

Breastfeeding: A Dental Perspective!!!

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Abstract

Breastfeeding is one of the milestone activities during infancy and early childhood. For most of the mothers, breast feeding is a parenting choice that obviously has unique benefits for the mother, the child and also family.

The benefits of breastfeeding benefits the infant with ideal and proper nutrition helping the child acquire and ward off infectious diseases, enhance immune system, helps in the child's growth and development and possibly any risk of chronic allergies and diseases.

The mother's benefits far outweigh the child's benefits and some of them include increased physiologic post partum recovery, reduced risk of obesity, osteoporosis, breast and ovarian cancers.

Given all these scenarios, it is recommended that the infants should be exclusively breast-fed for six months and continued to breastfeed for the child's first year and/or as long as mutually desired by the mother and the child.

Keywords: Breastfeeding; Early childhood caries; Dentist; Risk factors; Cariogenicity

Introduction

The last few years has seen a significant increase of interest between breastfeeding and its relation to oral and general health [1,2]. The modern dentist has an additional responsibility in advocating and enhancing health promotion and prevention beyond the realms of oral cavity. Some examples where the modern dentist ventures beyond the traditional field of dentistry include the professions role in counseling regarding tobacco use, and more recently in joining the fight against childhood obesity [3,4].

There is substantial evidence that supports the unique health benefits associated with breastfeeding [5].

The American Academy of Pediatrics (AAP), Elk Grove Village, Ill., and the World Health Organization (WHO) [6], Geneva, state that exclusive breastfeeding, defined as giving infant only breast milk-no water, no formula and no other liquids or solid foods-is the norm against which all alternative feeding methods should be compared. The 2012 AAP policy statement on breastfeeding and the use of human milk documents about the reduced health risk for both infant and children, mothers and families included that are attributable to the use of human milk for breast feeding.

Importance of Breastfeeding and Breast milk

The unique properties of breast milk make it the best source of nutrients for infants [5]. The AAP policy on breastfeeding statement on breastfeeding specifies that breast milk is the only source of nutrition a healthy infant requires for about first six months of life [5].

The human breast milk is unique as it is suited to the infant's main source of nutrition contains immunoglobulin such as IgA, IgG and has specific anti-inflammatory properties. Breast milk contains some bio-active components that are resistant to digestive processes and these enhances infant's immune system as well as conferring unique health advantages to the feeding mothers.

Protective Mechanism of Human Breast Milk

For the Child

- Protection against infection such as acute otitis media-Acute otitis media (AOM), commonly referred to as middle ear infection, is a common infection experienced by children, and can be prevented by the bactericidal properties of breast milk [7,8].
- Protection against gastro enteritis and diarrhea-Human milk protect against diarrhea by coating the intestinal lining and killing pathogens [9].
- Protection against serious infections such as lower respiratory tract infection namely pneumonia, respiratory syncytial virus bronchitis and childhood asthma – The antibodies and bactericidal properties in breast milk help combat severe lower RTIs [7].
- Protection against necrotizing enterocolitis-In a study conducted by IP and colleagues, found an absolute risk difference of 5 percent between infants who were fed breast milk and those who were not in the development of necrotizing enterocolitis [10].
- Protection against leukemia - The immune factors in human milk may have a protective effect against leukemia-related viruses.
- Protection against sudden infant death syndrome (SIDS)-infections can lead to inflammatory responses in the respiratory and cardiac systems, but the anti-inflammatory agents in human milk help control infection and prevent illnesses that may be precursors to SIDS [11].
- Obesity - Breastfeeding may protect against the development of through behavioral and hormonal mechanisms [12].

For the Mother

The breast feeding mothers are at a lower level of risk of developing certain diseases and as in general longer duration of breastfeeding are directly associated with improved health outcomes. For a mother, it helps in various ways:-

- Reduces post partum bleeding and hemorrhage risk.
- Longer birth intervals, giving mothers' bodies more time to recover from pregnancy and childbirth.
- Also provides as a non-pharmacological method of family planning.
- Breast cancer - Women who breastfeed may be protected from breast cancer by reduced estrogen exposure through removal via breast fluid, delayed ovulation, an anti-inflammatory response or other mechanisms [13].
- Ovarian cancer-Suppressed ovulation or decreased gonadotropin levels, which occur through oral contraceptive use and breastfeeding, [14,15] are mechanisms by which the risk of developing ovarian cancer may be reduced.

Breast Feeding and Early childhood Caries (ECC)

Over the past 50 years, ECC has been discussed extensively in the scientific literature. Caries in infants and young children has long been recognized as a clinical syndrome, described by Belterami in 1930s as "*Les dents noire de tout-petits*" which means "black teeth of the very young." Fass is perhaps the first author in this regard for defining the term "Nursing bottle mouth." Subsequently, other terms such as "bottle mouth caries", "nursing caries", "nursing bottle syndrome, "rampant caries", "nursing bottle mouth", "milk bottle syndrome", "baby bottle tooth decay", "breast milk tooth decay" and "facio-lingual pattern of decay" have also been used in literature [1].

However, Gardner *et al.*, Kotlow and Brams *et al.* were the first authors to associate ECC with breastfeeding and recommending cessation of breastfeeding around the twelfth month of life as the infant becomes able to drink from a cup. ECC has been defined in various manners worldwide. However, there is currently no universally accepted definition for the term ECC. Some researchers defined ECC as the caries on primary maxillary incisors (the number of maxillary incisors ranges from 1 to 4 teeth according to this definition).

