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EARLY CHILDHOOD CARIES AND GENERAL HEALTH OF CHILDREN

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Short Profile

Anil Gupta is a Reader at Department of Biochemistry in Eklavya Dental College & Hospital, Kotputli, Rajasthan.

ABSTRACT:

Dental & General health are consistently connected with each other. To assess it, cross- sectional and descriptive study was conducted in & around Fazilka city in Punjab. It comprised of total 440 children under age of five years, selected from schools, anganwadi and slum areas through random multi stage sampling method. Prevalence of 11.6% of early childhood caries was detected in children. Further, study showed that early childhood caries were significantly, (p<0.001) associated with pallor, diarrhea and habit of geophagy in children.

KEYWORDS

Pallor, Geophagy, Early childhood caries.

1.INTRODUCTION

Early childhood caries is a chronic and microbial disease of milk teeth of children. It is responsible for the damage and consequent loss of teeth. It's a noteworthy child oral health hazard. Earlier, oral health was not considered much relevant for the well being of body. Today, extensive research has revealed that good oral health is the essential component of general health (Dunning, 1986).

Children with decayed teeth are more prone to irritative & anxious behavior. Their appetite, growth and cognitive functions are deprived (Chakraborty et al., 1997).

Inter-relationship between oral & systemic disease is well established. Diabetes mellitus and cardio-vascular diseases have their oral manifestations (Grossi & Genco, 1998).

RATIONALE

Early childhood caries is a dental disease of primary teeth. It is of bacterial origin. Data of its association with systemic disease is scanty. Thus present study was conducted to obtain reference values at regional level.

AIM & OBJECTIVES

Aim

The study was focused to explore the prevalence of early childhood caries and its association with systemic diseases in children under the age of five years.

Objectives

1. To assess overall prevalence of early childhood caries in children.
2. To assess its association with systemic disease in children.

MATERIALS & METHODS

Research Design

Descriptive and Cross sectional study design.

Sample Source and Sampling Units

Children below the age of five years, residing in and around Fazilka, Punjab, according to the inclusion and exclusion criteria, constituted the sample source and sampling units.

Sample Selection Criteria

Inclusion Criteria

1. Children between 2 years to below the age of 5 years.
2. All the children who were physically fit so as to co-operate in the study.

Exclusion Criteria

1. Children who were critically ill.
2. The children who were crying and agitated, did not participate.

Dental examination

Dental examination was carried out by using mouth mirror and probe in day light. Children were sitted on ordinary chair. Caries were recorded by deft index (Greubbell, 1944).

Early childhood caries definition

ECC was definied by using AAPD criteria (AAPD, 2008).
Presence of one or more decayed, missing (due to caries) of filled tooth surfaces in any primary tooth in 71 months old child or younger.

Anatomical sites were inspected to elucidate Pallor:

Conjunctiva
Crease of palm
Nail beds

Diarrhea is defined as passage of three or more loose stools per day or more frequently than is normal for an individual. It is an infection of GIT caused by bacteria, virus or parasites (WHO, 2009)

Statistical Design

Descriptive study

Early childhood caries was taken as dependent variable and pallor, diarrhea and habit of geophagy were established as independent variables.

Variables were expressed as prevalence, as shown in following formula:

(Prevalence of a variable) = number of participants affected / total number of participants × 100
Inferential analysis

Inference was deduced by Chi square test for independence.
(p) value of O . 0a5s taken as statistically significant.

RESULT

1. Prevalence of early childhood caries (ECC) in children in different strata

Study revealed a prevalence of 11.6% of early childhood caries in children. Segmental prevalence of 7.5%, 15.8% & 17.8% of ECC was observed in schools, anganwadi and slum areas respectively, as in table 1, graph 1.

Table 1. Prevalence of early childhood caries in children in different strata

Characteristics	School children	Anganwadi children	Slum area children	Over all prevalence of ECC
Early childhood caries (N)	18/240	20/127	13/73	(51/440) 11.6%
Early childhood caries (%)	7.5%	15.8%	17.8%	

