

The Prevalance of Gingivitis and Periodontal Diseases in Preschool Children among Rural Nagpur Region.

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Citation of this Article: Dr. Arunkumar Sajjanar, Dr. Nilesh Rojekar, Dr. Milind Wasnik, Dr. Niharika Gahlod, Dr. Sumit Rajewar, Dr. Dishika Bhagwani, "The Prevalance of Gingivitis and Periodontal Diseases in Preschool Children among Rural Nagpur Region.", IJDSIR- July - 2020, Vol. – 3, Issue -4, P. No. 282 – 286.

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Type of Publication: Original Research Article

Conflicts of Interest: Nil

Abstract

Introduction: Gingival diseases are one of the most prevalent oral diseases that get its roots early in childhood. As a consequence of these diseases, if they are not treated on time, the destructive processes will progress in both hard and soft tissues together with losing teeth. An understanding of the aetiology and the contributory risk factors is therefore essential to the diagnosis and subsequent management of the condition. Acute necrotizing ulcerative gingivitis is a relatively frequent oral disease in socioeconomically underprivileged sub-Saharan African children.

Aim: To investigate the prevalance of gingivitis in and periodontal diseases among school children among rural nagpur region.

Material & Method: This study was based on 700 randomly selected children in preschool age group who accompanied their parents were selected from the community of Nagpur rural population. The occurrence of

gingivitis was recorded for tooth surfaces according to the Gingival Index System (Loe and Silness 1963).

Results: 190 out of 290 children (65.5%) had 1 to 5 affected teeth surfaces. 40 out of 290 children (13.8%) had 6-10 surfaces have affected teeth surfaces. 25 out of 290 children (8.6%) 11 to 15 tooth surfaces are affected.

Conclusion: Parents and preschool children require awareness and proper education regarding gingivitis and its future effects and its prevention via proper oral hygiene means. Suitable oral health program using audio visual aid should be conducted regularly.

Keywords: Gingivitis, Periodontitis, Preschool children.

Introduction

Periodontal diseases include gingivitis and periodontitis and are most commonly occurring diseases in children and adolescents. Gingival diseases are one of the most prevalent oral diseases that get its roots early in childhood. As a consequence of these diseases, if they are not treated on time, the destructive processes will progress in both hard and soft tissues together with losing teeth.(1) An

understanding of the aetiology and the contributory risk factors is therefore essential to the diagnosis and subsequent management of the condition.(2) Acute necrotizing ulcerative gingivitis is a relatively frequent oral disease in socioeconomically underprivileged sub-Saharan African children.(3) There are reasons to assume that most, if not all, plaque associated periodontal disorders start as an overt inflammation in the gingivae.(4) Gingivitis has been defined as the reversible dental plaque-induced inflammation of the gingiva without detectable bone loss or clinical attachment loss. It is frequently encountered in dental practice, affects people of all ages and describes the condition of the dental soft tissue.(5) There are suggestions in the literature that the host responses expressed in the gingiva of children may differ from those of adults. (6) Gingivitis is inflammation of the soft tissue without apical migration of the junctional epithelium. Redness, oedema and bleeding on probing characterize this condition. When treated gingivitis is reversible with no permanent damage.(7) The prevalence of gingivitis in developed countries was about 73% among the children between 6 and 11 years of old. This rate raises with increasing in age from 6 to 11.(8) Four indices commonly used to evaluate gingival inflammation in children and young adults in recent studies are: Gingival Index (GI) (Loe and Silness,1963), Gingivitis Index (Suomi and Barbano ,1968), Papillary Bleeding Index (PBI) (Saxer and Muhlemann, 1975), and Gingival Bleeding Index (GBI) (Ainamo and Bay, 1976).(9) Diseases affecting the periodontium can be limited to the gingival tissues or can be associated with destruction of the periodontal ligament and alveolar bone.(10) Serum levels of testosterone in boys and estradiol and progesterone in girls are positively associated with Prevotella (P.) intermedia and P. nigrescens levels.(11) Good nutritious diet or balance diet is need of every child

for their growth and development. Most of the kids of this age throughout their time for dinner eat food and obtain hooked into the style of the food.(12)This leads to gingival diseases.

Hence present study was done to investigate the prevalence of gingivitis in and periodontal diseases among school children among rural nagpur region.

Material and Methods

This study was based on 700 randomly selected children in preschool age group who accompanied their parents were selected from the community of Nagpur rural population. Inclusion criteria included fully erupted teeth. Exclusion criteria included eruption gingivitis or inflammation associated with exfoliation process, erupting teeth or teeth undergoing exfoliation for the study. Medically compromised children with physical and mental disability, children with systemic diseases and who were taking antibacterial, anticholinergic, or other medications were excluded from the study. Institutional Ethical Committee permission was carried out before starting the study. Informed consent was obtained from the parents/caretaker. The individuals taking part in study were examined clinically regarding their oral hygiene status, gingivitis. The primary teeth were studied.

