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Oral Health Status of Mentally Challenged Children and Adolescents in Durg and Bhilai City of Chhattisgarh State in India

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Abstract

Introduction: The oral health of the mentally challenged may be neglected because of the disability condition, a demanding disease, or limited access to oral health care. Dental treatment is the greatest unattended health need of disabled.

Aim: To assess oral health status of mentally challenged children in Durg and Bhilai city.

Materials and methods: The study comprises of 70 mentally challenged children and adolescents attending special school in Durg and Bhilai city between the age 7 and 18 years. Oral hygiene status was assessed using simplified oral hygiene index by Greene and Vermilion and periodontal status was assessed using community periodontal index.

Results: Fair oral health status was seen in major proportion of population. The oldest age group had the highest scores for all the indices measured.

Conclusion: It is important that these children should be provided with appropriate dental care as soon as their medical condition has been diagnosed and pediatrician should be encouraged to make the appropriate referral and advise the parents on the importance of dental health.

Keywords: Mentally challenged; OHI-S index; CPI index

Introduction

Dental treatment is the greatest health need of unattended disabled [1]. Their oral health condition may be influenced by age, severity of impairment and living conditions. Individuals with special needs may have great limitations in oral hygiene performance due to their potential motor, sensory and intellectual disabilities [2-4].

Mental retardation has been defined by the American Association of Mental Deficiency (AAMD) as 'sub-average general intellectual functioning, which originates during the developmental period and is associated with impairment in adaptive behavior' [5].

Mental retardation can be defined as a deficiency in theoretical intelligence, which is congenital or acquired in early life. The AAMD classifies retardation into four categories according to their intelligence quotient as mild, moderate, severe or profound retardation. An individual is classified as having mild mental retardation if his or her IQ score is 50-55 to about 70; moderate retardation, IQ 35-40 to 50; severe retardation, IQ 20- 25 to 35; and profound retardation, IQ below 20-25 [5].

The recent National Sample Survey Organization (NSSO) report suggests that the number of disabled persons in the country is estimated to be 18.49 million which forms to about 1.8% of the total population and the mentally retarded population accounts to 0.44 million individuals [6].

McNeil [7] reported that the oral hygiene of mentally challenged children is extremely poor and for this reason preventive procedures are very important. The main etiological agent of periodontal disease is plaque, which is a biofilm that contains dominantly microorganisms. These organisms directly through the release of toxins, enzymes and toxic metabolic product and indirectly through complement activation and hypersensitivity reaction cause periodontal disease [8]. If preventive procedures are not undertaken, periodontal disease will occur when the balance between the host resistance and the etiological agents has been disrupted. The possible mechanism to improve the condition is to conduct oral health programs and periodic monitoring of unmet treatment needs [9]. The aim of this study is to assess oral health status of mentally challenged children in Durg and Bhilai city.

Materials and Methods

The study comprises of 70 mentally challenged children and adolescents attending special school in Durg and Bhilai city between the age 7 and 18 years. Children with impaired cognitive development and IQ level less than 70 were included in the study. Subjects who were very uncooperative were excluded from the study.

Oral hygiene status was assessed using simplified oral

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hygiene index by Greene and Vermilion [10] and periodontal status was assessed using community periodontal index.

Ethical approval for the conduct of the study was availed from ethical committee for research Rungta College of Dental Sciences and Research, Bhilai.

Informed consent of parents or guardians and school authorities was obtained before the subjects were included in the study. Prior to the dental examination, demographic information was registered for each subject: age, gender along with information regarding the education and income of parents. Clinical examination was done by a single examiner (SK) for the assessment of oral hygiene status with plane mouth mirror and No. 23 explorer according to criteria of simplified oral hygiene index by Greene and Vermilion [10].

Periodontal status was assessed by Community Periodontal Index. Community Periodontal Index (CPI) is an indicator of prevalence of chronic inflammatory periodontal disease. It involves examination of few tooth in the mouth, hence reliability & validity of this tool might be questioned. However we used the same tool as main advantage of the index is that it is easy to use and under limited cooperation of the subjects, as in the present study, the tool seems to be very handy. Even WHO has widely uses CPI internationally as it is simple to understand and easy to use [11,12]. Children below the age of 15 years were assessed for bleeding and calculus only as recording of periodontal pockets would be overestimated in this population because of false pockets.

Data were entered into the spreadsheets and was analyzed using the statistical package for the social sciences (SPSS version 11.0)

Chi square test was used to differences in frequencies between age groups and prevalence of periodontal diseases. One-way analysis of variance (ANOVA) is used to test the differences in mean scores of oral hygiene indicators and student t test was used to test the differences in mean scores according to gender.

