



EVALUATION OF THE INFLUENCE OF THE DIET ON THE ONSET OF CARIES IN CHILDREN AGED 2 TO 5 YEARS IN A CITY IN SOUTHWESTERN BAHIA

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ARTICLE INFO

Article History:

Received 17th July, 2018
Received in revised form
24th August, 2018
Accepted 21st September, 2018
Published online 30th October, 2018

Key Words:

Diet Cariogenic.
Preschoolers. Carbohydrates.
Oral Health.

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ABSTRACT

Introduction: Dental caries known to be a multifactorial disease is presented as the most prevalent alteration of oral health in the world and is the main cause of extractions of deciduous and permanent teeth. **Goal:** The objective of the study was to characterize the condition of improvement of mouth, evaluating the Index Ceo-D and its relationship with the presence of carbohydrates in the diet in children aged between 2 and 5. **Methodology:** This is cross-sectional, observational, analytical and quantitative research, comprised of 108 children. Data collection was carried out in a daycare center of the Municipal Public Education Network. Clinical examinations were performed intraorally and questionnaires to investigate the dietary habits of the research subjects. **Results:** It was reported that 57.40% of the sample had some decayed tooth, totaling 242 teeth, equivalent to index Ceo-d of 2.24 teeth decayed per child. **Conclusion:** A carbohydrate-rich diet alone is not capable of provoking the onset of caries, this fact will occur when the host diet, carbohydrate exposure time and deficient hygiene are associated. The ideal is that parents and caregivers are instructed to perform a correct hygiene of the oral cavity of children, to prevent the onset of oral diseases.

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Citation: Luciana Evangelista Brito, Cosme Evangelista de Brito, Larissa Alves Guimarães et al. 2018. "Evaluation of the influence of the diet on the onset of caries in children aged 2 to 5 years in a city in southwestern Bahia", *International Journal of Development Research*, 8, (10), 23604-23607.

INTRODUCTION

Dental caries known to be a multifactorial disease is presented as the most prevalent oral health alteration worldwide. Being the main cause of extractions of deciduous and permanent (WHO, 2017). Studies show that around 9% of children worldwide have untreated caries lesions, it is also one of the major public health problems, since it is the most observed chronic non-transmissible disease in childhood (Ha and Do, 2018; Mohd Masood, Mnatzaganian and Baker, 2018; Technical, Note, and Facts, 2017). Caries affects billions of people and generates significant costs with their treatment, and

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according to WHO (World Health Organization) this treatment can often not be available in Subdeveloped countries. Later (World Health Organisation, 2017). Several authors state that the consumption of fermentable sugar, associated with poor oral hygiene and the nocturnal decrease of salivary flow are the main contributors to high prevalence and the well-established link between sugar consumed and dental caries is one of the main reasons for the WHO to recommend that free sugars be restricted to <10% of daily energy consumption (Schwendicke, Thomson, Broadbent, & Stolpe, 2016; Seow, 2018; World Health Organisation, 2017). Feeding develops an important role in the etiology of caries disease, since it also provides the main substrate for its development, influence in the production of acids, in the quantity and type of bacterial biofilm, in the composition of the oral microbiota and in the quality and

quantity of secreted saliva (Biral, Taddei, Passoni and Palma, 2013). According to WHO (2017), the change in socioeconomic profile leads to a change in dietary habits, causing nutritional transition, which is characterized by an increase in the consumption of energy from simple carbohydrates and poor lipid quality. In particular, this transition is associated with increased access to sugary beverages and other food sources of free sugars. The increase in the availability of sugars and the absence of adequate preventive measures of oral health are associated with a significant increase in caries disease (World Health Organisation, 2017). The dental scientific community has given great attention to the simple carbohydrate, with regard to its role as substrate for the formation of caries. Sucrose has been universally cited as the most cariogenic among the fermentable carbohydrates, it is also presented as the most present carbohydrate in the family diet in almost all the world, represented by white sugar (Biral *et al.*, 2013). A large amount of evidence of different types of investigations, including studies with humans, animal experiments and experimental studies, revealed that the consumption of simple carbohydrates, such as white sugar, is the main cause of caries. A better understanding of the epidemiology of Caries and its etiological factors are fundamental for understanding possible opportunities and new public health approaches to mitigate the prevalence of dental caries worldwide (M. Masood, Masood and Newton, 2012). The objective of the study was to characterize the oral health condition, evaluating the Index CPO-d Children with Age range between 2 and 5 years, Participants in an epidemiological study in the city of Vitória da Conquista in southwestern Bahia, observing the food profile, seeking to relate intra-buccal clinical findings with the presence of carbohydrates in the diet.