Table 1: Number of children examined, sex distribution and mean number of teeth

Age Group	Number Of Individuals			Number Of Teeth
	Total	Male	Female	
Pre School	700	370	330	19.8

Diagnostic criteria

Gingival status: The occurrence of gingivitis was recorded for tooth surfaces according to the Gingival Index System (Loe and Silness 1963). Only score 2 and 3 were included. In the primary dentition a total of 60 surfaces

with a specially graded probe. The data collected was statistically analysed. Descriptive analysis was done based

Results

Table 2 shows the percentage of individuals in each age group distributed according to number of tooth surfaces with gingivitis. 190 out of 290 children (65.5%) had 1 to 5 affected teeth surfaces. 40 out of 290 children (13.8%) had 6-10 surfaces have affected teeth surfaces. 25 out of 290 children (8.6%) 11 to 15 tooth surfaces are affected. 7 %

Age Group	Without Gingivitis (%)	With gingivitis distributed according to number of surfaces affected								
		1-5	6-10	11-15	16-20	21-30	31-40	41-50	51-60	Total
Pre school	60	190	40	25	20	10	5	0	0	290

Discussion

The present study is among the foremost efforts to determine the oral behaviors and prevalence and severity of gingivitis in preschool children aged in one of the most unprivileged areas of Nagpur rural area. This study was also conducted to assess the need to start a local campaign to raise the public awareness for oral hygiene and the need to modify polices for early access to preventive dental services among preschool children.

In our study prevalence of Gingivitis is 41.42%. This is similar to the study done by Yam *et al.*(9) where they have found gingivitis in approximately 43% of preschool children. Aranza and Peña observed 39% prevalence of gingivitis among children of 4 and 5 years old.(10)

Almost, 66% children are affected by gingivitis which include 1-5 teeth surfaces. Those results are similar to the results of other parts of the world of similar cultural and socioeconomic status. A recent survey in Lucknow /India of preschool children have shown that 71.11 % of preschool children suffered of gingivitis of mostly mild to moderate severity.(1) Plaque-induced gingivitis is prevalent in children and adolescents. Typical features of plaque-induced gingivitis include gingival redness,

on the data obtained.

children 16-20 teeth surfaces are affected i.e.20 out of 290 children. 10 out of 290 children (3.4%) 21-30 teeth surfaces are affected.

Table2: Individuals (%) distributed according to prevalence of tooth surfaces with Gingivitis in preschool children primary teeth only (maximum 60 surfaces)

swelling, loss of contour and marginal bleeding in the absence of bone loss; these are all reversible following appropriate therapy.(12)

13.8% of the study children had affected with gingivitis which included 6-10 teeth surfaces. 8.6% children had 11-15 teeth surfaces involved with gingivitis. 7 % children had 16-20 teeth surfaces affected with gingivitis. 3.4% of children had 21-30 teeth surfaces are affected with gingivitis.

Pocketing was measured, but its inclusion in the present analysis did not provide significant additional information and has been omitted. (4) When examining the relationship between socioeconomic indicators and gingivitis which determined based on parental educational level and family income, the results showed statistically significant associations between both variables and gingivitis. The identification of etiological factors of gingivitis is of vital importance for the establishment of preventive policies. Epidemiological, case-control and cohort studies have been carried out in the last years to elucidate possible causal determinants for gingivitis. (5)

3.8 % children clean their teeth with their finger and 0.35% children use Neem sticks, which is the traditional

method of cleaning the teeth in India, the custom of cleaning teeth with finger and Neem sticks is still followed in certain parts of rural India. Nevertheless the percentile usage of their traditional methods is decreasing.(7) Vitamin C deficiency causes hemorrhage, collagen degeneration and edema of the gingival connective tissue. The involvement is usually limited to the marginal tissues and papillae.(8) Gingivitis was more common in boys.(9) Young children with a severe protein deficiency there is usually a concomitant iron deficiency, it may be this latter problem which is causing the unusual amount of destruction.(13) Chronic marginal gingivitis is the most prevalent type of gingival change in childhood. Dental plaque causes inflammation within the gingival tissues, which manifests as clinical signs of gingivitis.(10) Limitation of my study is small sample size and its cross sectional in nature. The results of my study should help the Oral health care professional in oral health promotion for parents and caregivers, to further reinforce good oral habits and home care in preschoolchildren.(14)

Conclusion

Early gingivitis if unattended may slowly lead to periodontitis which can have more detrimental effects such as early tooth loss. More often than not the painless nature of gingivitis masks its true potential and become the reason of not visiting the dentist. Furthermore, parents and preschool children require awareness and proper education regarding gingivitis and its future effects and its prevention via proper oral hygiene means. Suitable oral health program using audio visual aid should be conducted regularly for the children to educate them which might prove to be a significant factor in reducing the prevalence of gingivitis in future.

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