Results

Table 1 illustrates general profile and background characteristics of the study population, there was no difference in the distribution of subjects according to the age group but there was unequal gender distribution with males comprising of 74.3% of the total sample. There were 80% of children comprising of mild level of mental retardation.

Fair Debris status and oral hygiene status was exhibited by major proportion of 72.9% and 38.6% respectively. Calculus was exhibited by 45.7%. None of the subject exhibited deep periodontal pockets but shallow pockets were presented by 14.3% subject.

Table 2 compares the mean debris index score (DIS), oral hygiene score (OHIS) and calculus index score (CIS) according to gender but there was no significant association was found. Table 3 compares the mean debris index score (DIS), oral hygiene score (OHIS) and calculus index score (CIS) at various age groups amongst study subjects. Highest mean score was noted for oldest group which was 1.52 (± 0.60) for DIS, 2.81 (± 1.36) for OHIS and 1.29 (± 0.83) for CIS.

	Frequency	Percentage
Age		
7-12	24	34.3
13-15	25	35.7
16-18	21	30.0
Gender		
Male	18	25.7
Female	52	74.3
Level of mental retardation		
Mild	56	80.0
Moderate	8	11.42
Severe	6	8.57
Debris score		
Poor	5	7.1
Fair	51	72.9
Good	14	20.0
Oral hygiene status		
Poor	21	30.0
Fair	27	38.6
Good	22	31.4
CPI		
No disease	10	14.3
Bleeding	18	25.7
Calculus	32	45.7
Pocket	10	14.3

Table 1: General profile and background characteristics of the study population.

	Gender	N	Mean	Std. Deviation	t Value	p Value
DIS	Female	18	1.2778	0.62267	0.268	0.606
	Male	52	1.3019	0.58861		
OHIS	Female	18	2.2556	1.45530	0.247	0.621
	Male	52	2.2577	1.36932		
CIS	Female	18	.9778	0.85924	0.421	0.519
	Male	52	.9596	0.84720		

Table 2: Difference of DIS, OHIS, CIS according to gender.

	Age	N	Mean	Std. Deviation	F Value	P Value
DIS	7-12 Years	24	1.0292	0.49032		
	13-15 Years	25	1.3600	0.59791	4.548	0.014*
	16-18 Years	21	1.5238	0.60242		
	Total	70	1.2957	0.59306		
OHIS	7-12 Years	24	1.6792	1.05870		
	13-15 Years	25	2.3440	1.49696	4.219	0.019*
	16-18 Years	21	2.8143	1.36649		
	Total	70	2.2571	1.38120		
CIS	7-12 Years	24	0.6500	0.66398		
	13-15 Years	25	0.9920	0.92192	3.478	0.037*
	16-18 Years	21	1.2905	0.83660		
	Total	70	0.9643	0.84408		

Table 3: Difference of DIS, OHIS, CIS according to age group.

		No disease	Bleeding	Calculus	Pocket
Age	7-12 Years	5	11	8	0
	13-15 Years	5	5	13	2
	16-18 Years	0	2	11	8
	Total	10	18	32	10

Pearson chi square value: 24.206; p value: <0.0001

Table 4: Difference in CPI score according to age group.

There was a statistically significant difference ($p<0.005$) between all the age groups for all the variables of oral hygiene index. The oldest age group had the highest scores for all the indices measured.

Table 4 compares the CPI score according to age group illustrates there was increase in periodontal disease with age and there were no subjects without any signs of periodontal disease but shallow pockets were highest in oldest age groups. Healthy subjects belong to younger age groups.

Discussion

The present study revealed that the overall oral hygiene status of the study population was fair with a prevalence rate of 30.0, 38.6 and 31.4% for good, fair and poor components, respectively, which was better than the study conducted by Kumar et al. [13] where it was observed good, fair and poor levels of oral hygiene with a prevalence rate of 4.7%, 32.7% and 62.6% respectively. On the other hand, it was similar to a study by Jain et al. [14] which showed that 23%, 37% and 40 % of the subjects had good, fair and poor oral hygiene status.

Nicolaci and Tesini [15] have observed that the high prevalence of poor oral hygiene among handicapped individuals is usually more evident in the mentally retarded and there seems to be a correlation between the level of oral hygiene and severity of the handicap; and lack of proper oral hygiene has been suggested to be the principal cause of periodontal disease in individuals with handicapping conditions. Prolonged retention of food particles in the oral cavity might result in more gingival inflammation and eventually lead to periodontal disease. Previous studies have highlighted the importance of oral hygiene in the etiology of periodontitis. In the present study, subjects who did not cooperate in the clinical examination procedures due to less IQ level were deemed as excluded and probably if these patients had been included, there would have been a higher possibility of finding poorer oral hygiene and periodontal status.