MATERIALS AND METHODS

Data collection was carried out in a daycare center of the Public Education network of the municipality of Vitória da Conquista, located in southwest Bahia, and the sample consisted of Preschoolers Aged between 2 and 5 years, regularly enrolled in the institution. A questionnaire was used Pre-structured, online, food frequency containing 94 questions and based on the TACO table, which was answered by the parents or guardians to investigate the per-Dietetic Diet of these children. After the questionnaire was answered, a clinical examination was performed Intra, for the identification of caries lesions. The above examination was performed by 4 examiners, students of the dentistry course at Fain or (Independent faculty of the northeast), who were previously calibrated, as well as the annotators. To perform the examination Intra Oral, the children were placed in a horizontal position on a wooden bench, facing a focus of natural light, and by direct visualization of the oral cavity with the help of wooden spatulas and gloves. Children who did not have a fully answered food questionnaire were excluded from the study, since the information obtained would be insufficient for comparing the data, thus 108 children were evaluated. A comparison of the oral health status of each individual in the sample was performed with the food frequency investigated with the help of the questionnaire, with the objective was to identify the presence of carbohydrate consumption by individuals with a higher index of decayed teeth. The data obtained were tabulated and evaluated in the SPSS® statistical software, Version 25.0, Analyzed with the test Thurs-Pearson's square, using the level of significance 0.05 and 95% reliability.

The present study was approved by the Ethics in Research Committee of the Independent Faculty of the Northeast with the opinion Entered under the number 1,859,545. Those responsible for the children who agreed to participate signed the informed consent form.

RESULTS

Participated in the study 108 children, 46 female and 62 male gender, with ages ranging from 2 to 5 years. There was no presence of obturated components, the it was reported that 57.40% of the sample had some decayed tooth, totaling 242 teeth, equivalent to the DMFT index of 2.24 teeth decayed per child. With The aid of the statistical software SPSS® version 25.0, the data obtained were tabulated and analyzed with the test Thurs-Pearson's Square. Of Total of 108 children examined, 26 had excessive carbohydrate intake, and 86.95% had carious lesions. However, 16 children had poor carbohydrate intake and 62.5% similarly had carious lesions, demonstrating that only excess carbohydrate intake is not capable of developing this type of lesion ($p = 0.099$).

DISCUSSION

The main etiological factor of caries is the accumulation of dental biofilm, being a disease of slow progression in most individuals, and factors such as diet, behavior, socioeconomic status and access to health services, determine its higher prevalence (Venâncio, Dária and Souza, 2017). Lima Junior *et al.* (2015), it is Resulting from imbalance in demineralization processes and Remineralization, caused by organic acids derived from the carbohydrate fermentation of the diet performed by the bacteria, and the Absence of treatment completely destroys the dental structure (Lima Junior, José Lafayette de Andrade; Gonçalves, Leticia de Vasconcelos; Correia, 2015). As we analyze our results and associate them with the habits Food Of the current population, which over the last decades has been Modified with the insertion Increasing product Ultra-processed, Result of the nutritional transition, a worsening in the dietary pattern of children under 5 years old was observed, characterized by the early introduction of foods with high sugar content (Baxter, Hastings, Law, & Glass, 2014). We believe that the data did not present a positive association due to the fact of that even children who consume carbohydrates within the levels considered normal, consume mainly industrialized foods, pasty consistency and easy chewing, removing from the diet foods known as "detergents", which have a tougher consistency, and in addition to stimulating chewing that is extremely important for facial development, increase salivary flow and are able to Remove biofilm at the beginning of its formation (Rodrigues, Batista, Moreira, Catarina and Corso, 2013). Associated with this change in the food profile, the social Absence Oral hygiene or even poor-quality hygiene associated with the host's time and diet, appears as a determinant factor for the manifestation of carious lesions, as it was possible to visualize In the study. The control of dental biofilm and the modification of eating habits, such as For example, The Night bottle and consumption of sugary beverages, are of paramount importance for the prevention of caries during childhood. The establishment of healthy habits at this time of life will allow better maintenance of the oral health of these individuals during adult life (Ha & Do, 2018). According to the Ministry of Health (Brazil 2012) Children in Brazil have the 5 years on average, an index CPO-d of 2.43 decayed teeth, and in the north and northeast regions