GRAPH 1. PREVALENCE OF EARLY CHILDHOOD CARIES (ECC)
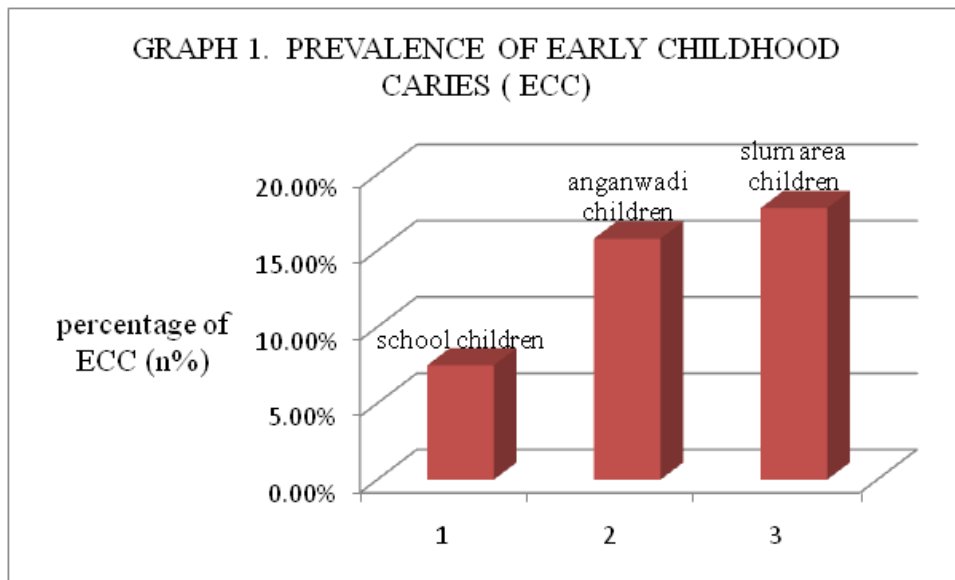
2. Prevalence of early childhood caries in children suffering from pallor

Children, who suffered from pallor had 22% prevalence of ECC, whereas, normal children showed 7% prevalence of early childhood caries, as in table 2.

Further, inferential analysis showed, (x^2) value of 18.44 at significance level, (p<0.0001), as in table 3.

Table 2. . Prevalence of early childhood caries in children suffering from pallor

Characteristics	Pallor in children	Normal
ECC (n)	26/115	25/315
ECC (%)	22%	7%

ECC---- early childhood caries

Table 3. Chi square test of independence for prevalence of early childhood caries in children suffering from pallor

Characteristics	ECC	No ECC	Chi square value (x^2)	P value
Pallor	26	89	18.44	(<0.001) highly significant
Normal	25	300		

ECC---- early childhood caries

3. Prevalence of early childhood caries in children suffering from diarrhoea

Prevalence of 20% early childhood caries was seen in children, who suffered from diarrhea, in comparison to 11% prevalence in children, who were healthy as in table 4. Inferential analysis furnished, (x^2) value of (2.1)1 at (p = 0.14) as in table 5.

Table 4. Prevalence of early childhood caries in children suffering from diarrhoea

Characteristics	Diarrhoea in children	Normal
ECC (n)	5/24	46/416
ECC (%)	20%	11%

ECC---- early childhood caries

Table 5. Chi square test of independence for prevalence of early childhood caries in children suffering from diarrhoea

Characteristics	ECC	No ECC	Chi square value (x^2)	P value
Diarrhoea	5	19	2.11	(0.14) not significant
Normal	46	370		

ECC---- early childhood caries

4. Prevalence of early childhood caries in children with habit of geophagy

Descriptive analysis provided prevalence of 27% of early childhood caries in children who had habit of geophagy, whereas, the healthy children had 10% prevalence of ECC as in table 6.

Inferential analysis revealed high association, (x^2), value (6.06) at significance level (p=0.014) between early childhood caries and habit of geophagy as in table 7.

Table 6. Prevalence of early childhood caries in children with habit of geophagy

Characteristics	Geophagy children	Normal children
ECC caries (n)	11/41	40/399
ECC (%)	27%	10%

ECC---- early childhood caries

Table 7. Chi square test of independence for prevalence of early childhood caries in children with habit of geophagy

Characteristics	ECC	No ECC	Chi square value (x^2)	P value
Geophagy	11	30	6.06	(0.014) significant
Normal	51	348		

ECC---- early childhood caries

DISCUSSION

1. This study concluded higher prevalence, 22% of early childhood caries in those children who were anemic in comparison to healthy children. ECC was associated with anemia (pallor) significantly, (p<0.0001).

In another study by Clarke et al., 2006, it had been proved that low serum ferritin in (80%), iron depletion in (24%) and iron deficiency anemia (11%) in children existed with severe early childhood caries.

Both these studies put forward a probability that early childhood caries might be a risk factor for nutritional anemia and other associated health problems. It further needs a longitudinal and cohort

study to verify the cause and effect relationship.

2. In this study, early childhood caries were significantly, (p=0.014) associated with habit of geophagy in children.

In another study by Adani et al., 2014, it was found that geophagy habit was associated with teeth attrition, dental caries.

Early childhood caries result in pain, infection, decreased food intake. So it ends into malnutrition, nutritional anemia and habit of eating soil.

CONCLUSION

Early childhood caries, definitely, predispose to pallor, under nutrition, and habit of soil eating. This is a myriad of problems, which inter-digitate & inter-link among themselves. Longitudinal & cohort study can explore & establish the cause and effect relationship between early childhood caries on one side and pallor, diarrhea, geophagy and malnutrition on other side.

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