Martens et al. [16] has observed that children who were mildly mentally retarded had significantly better manual dexterity skills than the severely mentally retarded, which explains the findings in the present study.

There was a definite trend for periodontal disease with increase in number with periodontal pockets as the age increased which could be attributed to the cumulative effect of plaque and calculus with increase in age as suggested by Gottlieb et al. [17].

The removal of plaque and plaque retentive factors which can be achieved by proper oral self-care and dental visit, are considered the most effective preventive measure [8]. The clinical care and chair side prevention are considered both unaffordable and inappropriate for the control of periodontal diseases in many parts of the developing world like India. Hence, care takers should be educated & motivated to maintain the oral hygiene of the children. Importance of regular oral hygiene measures should be emphasized. Proper diet and nutrition is equally important in maintaining periodontal health.

Electronic tooth brushes can also be distributed to assist the child in brushing. Frequent follow up should be done by Pediatric dentist to assess periodontal status and reinstall the importance personal/oral hygiene, and general health in preventing periodontal diseases.

Conclusion

It is important that these children should be provided with appropriate dental care as soon as their medical condition has been diagnosed and pediatrician should be encouraged to make the appropriate referral and advise the parents on the importance of dental health.

References

1. Tesini DA. An annotated review of the literature of dental caries and periodontal disease in mentally retarded individuals. Spec Care Dent 1981;1(2):75-87.
2. Nunn JH. The dental health of mentally and physically handicapped children: a review of the literature. Community Dent Hlth. 1987;4(2):157-68.
3. Kamen S, Crespi P, Ferguson FS. Dental management of the physically handicapped patients. In: Thornton JB, Wright JT, editors. Special and medically compromised patients in dentistry. PSG Publishing Co, Inc; 1989, pp. 25-6.
4. Dahle AJ, Wesson DM, Thornton JB. Dentistry and the patient with sensory impairment. In: Thornton JB, Wright JT, editors. Special and medically compromised patients in dentistry. PSG Publishing Co, Inc; 1989, pp. 66-67.
5. American Psychiatric Association. Diagnostic and statistical manual of mental disorders. 4th ed. Washington, DC: APA; 1994.
6. National Sample Survey Organisation. Disabled persons in India. Report No. 485 (58/26/1). India: NSSO; 2003.
7. Mc Neil JM. Americans with disabilities: 1994- 95. Series P70-61. Current Population Reports. Washington DC: Census Bureau; 1997.
8. Peter T, Cherian DA, Peter T. Assessment of oral health parameters among students attending special schools of Mangalore city. Dent Res J (Isfahan). 2017;14(4):260-6.
9. Leroy R, Eaton KA, Savage A. Methodological issues in epidemiological studies of periodontitis - how can it be improved? BMC Oral Health. 2010;10:8.
10. Greene JC, Vermillion JR. The simplified oral hygiene index. J Am Dent Assoc. 1964;68:7-13.

11. World Health Organization. Oral health surveys: basic methods. 4th ed. Geneva: WHO; 1997, p. 36-8.

12. Azodo CC, Umoh AO. Periodontal disease awareness and knowledge among Nigerian primary school teachers. Ann Med Health Sci Res. 2015;5(5):340-7.

13. Kumar S, Sharma J, Duraiswamy P, Kulkarni S. Determinants for oral hygiene and periodontal status among mentally disabled children and adolescents. J Indian Soc Pedod Prev Dent. 2009;27(3):151-7.

14. Jain M, Mathur A, Sawla L, Choudhary G, Kabra K, Duraiswamy P, et al. Oral health status of mentally disabled subjects in India. J Oral Sci. 2009;51(3):333-40.

15. Nicolaci AB, Tesini DA. Improvement in the oral hygiene of institutionalized mentally retarded individuals through training of direct care staff: a longitudinal study. Spec Care Dent. 1982;2(5):217-21.

16. Martens L, Marks L, Goffin G, Gizani S, Vinckier F, Declerck D. Oral hygiene in 12-year-old disabled children in Flanders, Belgium, related to manual dexterity. Community Dent Oral Epidemiol. 2000;28(1):73-80.

17. Gottlieb B, Orban BJ, Grant AD, Stern IB, Listgarten MA. Periodontics in the tradition of Gottlieb and Orban. 6th ed. Mosby: St. Louis; 1988. p. 236-48.