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BENEFITS OF EXCLUSIVE BREASTFEEDING IN THE FIRST SIX MONTHS OF THE INFANTS

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SUMMARY

The pregnant woman should be explained the advantages and benefits of breastfeeding for her and her child. She should be mentally and physically prepared to do it, and the family environment. In this paper the author describe the components and benefits of the exclusive breastfeeding, in the first 6 months of the infants. There are some recommendations made on breast milk, their properties and benefits were by societies through articles, documents, clinical practice guidelines or opinion articles, with respect to them, 25 were select. The studies on the BF carried out by the scientific societies and researchers allow having a solid scientific base. For infant feeding, it is undoubtedly the exclusive breast milk for its benefits and the maternal warmth when offering it. It must be early, universal and exclusive during the first six months.

Keywords: Breastfeeding; Mother-Child Relationship; Infant Health; Benefits.

BENEFICIOS DE LA LACTANCIA MATERNA EXCLUSIVA EN LOS PRIMEROS SEIS MESES DE LOS BEBÉS

RESUMEN

Hay que explicar a la embarazada las ventajas y beneficios de la lactancia materna para ella y su hijo. Debe estar preparada mental y físicamente para hacerlo, así como el entorno familiar. En este trabajo la autora describe los componentes y beneficios de la lactancia materna exclusiva, en los primeros 6 meses de los lactantes. Existen algunas recomendaciones realizadas sobre la leche materna, sus propiedades y beneficios fueron por las sociedades a través de artículos, documentos, guías de práctica clínica o artículos de opinión, con respecto a ellos, se seleccionaron 25. Los

estudios sobre la LM realizados por las sociedades científicas y los investigadores permiten tener una base científica sólida. Para la alimentación infantil, es indudable la leche materna exclusiva por sus beneficios y el calor materno al ofrecerla. Debe ser temprana, universal y exclusiva durante los primeros seis meses.

Palabras clave: Lactancia materna; Relación madre-hijo; Salud infantil; Beneficios.

INTRODUCTION

The "human milk" is the best food that can be given exclusively to the newborn, generating the most important physical-biological link between mother and baby after labour.[1]

We all know that the feeding of infants with breast milk has been around since time immemorial and this is how the human race evolved. However, after the Second World War, breastfeeding decreased markedly, especially due to the effects of the technological era that generated in the population the false assumption that milk formulas could replace the BF. In the early 1960s, in some of the developed countries, only 25-30% of mothers breastfed their infants. This caused great concern, especially in Paediatric Societies, and with multiple actions, the BF gradually recovered. In later years, there have been many advances regarding the protective aspects of BF that contribute to know more and more about its mechanisms in infant. Thus arose the impressive variety of benefits that BF provides to infants, especially extreme preterm infants when administered from the first day of life and if possible exclusively. The decrease in necrotizing enter colitis (ECN), late sepsis, retinopathy of prematurity (ROP), bronchopulmonary dysplasia (DBP) and re-hospitalizations in the first year of life are highlighted. In addition to these benefits, long-term benefits were added where BF produces clearly better results in neurodevelopment. In more recent times, new studies emerged in the composition of the BF, its administration as early as possible. Several investigations were able to observe what the protective factors of infections and other disorders were. An example is Lactoferrin, whose concentration is higher in colostrum than BF; also, it is higher in mothers of premature babies than in term mother. [2]

The breast milk (BM), itself is a biological fluid of complex nature, with wide variability depending on the time of lactation, such as colostrum, transitional or mature milk, among other considerations that make it different in terms of composition. Its nutritional and immunological qualities are unique and irreplaceable. Proteins (lactoalbumine, Lactoferrin), vitamins (C and group B), endogenous antioxidants (a-tocopherol, retinol), pool enzymes (catalase, glutathione peroxidase) and minerals (copper, manganese, zinc), antibodies and factors Growth, are essential in the development of infants. [3]

