
ORIGINAL ARTICLE

A Comparative Study of Caries Formation in Breast-fed and Bottle-fed Children

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Abstract

One hundred under five children have been examined in the Child's Polyclinic at General Hospital Medan December 1977.

Fifty four children suffered from dental caries of which 48 had caries similar to bottle caries.

Among those 48 children 33 was fed with breast milk continued by bottle milk and got bottle milk only.

In children who got breast feeding only for more than one year we did not find caries.

Parents' attitude in the performing and supervising of oral hygiene was poor.

Introduction

Dental caries is the principle oral problem in children. The prevalence of dental caries among Indonesian preschool age children is still high, 60% - 70% (Rizali Noor, 1978). Dental caries or decay of the teeth is a progressive, destructive lesion of the calcified dental tissues. Untreated, it eventually results in total distinction of involved teeth.

Dental caries is a bacterial disease but many factors influence susceptibility to action of the causative organism which are principally streptococcus mutans. They produce extracellular polysaccharides that form a gelatinous plaque over the tooth to which the organism adhere. Fermentable carbohydrates, chiefly sucrose, are the main substrate for the production of metabolic acids by the adherent bacteria.

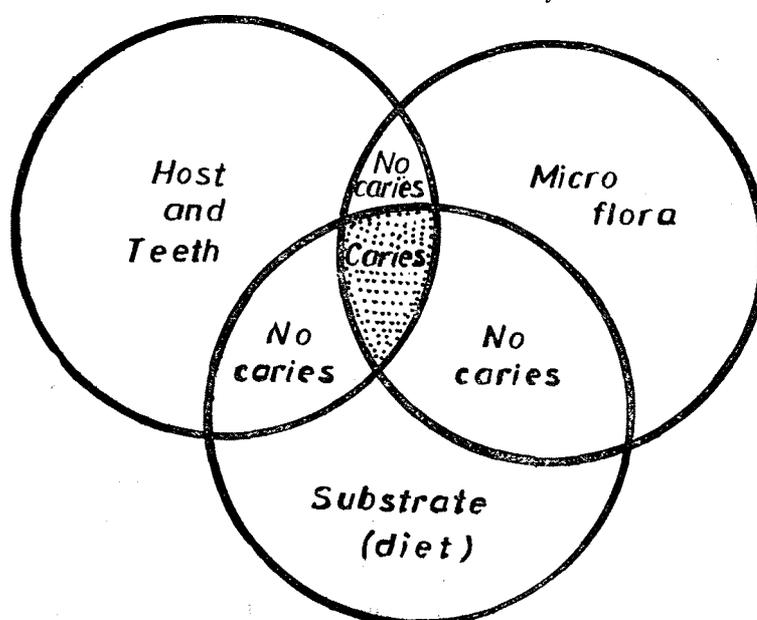


FIG. 1: Factors involved in causation of dental caries. All factors must be operative before caries will develop.

The acids first decalcify the enamel and then cause lysis of the protein of the organic matrix and destruction of the teeth. An important factor contributing to caries is the ingestion between meals of foods or fluids containing sucrose, particularly in forms which cling, such as taffy, or promote prolonged

contact, such as lollipops and lozenges, with the teeth. Such ingestion provides the substrate for production of tooth destroying acid by the bacteria adherent to the teeth. Sugar ingested at meal time are less injurious since the buffering capacity of other foods and saliva tends to neutralize the acid.

The practice of putting small children to sleep a bottle of milk results in pooling of milk in the oral cavity. The acid produced by bacterial action on the milk substrate may also result in early, rampant caries.

Most people believe that caries of primary teeth is not necessary to be taken care of like permanent teeth. The reason is primary dentition will be substituted by permanent teeth. This opinion is very wrong and must be corrected.

Every body has to know that the substitution of primary teeth by permanent teeth occurs at a certain age. When the primary teeth is damage already before the eruption of permanent dentition it will affect the growth and development of the child due to abnormalities in growth and development of the jaw and teeth.

