Early Childhood Caries as a New Public Health Problem

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Abstract

Tooth decayis an irreversible microbial infectious disease among most of the children. It is due to close interaction of bacteria S mutans and sticky high sucrose content food and enamel the outer surface of the tooth. Streptococcus. mutans transferred from mother to her baby during birth. S mutanss also inoculate and survive pre-dentate babies. Early childhood caries starts in the early phase of life, it spread rapidly in high-risk population those who remain untreated progresses rapidly in those who are at high risk, and often goes untreated. ECC outcomes hurt OHRQoL and their family economical status. The tooth decay pattern in toddlers is different from others. It can be recognized easily. There are various types of synonyms used for tooth decay in infants and children. Tooth decay cannot start without any sugary substances like sucrose lactose. Therefore, every dentist and each researcher person gave a prime focus on infant feeding or dietary patterns and feeding practice of children by giving them proper education. Not only the professional but every parent and caregiver has the key role to maintain the oral hygiene to control the disease. There are various types of treatment options for early childhood caries with different types of interventions. It depends on the degree of disease progression tooth decay, child age factor, and mainly with social factors.

Keywords: *Dental caries; Childhood infections; Dental problems; Management.*

Introduction

Tooth decay is an irreversible microbial infectious disease among most of the children. It is due to close interaction of bacteria S. mutans and sticky high sucrose content food and enamel the outer surface of the tooth. Streptococcus. mutans transferred from mother to her baby during birth. S mutans also inoculate and survive pre-dentate babies. S. mutans always break down the sucrose for energy production, make the oral environment more acidic. In the acidic environment, the ph of saliva falls below its critical ph. The low pH of saliva remains for a long period, which directly starts the demineralization of the tooth. Demineralization causes huge loss of mineral of tooth surface and dental caries progression starts.[1]In all countries developed and developing Early childhood caries became the main oral health problem trough the glove.[2]Early childhood caries starts in the early phase of life, it spread rapidly in high-risk population those who remain untreated. progresses rapidly in those who are at high risk, and often goes untreated.[3,4] ECC outcomes hurt OHRQoL and their family economical status.

The tooth decay pattern in toddlers is different from others. It can be recognized easily. There are various types of synonyms used for tooth decay in infants and children,[6]which definitions used to describe dental caries based on the condition etiology, with prime focus on rapidly uses of the nursing bottle. Most frequently used term for dental caries are rampant caries,baby bottle caries, early childhood tooth caries, nursing bottle caries, maxillary anterior tooth caries,[7,8] most of the terminology indicate the etiology of tooth decay among

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kindergarten children.[8] Nursing bottle tooth decay in children's teeth mainly linked with the frequency of bottle feeding of children.[9] some dentist called it baby bottle-fed dental caries because of its inappropriate bottle feeding habit.[7,10] In recent years the terminology "early childhood caries" is becoming very popular among every dentist and became a good research topic for every researcher.[8,10]

Early childhood caries terminology was proposed in the year nineteen ninety-four in a workshop conducted by the Centers for Disease Control and Prevention. Its main aim to focus on multiple causative factors that's has a great hand on developing tooth decay.[12] Early childhood caries defines itself as the presence of one or multiple tooth carious lesion, missing tooth, or restored tooth surfaces in deciduous dentition in children less than seventy-two months. Decreased in the percentage of tooth decay in infants and kids in western nations, tooth decay in kindergarten children is a serious problem in every developing and developed nation. Early Childhood caries is considered as a pandemic in developing nation. Tooth decay prevalence among children in a developing nation is around twelve percentage. data from various studies from different countries state that higher tooth decay prevalence is in Africa and Asian countries.[13] The etiology of ECC is multifactorial and has been well established. ECC is frequently associated with a poor diet and bad oral health habits.[14,15]

Microbiological risk factors: The main cariogenic Bacteria is Streptococcus. mutans and S. sobrinus in the presence of sucrose (main fermentable carbohydrate) the pathogenic bacteria s mutans helps in demineralization of an organic particle of tooth structure lead to a cavity. from different studies, it is found that in early childhood caries in children s mutans is the main pathogenic organism percentage of S. mutans in ECC is around thirty percent found from plaque flora. S mutans bacterial colonies always linked with the large carious lesion, white sport carious lesion mainly. Transfer of any pathogenic organism from mother to infant or from caretaker to kids is called Vertical transmission, the mother is the main storehouse from where a kid gets MS. it conforms from old studies where the same bacterial species found from mother and child. The latest technology chromosomal deoxyribonucleic acid pattern givesmore ideas about vertical transmission of bacteria.[16,17] Recent data shows that high sucrose contain liquid diet in a bottle at night is the main risk factor,for developing dental caries but it is not the only causative factor for tooth decay.