The benefits of breast milk for both mother and child are widely recognized. In breastfed children, there is a lower risk of otitis media, respiratory infections, diarrhoea and atopias. In mothers, it favours weight loss, reduces the risk of anaemia and in the long term reduces the risk of osteoporosis and cancers of the breast and ovary. Altogether, it has a great psychological impact –through the reinforcement of the mother-child bond, economic and social. Most research shows these claims and is limited to children under one year of age, so one might think that it is only necessary during early childhood. However, these beneficial effects remain over time and adapt to each moment. Consequently, the main scientific associations, such as the World Health Organization (WHO), Unicef, la Asociación Española de Pediatría (AEP) o American Academy of Paediatrics (AAP) among others, it's recommends breastfeeding should be started in the first hour of the baby's life[3] and be the only contribution during the first 6 months of life and then complete it with adequate and safe complementary feeding of other liquids and food, at least up to 12-24 months, being able to keep it as long as mother and child wish. [4]

The exclusive breastfeeding (BF) means that a baby receives only breast milk from his mother or a wet nurse, or expressed breast milk, and no other liquid or solids, with the exception of the oral rehydration solution, drops or syrups consisting of vitamins, minerals, supplements or medications.[4]

In a study carried out with 34,366 infants in the capitals of the Brazilian states and in the federal district, it was found that the

prevalence of BF increased in the last decades from an average duration of 23.4 days in 1999 to 54.1 days in 2008. However, when referring to the six-month prevalence of BF as recommended by the WHO, much improvement is still needed.[4]

Considering the benefits of breastfeeding and its importance as a strategy for reducing infant morbidity and mortality, as well as the high rates of abandonment of this practice in the population,[5] it was decide to carry out this literature review to describe the components and benefits of exclusive breastfeeding, in the first 6 months of the infants.

A systematic review of documents and articles of scientific societies dedicated to the benefits, components of exclusive breast milk in infants was perform as well as in scientific studies physics literature.

After the initial search, 60 study documents were located, although 37 that were not revealing for the purpose of this review were excluding. Finally, 23 articles and 1 book in physics on scientific study were selection. To proceed with the selection, the summaries and where necessary, the complete articles were reviewed in order to decide whether the information contained was relate to the objective to describe the components and benefits of exclusive breastfeeding, in the first 6 months of the infants.

Objectives general: to describe the benefits of the exclusive breastfeeding, in the first 6 months of the infants.

Specific objectives: to instruct the pregnant woman and the family about the benefits of the exclusive breastfeeding. To describe the components of the breastfeeding and its benefits for infant's health.

DEVELOPMENT

Physiology of breastfeeding

This food originates from specific cells, called alveoli. In this way, the milk flows through ducts, called galactophores, and ends in the breast; they would be specifically located behind the areola that pigmented area around the nipple. The development of the placenta sets in motion the release of some substances, such as progesterone and oestrogen. These substances serve as stimulation for the entire biological system of the mother, which makes breastfeeding possible.[5]

The alveoli take what is necessary from the mother´s blood to make milk. It is the case of sugar, fats and proteins. Once breast milk was produce, a network of tiny muscles pushes this natural product into the ducts. In addition, these tiny muscles are responsible for the secretion of breast milk.[6]

Composition of breast milk during lactation. Milk production begins around the 16th week of pregnancy, but only in small quantities, as it I was suppresses until the baby is born. After delivery, milk goes through three main phases: colostrum, transition milk, and mature milk. In addition, the components of breast milk adapt to what your baby needs over time. [7]

The colostrum

During pregnancy, the mammary gland begins to accumulate the pre colostrum, a substance rich in proteins, immunoglobulins and other defences for the body. In the first four days postpartum, colostrum is produce, a thick yellow fluid, composed of pre-colostrum that is mixes with the milk that begins to be produce.[7]