of the country, this index tends to increase. In this study was possible able to observe a Index ceo-d Bottom In the region where it was carried out, when compared to the national average (Ministério da Saúde, 2012). Were Found higher values of ceo-d in A smaller number of Children The level of schooling of parents or guardians is believed to be, Socioeconomic conditions and quality of life, may be related to the à This finding. Amiresmaili and collaborators (2018) and Seow (2011) observed that caries experience in preschoolers is inversely proportional to the level of hooseof caregivers. However, Factors Were not objects of the Present Study (Amiresmaili *et al.*, 2018 and Seow, 2018). Several authors have shown that the presence of caries can lead to serious consequences on the quality of life of preschool-aged children Altering the State Nutritional, weight loss, insomnia, behavioral alterations, pain, decreased school performance, and difficulties in relating to other children. Obtaining information about oral health conditions and the impacts it can cause in children's lives, it is possible to contribute to reduce the physical and social consequences of mouth diseases, improving the quality of life in this range Reflecting on the health of this population in the future (Ramos-Jorge, Pordeus, Ramos-Jorge, Marques and Paiva, 2014; Scarpelli *et al.*, 2011). The deciduous dentition Exerts PA Important PEL In the first years of life, being necessary for a corrective. The proper chewing, phonetic, and Manutetion of space. Early loss of deciduous teeth favors the onset of malocclusion, caused by closure of the space in the dental arches, preventing a correct eruption of permanent teeth (García, Carvalho, Medina and Crespo, 2011). Caries treatment and its aggravating factors generate High costs for The public power, therefore, it is recommended that investments in primary care be made so that there is a greater prevention of this Problem, informing and motivating parents and e Future parents to worry about their children's oral health (Fleming, 2015). In addition, the WHO recommends the maintenance of fluoride present in drinking water supply, because it is an important factor for the decay of the prevalence of dental caries. Dental Fluorosis was associated with LTOs present fluoride levels Es in cOncentrations of up to 10 mg l – 1, For Other side, low levels of fluoride, Less than 0.1 mg L – 1, were associated with high levels of Cavity (World Health Organisation, 2017).

Conclusion

A diet characterized by excessive consumption of CARboidrats alone is not able to provoke the onset of caries disease ($P = 0,099$), this fact will occur when the host diet, time of exposure to carbohydrate and deficient hygiene are associated. Despite the index Ceo-d in the studied population to be within the low severity level (from 1.6 to 2.6) Proposed by the World Health Organization, it is still necessary to install public policies aimed at Further decreasing this index, since, albeit low, affects the quality of life of children and their families. Ideally, parents and caregivers are instructed to perform a correct hygiene. The oral cavity of children, to prevent the onset of oral diseases.

List of Abbreviations

Cariou, Indicated Extraction or Sealed (deciduous) – ceo-d
 Cariou, Lost or Sealed (permanent)- CPO-d
 Table Brazilian of Composition of Foods - TACO
 World Health Organization - WHO

Conflict of interests: The authors claim no conflicts of interest.

Funding source: Support to the Public Health Foundation of Vitória da Conquista, Bahia, Brazil.

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