This study was done to know the incidence of caries in children who got breast milk compare to the bottle fed children.

Material and method

1. From December 1977 up to January 1978, 100 under fives visiting the Child's Polyclinic were investigated for caries.

2. Reflection mirror was used for the oral cavity and probe was used for examining the depth of the caries and for checking the interproximal area. Fuchsin solution 4% which acted as disclosing solution was used for knowing the oral hygiene. The solution was rubbed on surface of the teeth and when there was debris we can see it by the of the matter.

3. The caries is followed according colour of the matter.

d	ba	ab	d
dc			cd

a = central incisor; b = lateral incisor;
c = cupid; d = first molar.

According to Donald (1974) children who still have bottle feeding while they already must have solid foods, have a great possibility of getting specific caries in the interproximal area.

Results

From hundred under fives, caries were found in 54 children and from caries resembling bottle caries.

TABLE 1: Caries distribution and method of suckle

Methods of suckle	Caries		Total
	—	+	
Breast	26	6	32
Breast + Bottle	18	35	53
Bottle	2	13	15
	46	54	100

TABLE 2: Age distribution and method of suckle of children who were suffering from bottle caries

Age (in months)	Method of suckle			Total
	Breast	Breast + Bottle	Bottle	
6 — 12	—	1	1	2
12 — 18	—	3	2	5
18 — 24	—	5	1	6
24 — 30	—	5	2	7
30 — 36	—	4	2	6
36 — 42	—	1	—	1
42 — 48	—	5	1	6
48 — 54	—	7	2	9
54 — 60	—	4	2	6
	—	35	13	48

Tale 2 showed that 35 children who got breast feeding which was continued by bottle feeding had bottle caries and like wise in the group of bottle feeding only (13 children) but none in the group with breast feeding.

Discussion

In the breast fed children caries was also found but anyhow it is not of the same type as that of bottle caries (Table 1). From the parents we know that most of the children slept with the milk bottle in his mouth. At the end it becomes a habit for the child and on such occasion milk will be pooled around

his upper incisors and also at the upper and lower teeth. Caries formation will be enhanced when sugar is added to the milk. Further more the saliva is very slow running during sleeping and so with its self cleaning process.

Conclusion

1. It is suggested to continue breast feeding till after the age of one year.
2. Bottle feeding play an important role in caries formation.
3. Dental hygiene must be started early, from the age of 9 months.

REFERENCES

1. BIE KIEN NIO : Remineralisasi dari proses karies, Kongres PDGI ke XIII, Medan 1978.
2. BOERING, G : Diseases of the oral cavity and salivary glands, 1st ed, University of Groningen, Netherlands, Bristol John Wright & Sons, 1971.
3. BRINER, W.W., GRA, J.A., RANCIS, M.D. : Significance of Enamel Remineralization. Dental Research J. 53 : 239-242 1976.
4. FINN, S.B. : Clinical Pedodontics, 2nd ed, University of Alabama, School of Dentistry, (Saunders, Philadelphia 1962).
5. KUMPULAN KULIAH ILMU KESEHATAN ANAK Fakultas Kedokteran Universitas Indonesia, Cetakan ke II, Bagian I, 1974.
6. NELSON, W.E., Textbook of Pediatrics. 9th (Asian) ed p. 756-758, (Saunders Igaku Shoin Ltd. Tokyo, 1969).
7. Mc. DONALD R : Dentistry for the Child and Adolescent 2nd ed. Indiana University, School of Dentistry (Mosby St. Louis, 1974).
8. RIZALI NOOR, G. : Menggalakkan dental mindedness di masyarakat ditinjau dari segi kesehatan, Direktur Utama Badan Penyelenggara Dana Pemeliharaan Kesehatan Pusat, Kongres PDGI ke XIII, Medan 1978.