



Prevalence of caries among school going children

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Abstract

Introduction: Dental caries is a common dental disease, which occurs during childhood and continues to be a major public health problem. The prevalence of dental caries was associated with oral hygiene practice, sugar consumption and implementation of the preventive oral health program.

Aim: The purpose of this study was to assess the prevalence of dental caries in school children aged between 6-14 years using the International Caries Detection and Assessment System (ICDAS II).

Materials and Methods: The study population consisted of 100 school children and studying in government recognized schools. Each student was examined by a single examiner using ICDAS system under natural light during normal school hours.

Results: The prevalence of dental caries was 68.6% in the total surveyed population. The gender-wise prevalence of dental caries shows, females to have slightly higher prevalence than male. The prevalence of dental caries at the age group of 6 years was 58%, seven year 68%, eight year 62%, nine year 75%, 10 year 77%, 11 year 73%, 12 year 67%, 13 year 70%, and 14 year 68%. The distribution of CARS (Caries associated with Sealants and Restorations) in the surveyed population was only 1.4%

Conclusion: In the population surveyed, surfaces with early caries lesions are more prevalent. Careful observation and a preventive programme could lower the likelihood of dental cavities and lessen the need for invasive and uncomfortable treatment treatments in later life.

Keywords: Caries epidemiology, Early diagnosis, Non-cavitated lesion, Preventive care, Visual inspection

Introduction

Dental caries is a biofilm-mediated, sugar-driven, multifactorial, dynamic disease that results in the phasic demineralization and remineralization of dental hard tissues. Caries can occur throughout life, both in primary and permanent dentitions, and can damage the tooth crown and, in later life, exposed root surfaces. The balance between pathological and protective factors influences the initiation and progression of caries. This interplay between factors underpins the classification of individuals and groups into caries risk categories, allowing an increasingly tailored approach to care. Dental caries is an unevenly distributed, preventable disease with considerable economic and quality-of-life burdens. The daily use of fluoride toothpaste is seen as the main reason for the overall decline of caries worldwide over recent decades.¹

Dental caries is a multifactorial disease caused by host, agent, and environmental factors. Mutans streptococci (MS) is the primary etiologic agent of dental caries. Through adhesion, MS attaches to the dental pellicle and breaks down sugars for energy to produce lactic acid, causing an acidic environment around the tooth. As a result, demineralization of the enamel and, subsequently, the dentin occurs.² Factors involved in the dental caries process include the tooth, bacteria in the form of a dental plaque, and a diet containing sugar. The quantity, quality, and frequency of sugar intake have a definitive influence on the incidence and prevalence of caries.

Hence, this study was conducted to evaluate the prevalence of caries among school going children.

Materials and Methods

The study population consisted of 100 school children and studying in government recognized schools. Each student was examined by a single examiner using ICDAS system under natural light during normal school hours. A self-administrated questionnaire and a consent form to participate in the study were given to the students, to be duly filled by the parents prior to the researchers visit to the school. The subjects only with parent's consent on the day of an examination were included in the study and students absent on the day of examination, parents who declined their consent were excluded from the study.

Dental examination of the subjects was performed in the schools during normal school hours, using a non-adjustable plastic chair under adequate natural light by a team headed by the researcher, who which trained for 15 days prior to the study. A detailed history of all children were recorded, which included their name, age, sex, class, religion, parents occupation, oral hygiene practice and teeth identification. After recording history, the children were instructed to brush their teeth with a toothbrush. Teeth were isolated, quadrant by quadrant with the help of cotton rolls and then the crowns of the teeth were examined individually for the presence of dental caries using sterile mouth mirror and WHO periodontal probe. Suspected teeth with early lesions were further dried with the help of a chip blower and then coded as per the advanced ICDAS II criteria.

Results

The present study was undertaken to assess the prevalence of dental caries among school children using International Caries Detection and Assessment system (ICDAS II). A total of 100 children with an average age ranging from 6-14 years were examined. There were 50 males (50%) and 50 females (50%). The prevalence of dental caries was 80% among the total sample studied which is highly significant.

Table 1: gender-wise distribution of subjects.

Gender	Number of subjects	Percentage
Males	50	50%
Females	50	50%

Total	100	100%
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Table 2: prevalence of dental caries.

Dental caries	Number of subjects	Percentage
Present	80	80%
Absent	20	20%
Total	100	100%

The gender wise comparison revealed that caries prevalence was higher in females than males which were not statistically significant. No significant relationship was found between dental caries and gender.

Discussion

Dental caries is the most prevalent and chronic oral disease, particularly in childhood age.^{3,4} Carious lesion constitutes a progressive infectious process with multifactorial etiology.^{5,6} Dietary habits, oral microorganisms that ferment sugars, and host susceptibility have to coexist for dental caries to initiate and develop.⁷ Dental caries has high morbidity potential. Thus, it has been the main focus of dental health professionals.⁸

Dental caries is a common dental disease occurring during childhood and it continues to be a major public health problem.⁹ The World Health Organization (WHO) has ranked it as number three among all chronic non-communicable diseases that require worldwide attention for prevention and treatment.¹⁰ ICDAS (International Caries Detection and Assessment system) is a universally accepted system to evaluate the prevalence of dental caries, in which estimation of early enamel lesions, helps in planning early treatment and monitoring caries pattern at the population level.¹¹

The results of this study are similar to the studies done by Joyson et al.¹², Prabhu S et al.¹³, Alamoudi et al.¹⁴, and Naomi L et al.¹⁵, who showed the prevalence rate in the range of 61.2% to 67.2% for children between the age group of 5-15 years.

Studies reported by Mahesh KP et al.¹⁶, and Rajesh et al.¹⁷, showed higher caries prevalence (77% to 80%) in the age group of 5-12 years.

Conclusion

In the population surveyed, surfaces with early caries lesions are more prevalent. Careful observation and a preventive programme could lower the likelihood of dental cavities and lessen the need for invasive and uncomfortable treatment treatments in later life.

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