	Babies should be breastfed for at least 24 months	(WHO, 2018)

Benefits of breastfeeding for mother and baby

Breastfeeding is not only important for babies, but it is important for mothers as well. Below are the benefits of breastfeeding for both:

Positive Effects of Breastfeeding on Infants **(**Brahm, and Valdes, 2017)***:***

- Reduction in otitis media, asthma, allergies, type 1 diabetes, obesity, type 2 diabetes and sudden infant death syndrome and infections related to respiratory and gastrointestinal system.
- Neuro development and immunity improvement.
- High resistance to infectious disease
- Reduction in the rate of chronic disease

Positive Effects of breastfeeding on nursing mothers **(**Brahm, and Valdes, 2017)***:***

Breastfeeding is positively associated with maternal sensitivity and the relationship between mother and infant. The effects of breastfeeding on nursing mothers include the following:

- Nursing mothers have less risk of some serious diseases like cancer (ovarian and breast), type 2 diabetes, resumption of menstruation,
- Breastfeeding helps build a safe and fulfilling relationship between mother and her baby
- Breastfeeding helps in quick postpartum weight loss

HUMAN MILK COMPOSITION

Human milk consists of 87% water, 1% protein (lowest of all mammals), 4% lipids and 7% carbohydrates (1 to 2.4% oligosaccharides). It also contains many minerals (calcium, phosphorus, magnesium, potassium, sodium, etc.) and vitamins. The composition of human milk is different from that of cow's milk (which is considered one of the most accepted milks of all in case human milk is unavailable to infants). Human milk contains less protein than cow's milk (3.5), particularly casein which is present in higher amounts in cow's milk and does not contain beta-lactoglobulin. However, some minor proteins (lysozyme, lactoferrin, etc.), non-protein nitrogen, urea, free amino acids (including taurine) are abundant in human milk.

Constituent	**Level of constituents in human milk as compared to cow's milk (approx.)**
Lysozyme	1000 times more
α- lactoalbumin	200 times more (improve iron absorption)
Lactoferrin	20 times more
Osteopontin	10 times more (role in infant immunity)
Oligosaccharides	10 to 25 times more (component of a non-digestible diet with a prebiotic effect)

Source: (Bowen and Lawrence, 2005)

There are about 100 different types of oligosaccharides in human milk. Oligosaccharides participate in the inhibition of bacteria, viruses and parasites. Sialic acid oligosaccharides found in brain gangliosides are abundant. Human milk contains the highest proportion of long-chain polyunsaturated fatty acids (such as omega-6: arachidonic acid and omega-3: eicosapentaenoic acid and docosahexaenoic acid), which are derived from essential fatty acids such as linoleic acid and alpha-linolenic acid. These fatty acids are essential for the development of the brain of babies. In addition, human milk is high in cholesterol (compared to cow's milk) which is a hormone precursor and also plays an important role in brain development. It also contains enzymes such as the bile salt stimulated lipase that contribute to better lipid

digestibility, and possibly better utilization of triglycerides (95% of total lipids), long chain PUFAs, cholesterol and fat-soluble vitamins.

Some components like vitamins D and K are very less in breast milk. However, the consequences of their deficiency can be avoided by supplementing (vitamin D) for infants and mothers during pregnancy. Similarly, over the years it has emerged that breast milk contains chemical contaminants. These pollutants accumulate in the mother's body throughout her life, especially the fat soluble contaminants that accumulate in the adipose tissue. In many women, the amount of these contaminants increases as the age of first pregnancy increases.

Human Milk Bank: The Global Formula for Success

It has been suggested that the best milk for infants is breast milk produced by the mother. However, breast milk is not recommended for infants in some situations, such as if the mother is infected with HIV (AIDS virus). In such a case, infant formula or donor human milk that has been tested and pasteurized are safer options. Human milk bank is a service that collects and distributes human milk donated by nursing mothers to the recipient infant (who is not biologically related to the nursing mother) after passing through various processes. Donor human milk (DHM) is the next feeding option to newborn babies, according to the World Health Organization and other health leaders. Human milk banks (HMBs) play an important role in lifesaving of babies by allowing babies to benefit from early human milk introduction and exclusive feeding. Lactating mothers' milk is collected, pasteurised, tested, and stored in banks before being given to babies in need. Even if babies are unable to breastfeed, they are given human milk as soon as possible. HMBs are also important for protecting and promoting breastfeeding.