The transition milk

It is the milk that is produce between the fifth and tenth day after delivery approximately, it has a higher content of fat, lactose and water-soluble vitamins than colostrum and, therefore, supplies more calories to the new-born, adapting to the needs of this as the days go by.[7]

The mature milk

It begins to appear almost at the end of the second week after delivery. Mature milk is produce in as large a volume as transition milk, but it is thinner and thinner or even bluish; it is sometimes described as having an appearance similar to defatted milk when it is first produced, until the fat is released further during feeding and becomes creamier.[7]

Immunology of breastfeeding

Cellular elements: the number of leukocytes in human milk is considerable, being its concentration in colostrum (neutrophils, macrophages and lymphocytes) higher, macrophages in particular can synthesize lysozymes, complement components, Lactoferrin and prostaglandins. T lymphocytes make up 50% of colostrum lymphocytes, respond to various viral antigens and may be involved in the production of interferon; they

also play a role in modulating the development of the IgA system at the mucosa level.[7]

Inhibitor of the metabolism of pathogenic microorganisms: the Lactoferrin, the protein that binds vit B12, and those that bind folate prevent the growth of germs in vitro, probably denying infectious agents essential nutrients for their growth. Bactericidal, antiviral and cytokine modulating properties have been found; in addition, they inhibit the adherence of enterotoxigenic E. coli, the invasive capacity of Shigella flexneri and stimulate the proliferation of Bifidobacterium.[7]

Enzymes: lysozyme and a myeloperoxidase catabolize ion oxidation with bacteriostatic activity. Capable of "lysing" the unions between glycoproteins of the bacterial walls of a large part of gram positive and some gram negative bacteria.[7]

Immunoglobulins: the highest concentration is found in colostrum in matures milk, present but in IgA; exercising specific protection against germs of the gastrointestinal tract. [7]

Macronutrients

A) Proteins. The amount of protein is greater during the first weeks. Proteins fulfil different functions: they provide essential amino acids, immunological factors such as lysozymes and Lactoferrin; they are a vehicle for vitamins B12, folates and vitamins D; they provide hormones, enzymatic activities such as insulin, epidermal growth factor, etc. within them nucleotides play an important role in the formation of new tissues.[8]

B) Lipids. Constitute the largest energy fraction of milk and reaches up to 60% of total energy. 97-98% is composed of triglycerides, among which long chain polyunsaturated fatty acids represent up to 88%. Human milk is the only exogenous source of these fatty acids for the newborn during the first months of life, it contains a variable quantify of preformed arachidonic (AA) and docosahexaenoic (DHA) acids, of great importance for the term newborn and pre finished. The concentration of LDL-cholesterol in the plasma of breastfed children is higher than that of those who are fed only with formulas, which allows for less synthesis and less risk of suffering atherosclerosis in adult life. However, the addition of cholesterol

to the formulas does not diminish this endogenous synthesis.[8]

C) Carbohydrates. Lactose is one of the most stable constituents of human milk and represents almost 70% of the total carbohydrate content. It reaches a concentration of 68 g/L. the lactose in human milk (beta-lactose) seems to digest less quickly than that of artificial milk (alpha-lactose) and is more effective for mineral absorption. In large quantities, it can reach the colon and provide a substrate for the growth of bifid bacteria (prebiotic effect). Lactase activity can be observed from week 26 but it is not until the end that its maximum levels are reach. The other carbohydrates, present in lower concentrations are glucose, galactose, complex oligosaccharides and glycoproteins. The presence of lactose increases the absorption of calcium and phosphorus and decreases the pH, which reduces the possibility of growth of pathogenic bacteria.[8]

Micronutrients

The vitamins of human milk are affected by different factors, but the most important is the nutritional status of the mother with respect to each of them. The minerals that research the highest concentration in breastfeeding are calcium, phosphorus, and magnesium, and generally do not correspond to maternal serum levels. As lactation progresses, phosphorus concentrations decrease and calcium and magnesium concentrations increase. The researchers speculate that these changes are important for infant bone remodelling.[8]