Carino *et al.*, defined ECC as the presence of any decayed, missing, and filled (dmf) teeth, regardless of being anterior or posterior. These definitions all focus on dental caries. A workshop, convened by the National Institutes of Health (NIH) proposed that the term

Early Childhood Caries (ECC) should be used to describe the presence of one or more decayed (non-cavitated or cavitated lesions), missing (due to caries), or filled tooth surfaces on any primary too thin children up to 71 months of age. This definition was adopted by the American Academy of Pediatric Dentistry and, subsequently, by several other researchers. Furthermore, the expression severe ECC (S-ECC) was adopted in lieu of rampant caries, in the presence of atleast one of the following criteria:

- Caries on a smooth surface in children younger than three years of age.
- Any smooth surface of an anteroposterior deciduous tooth which is decayed, missing (due to caries) or filled, in children between three and five years.
- Decayed, filled, and missing teeth index (dmft) equal to or greater than 4 at the age of 3, 5 at the age of 4 and 6 at the age of 5 years [16].

Primary risk factors Vs Associated risk factors of Ecc

Primary risk factors

- Substrate
- Susceptible tooth/host
- Cariogenic microorganisms
- Dental Plaque

Associated risk factors

- Bottle feeding
- Breastfeeding
- Oral hygiene
- Fluoride

Baby bottles predispose to ECC because their nipple blocks the access of saliva to the upper incisors; where as lower incisors are close to the main salivary glands and are protected from liquid contents by the bottle nipple and the tongue. The use of baby bottles during the night is associated with the reduction in salivary flow and in the capacity of neutralization by saliva, which would cause lodging of food in the teeth leading to prolonged exposure to fermentable carbohydrates. Additionally, it has been demonstrated that infants with ECC sleep less at night, wake up more frequently, and receive more bottle-feedings as a way to manage their sleep problems [17].

Cariogenicity of human milk

The disease of ECC is the presence of one or more decayed (non-cavitated or cavitated lesions), missing (due to caries), or filled tooth surfaces in any primary tooth in a child under the age of six. Any sign of smooth-surface caries is indicative of severe early childhood caries (S-ECC) in children younger than three years of age. From ages three through five, even one or more cavitated, missing (due to caries), or filled smooth surfaces in primary maxillary anterior teeth or a decayed, missing, or filled score of greater than or equal to four (age 3), greater than or equal to five (age 4), or greater than or equal to six (age 5) surfaces also constitutes S-ECC [18]. 'The risk of potentially devastating nursing- pattern dental decay exists for the breast-fed child as it does for the bottle-fed child'.

Classification of ECC

Type I (mild to moderate) ECC

Isolated carious lesion(s) involving molars and or incisors. Cariogenic food, poor oral hygiene contributes to it. This type of ECC is usually found in children who are 2 to 5 years old.

Type II (moderate to severe) ECC

Labiolingual carious lesions on maxillary incisors with or without molar caries depending on the age of the child and stage of the disease; and unaffected mandibular incisors. The etiology is usually related to inappropriate use of a feeding bottle, ad libitum breast

feeding or a combination of both, with or without poor oral hygiene. Poor oral hygiene adds up to the caries. This type of ECC could be found soon after the first teeth erupt and if not controlled, it can proceed to type III ECC.

Type III (severe) ECC

Carious lesions affecting almost all teeth including lower incisors. This condition is found between the ages of 3 to 5 years. The condition is rampant and generally involves tooth surface/s that are unaffected by caries e.g. mandibular incisors.

Consequences of early childhood caries

ECC is not self-limiting. If treatment for ECC is delayed, the difficulty in treatment and the cost effectiveness increases. The most common immediate consequence of untreated dental caries is dental pain affecting their eating, talking, playing and sleeping. Children having ECC are at greater risk of developing more caries in their primary and permanent dentition. Severe ECC can deteriorate the child's anterior esthetics at an early age. Subsequently, the child may suffer from difficulties involving speech articulation as these initial years are critical for speech development. Children with ECC can also experience delayed physical development, especially in height and weight. The pain caused by ECC may lead to a reduced appetite resulting in malnutrition. In fact, loss of teeth often leads to psychological trauma in children from dental procedures required to restore their teeth. Criticism by siblings, peers and family members may lead to poor self-esteem [16].

Conclusion

The healthy effects of breast feeding far outweigh the risks or some conditions such as ECC which can be really upsetting to all the aggrieved parties, the mother, child and the Pedodontist/pediatrician. But, ECC is a preventable disease atleast if involved from this angle, where the psychological, physical and economic consequences of ECC can be avoided, through the education of prospective and new parents on the importance good oral hygiene and dietary practices, using agents such as fluoride and non-cariogenic sweeteners. Fluoride varnish application at one-month intervals, especially when targeted at children with carious maxillary incisors. School-based fluoride mouth rinsing program should be encouraged. Minimal intervention restorative procedures, such as ART (a traumatic restorative treatment) are useful to decrease the trauma to both child and parent as it avoids the use of local anaesthesia or a dental handpiece. The placement of fluoride-releasing glass ionomer cements is effective in both preventive and therapeutic approaches. So, it is here a Pedodontist/pediatrician has to counsel the mother and thus instill positive oral health measures in both the mother as well as the child.

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