Dr. Armida Fernandez established Asia's first human milk bank in 1989 at Lokmanya Tilak General Hospital in Mumbai, India. There are now 21 milk banks in the country, most of which are located in the western region (PATH, 2022). On July 31 (2018), Daily News & Analysis reported that in India and Asia, Rajasthan has the largest network of human milk banks, where Integrated Human Milk Banking has been extended in 18 out of 33 districts. Policies and systems have been formulated in Rajasthan to not only increase the support of mothers for providing milk, but also to pass the pasteurized milk to the babies who are deficient in their mothers' milk. If implemented, universally integrated approach that supports breastfeeding, as well as providing donor human milk to infants who are deprived of this pleasure, could result in neonatal health outcomes for about 5 million babies in India every year.

WORLD BREASTFEEDING WEEK

World Breastfeeding Week is observed every year from 1 to 7 August to encourage breastfeeding and improve the health of babies around the world. World Breastfeeding Week started in 1992, with annual themes including healthcare systems, women and work, the community support, ecology, economy, science, education and human rights. This is a result of declaration in August 1990 by government policy makers, WHO,

World Health Organization and the United Nations International Children's Emergency Fund (UNICEF) and other organizations to promote and support breastfeeding. Globally, more than 800,000 infant lives can be saved every year by promoting breastfeeding, the vast majority of whom are under 6 months of age. Breastfeeding reduces mothers' risk of breast cancer, ovarian cancer, type 2 diabetes and heart disease. It is estimated that 20000 maternal deaths due to breast cancer could be avoided every year by breastfeeding (WHO, 2019).

The theme of World Breastfeeding Week for the year 2021 was 'Protect Breastfeeding: A Shared Responsibility'. UNICEF is promoting the importance of family-friendly policies to ensure that babies receive excellent parental parenting in addition to breastfeeding in their early life. This is mainly because during early childhood, optimal nutrition provided by breastfeeding, along with nutrition and care, has the potential to develop the brain properly. This includes implementing paid maternity leave for a minimum of 18 weeks and providing paternity leave to encourage shared responsibility for caring for their children on an equitable basis. Family-friendly policies are especially important for working parents. Breastfeeding mothers need to take time off work to recover from birth and make a successful start. It is important for mothers to have a safe, private and clean place at their work place to protect their ability to continue breastfeeding and to express and store breastmilk. Apart from this, there should also be affordable childcare. Paid paternity leave for fathers allows for bonding with their children and promotes gender equality, including parenting and sharing of household responsibilities.

In addition to the impact of parents on children, family-friendly policies support women's participation in their workforce, improve their physical and mental health, and enhance family well-being. Such policies also advance business objectives and strengthen the economy. Such policies have been shown to result in increased employee retention, improved job satisfaction and reduced absenteeism. In short, family-friendly policies are positive for families, children and employers.

CONCLUSION

Breast milk is an accessible source of nutrients to babies. Breastfeeding is a source of many bioactive components and it is the right of every child for the full growth and development of the baby. Mothers must breastfeed their offspring, except in conditions of HIV (AIDS) and when the newborn has galactosemia (a disease that causes the baby to fail to metabolize galactose). Keeping in mind the importance of breast milk in the lives of infants, the government is supporting nursing mothers especially by formulating several family friendly policies.

REFERENCES

AAP, (2022). https://www.aap.org/breastfeeding

Bowen, W. H., and Lawrence, R. A. (2005). Comparison of the cariogenicity of cola, honey, cow milk, human milk, and sucrose. *Pediatrics*, *116*(4), 921-926.

Brahm, P., and Valdes, V. (2017). Benefits of breastfeeding and risks associated with not breastfeeding. *Rev Chil Pediatr*, *88*(1), 15-21.

Eat right, (2022). https://www.eatright.org/

NFHS, (2022). National Family Health Survey annual report of Ministry of Health and Family Welfare. 2021-2022.

NHM, (2016). Programme for promotion of breastfeeding operational guideline. Ministry of Health and Family Welfare. https://nhm.gov.in/MAA/Operational Guidelines.pdf

PATH. https://path.azureedge.net/media/documents/MNCHN mbfi plus india fs.pdf , accessed on 20.05.2022.

WHO, (2018). Preterm birth, https://www.who.int/news-room/fact-sheets/detail/preterm-birth , accessed on 20.05.2022.

WHO, (2019). **World Breastfeeding Week 2019.** https://www.who.int/news-room/events/detail/2019/08/01/default-calendar/world-breastfeeding-week-2019, accessed on 20.05.2022.