Lactoferrin is highest in breast milk, thus protecting the infant against iron deficiency. Taurine is a neurotransmitter and neuromodulator of the brain and retina; it is not found in cow´s milk. Enzymes such as lipase and amylase help the digestion of lipids and complex carbohydrates, offsetting the enzyme immaturity of the infant.[9]

Carnitina is essential for the oxidation of fatty acids, which allows the newborn to use them as an alternative energy source to glucose. Human milk is anti-inflammatory and antioxidant.[9]

The inadequate practice of breastfeeding increases the infant morbidity and mortality, especially if complementary feeding is inadequate; it alters the neurological

development of the child and in the long term his intellectual, work and psychosocial performance.

Breastfeeding properly, prevents allergic diseases unlike milk substitutes, which increase them. In rural populations, lactation is recognized as a natural diet that strengthens the health of the child and avoids the risks of disease, the decrease in infant mortality is due to its components such as immunoglobulin A, to a lesser extent IgM, IgC1, IgD and IgE, lactobacillus bifidus and the epidermal growth factor, which contribute to the maturation of the digestive tract, as well as the presence of factors against protozoa, bacteria and fungi; the presence of this interferon that protects against viruses, strengthens the child´s immune system. Lower frequencies of diseases have been documented in the children of other who breastfed, in addition to the fact that it was administered without the intervention of procedures that denature it, giving it the character of live food, rich in humeral and cellular factors, thus being considered, and especially authentic colostrum vaccines. [10]

The BF represents advantages for mothers´ health such as an earlier return of maternal weight to that of before pregnancy, faster involvement of the uterus after delivery, with less blood loss and postpartum anaemia. An inverse relationship has been found between lactation and the risk of breast cancer, since the start of the ovarian cycle is delayed by increasing self-efficacy, since the hypothalamic-pituitary axis is inhibited, causing a decrease in the levels of oestrogen at the breast level and fat-soluble carcinogens, also reducing ovarian cancer. Most mothers recognize that: (… children look very healthy when they drink breast milk…), (they don´t get the flu…), (…they were very strong and encouraged...); (… it benefits them that they grow faster…). What they describe is consistent with what is known until the contribution to food security through breastfeeding in rural communities at the time about the effect that BF has on the protection of the child and on the benefits to the mother. Breastfed infants stop eating when they are satiated, so that in one feeding, they eat a lot and in another little according to their needs, a fact that does not

happen, when they receive milk substitutes, because they are urged to take more, for that is why children fed with milk substitutes gain more weight since they can receive more than they need, becoming overweight or obese, unlike those fed with milk from their mother, because the appetite regulating centre, located in the hypothalamus, matures and is better perfected in these, to adjust the nutritional volume, benefiting them for the rest of life.[10]

Farmer recognizes breastfeeding as a money-saving practice. The BF has economic and environmental benefits for the family because it does not have to be bought and in health institutions, it avoids the expense of resources for the attention of childhood pathologies. Contrary to this, artificial feeding generates negative effects on the environment with the production, storage, transport, evacuation of containers and other toxic waste or residues used for the elaboration of the product. For some mothers who are heads of household who live from underemployment, absenteeism from the first weeks after childbirth can generate an increase in expenses, however in the long term the comfort and benefits of BF stimulate it to continues with it., and the BF reduces the mother´s absenteeism because they should not take care of the sick child.[10]

The nutritional characteristics of human milk ensure harmonious growth, psychological well-being and a good stimulation of language in the early ages, if administered as the only nutrient and free demand, during the first six months of life. The advantages for the health of the mother and for the economy of the countries, especially the underdeveloped ones, are of inestimable value.[11]

The association and incidence of different infectious diseases or not in childhood and the use of LM, has been perfectly established by different researchers, and is attributed to epidemiological, microbiological and immunological factors, which are inseparable from the correct use of LM.[12]