Feeding Practices: Unnecessary use or frequent use of baby bottles with a high sugary diet is the main causative risk factor for Early childhood caries. Long term use of bottle with high lactose at night cause tooth decay. Various studies proved that there is a very close link with early childhood caries and nursing bottle feeding and night sleeping with a nursing bottle. Mother breastfeeding provides high immunity to the child and there are very few chances of gastrointestinal infection and respiratory infection to children. Ling term contact and frequent contact of the tooth with sugary milk makes the tooth outer surface porous and suitable for developing dental caries. If the frequency of intake of sugary diet (with fermentable carbohydrate) increases the demineralization process became more than remineralization which causes dental caries. Long term and nocturnal mother breastfeed has a great link with early childhood caries after one year. Due to high and long term sugar intake at night, the saliva amount decreases at night due to the high content of sugar. So for that demineralization exceed from re-mineralizationand the protective nature of saliva reduces.[18]

Dietary Risk Factors. Combination of heavy infection and MS, kids with Early childhood caries have great experience of taking a highly sugary content diet. A sugary diet breaks down very first by S.mutans and converted to organic acids on the other hand in acidic medium demineralization of enamel and dentin occurs. They frequently use baby bottles to increase exposure to fermentable carbohydrates.[19] Good oral hygiene habits have a great impact on children's lifestyle and their economic status. Environmental factors of parents that affect the oral hygiene of children are poverty, social well being, ethnicity, etc.

Prevalence: Early childhood caries is the main oral health problem in every country and it badly affects the small children, little infants, throughout the globe. It has cleared from the epidemiology of dental caries that the prevalence of Early Childhood Caries differs in every population regardless of race, culture, and ethnicity. CDC reported that the caries prevalence of children aged between 2-5 years is around twenty-four point two percent in the USA in NHANES III between 1988 and 1994. It has also found that children living annually highly income families havea low percentage of dental caries as compared to a low-income family. [20,21]

Diagnosis: Early childhood caries identified by a very dull, chalky white sports that follow the path of

gingival margin it progresses very first. ECC in early-stage mostly found in deciduous maxillary incisors. dental caries mainly found in palatal or facial surfaces of the deciduous tooth in all cases. it can be identified clinically with the presence of yellowish or brownish cavity on the tooth surface. In the older age kids whose deciduous tooth has fully erupted to occlusal level, there is no considerable tooth damage found.[22]

ECC or nursing bottle caries has some important features:

1. Tooth decay on the proximal surface of a child less than three years.
2- Dental caries of the primary tooth, missing primary tooth (due to only for toothdecay), or restoration of a tooth in kids between three to five years children.
3. Dental caries index dmft is the same or higher than four years at the age.

ECC prevention:

- There are three types of approaches to the prevention of ECC.
- Community-level- education, water fluoridation
- Professional level- early detection, diet counseling, fluoride
- Home care level- proper tooth brushing technique, proper diet
- Proper training to mothers and caretakers can give excellent oral health education to take care of children's dentition.

Tooth decay cannot start without any sugary substances like sucrose lactose. Therefore, every dentist and each researcher person gave a prime focus on infant feeding or dietary patterns and feeding practice of children by giving them proper education. Not only the professional but every parent and caregiver has the key role to maintain the oral hygiene to control the disease. Proper oral health education has the power to improve oral hygiene and prevent oral health from various kinds of oral diseases. We have to make a habit of maintaining good oral hygiene to protect our oral health from different diseases.

Treatment Plans: There are various types of treatment options for early childhood caries with different types of interventions, it depends on the degree of disease progression tooth decay, child's age factor, and mainly with social factors. It is ideal to give intervention for early childhood caries and take clinical examination it is very essential to ask the date of birth of a child for better results those kids who are in a low level of risk to develop dental caries don't need any restorative treatment. Kids with a moderate chance to develop caries need restoration for cavitated dental caries and preventive acres like flourish varnish for white sport lesion and that need observation for any future progression. High-risk kids need early gic restoration for the prevention of the progression of dental caries.

Pre-fabricated crown places on the restored primary tooth for the protection of the tooth structure. The best treatment for dental caries in the deciduous tooth of small kids is Atraumatic Restorative Treatment. In the process of ART, the carious portion is removed by spoon excavators hand instruments only filled the cavity with Glass ionomer cement. GIC is the best item for the deciduous tooth in the ART process. Atraumatic restorative treatment is a very easy process and it has lots of advantages and reduces the fear of any kind of dental treatment. No need for anesthesia or electronic device needed.[25- 28]

Funding: None

Ethical Permission: Approved

Conflicts of Interests: None

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