These benefits are seen not only in the short term, but years after weaning, since a lower incidence of certain cancers (leukaemia), metabolic and autoimmune diseases (such as type 1 diabetes) has been observed. Another study has found greater intellectual development over time and exclusivity of BF,

an effect that lasts for years and can even lead to reaching a higher level of education and income in adulthood. Numerous works relate the duration of BF to a better emotional and psychosocial development of the child. Finally, multiple advantages have been described for the breastfeeding mother, such as a lower risk of type 2 diabetes, breast cancer, ovarian cancer, hypertension, and myocardial infarction, the longer the total lactation time.[13]

It is extremely important that health professionals make an urgent call to the family, the community or even better to society, from the promotion of health, from primary health care, to provide valuable information and the importance that in truth It is necessary for the mother to breastfeed her child exclusively during the six months, to prevent many illnesses and to enjoy optimal control of the child's growth and development. [14]

All this description about the components of breast milk and its advantages for both mother and child can be summarized in a list, so that health professionals or those who are interested in addressing this topic, demonstrate the importance itself on breast milk and its wonderful benefits that it provides not only to the mother to her infant, but also to society. [15]

Advantages and benefits for the infant

• It favours the release of growth hormone and an optimal brain, physiological and immunological development.

• Protects against a large number of diseases: diarrhoea, respiratory infections (colds, bronchiolitis, bronchitis, pneumonia, otitis, etc.). Breast milk covers the baby's intestine, protecting it from pathogens.

• Decreases or delays the appearance of immune-related problems: allergies (atopic dermatitis, asthma), leukaemia, and chronic intestinal diseases.

• Prevents illnesses in adulthood: diabetes, hypercholesterolemia, coronary heart disease, cancer.

• It is related to cognitive and emotional intelligence. Breastfeeding transmits emotional security to the baby and this affects their self-esteem and their empathy towards the needs of other people in the future.

• Decreases the risk of sudden death, overweight and obesity, celiac disease (gluten intolerance), the harmful effects of environmental pollutants, and child abuse. [16]

Benefits for the mother

Helps you regain physical appearance: facilitates weight loss. It allows the uterus to return to its normal size sooner: suction stimulates uterine contractions.

Mothers can feel secure in knowing that their babies are receiving the best nutrition possible. It also serves to protect women against diseases such as hypertension, anaemia or even reduces the risk of postpartum depression. Even studies have shown that women who have breastfed their babies have a lower risk of breast cancer, osteoporosis and ovarian cancer. [17]

Benefits for society

The milk produced by the mother does not need any elaboration process, neither packaging, nor transport. There is no associated energy expenditure and there is no manufacturing process that is polluting for the environment. Breastfeeding is, therefore, ecological. [18]

Benefits of breastfeeding for the family

Breastfeeding do not affect the family economy, because people spend less money in consultations with the paediatrician and on medications.

Breastfeeding is the heart of the family, because breastfeeding is an expression of love, protection and a way to take care of each other.

Breast milk is always ready and on time.

Women who exclusively breastfeed are protected in 99% of new pregnancies during the first six months after delivery, provided that they do so exclusively and that menstruation has not returned.[7]

CONCLUSIONS

Breastfeeding should be early, universal and exclusive during the first six months, which can be prolonged afterwards with complementary feeding.

The promotion of breast milk should be used as a strategy by health professionals with scientific command in different settings, to educate society and establish environments where they can share their beliefs, doubts and feelings about BF and to establish environments.

In addition, health professionals are one of the main sources of support for mothers, couples and families and it is mandatory to report the advantages, benefits and components of BF, both nutritional, optimal growth and development, and defence for infants from primary health care. With the objective to regulate he health-disease process and to increase mothers' breastfeeding practices in search of raising the quality of life of human beings.

For infant feeding, the breast milk is undoubtedly the exclusive one for its benefits and the maternal warmth when offering it. Until now and despite the efforts of the different food industries to replace it, it has not been achieved.

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