



Periodontal Health Status Of A Group of children with Down's syndrome, in Baghdad-Iraq (A comparative study)

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Abstract

The purpose of the study was to evaluate the periodontal health status and oral hygiene in Down's syndrome children at (9-11) years of age in Baghdad city in comparison with normal children.

Forty eight Down's syndrome children were selected randomly from Down's syndrome institution; their age from 9-11 years old. The assessment of gingival health condition was performed using by Loe and Silness, while plaque index by Silness and Loe was used to measure the amount of plaque, and calculus index by Bjorby and Loe.

The results revealed a greater severity of gingival, plaque and calculus indices in Down's syndrome children compared to the normal children.

Key words:- Oral hygiene, Down's syndrome, plaque index, gingival health, calculus index.

Introduction

Down's syndrome is a congenital autosomal anomaly characterized by generalized growth and mental deficiency ^(1,2). The risk for this chromosomal aberration is one out of 600-1000 live births.

Approximately 95% of Down's syndrome cases have the extra-chromosome 21, resulting in a chromosome count 47 instead of the normal 46. The other 5% of chromosomal abnormalities include translocation (3%) and mosaicism or partial trisomy (2%). Down's syndrome has also referred to by the terms trisomy 21, trisomy GOR Mongolism ⁽¹⁾.

Down's syndrome children have characteristic orofacial features. The most common oral findings in these

children include mouth breathing, open bite, macroglossia, fissured lips and tongue, angular cheilitis, delayed eruption of teeth, missing and malformed teeth, crowding, malocclusion, bruxism, poor oral hygiene and low level of caries ⁽³⁻⁵⁾.

Periodontal anomalies when compared with similar plaque level, individuals with Down's syndrome developed an earlier and more extensive gingivitis and exhibit rapid and generalized periodontal breakdown in adulthood ⁽⁶⁾. Common conditions seen in Down's syndrome are marginal gingivitis, acute and sub acute necrotizing gingivitis, advanced periodontitis, gingival recession and Pocket formation ^(7,8).

The aim of the present study is to compare the severity of periodontal disease between Down's syndrome and normal children (9-11) years old.

Material and Methods

A comparative study was planned to assess the periodontal health status of a group of children with Down's syndrome in Baghdad city/ Iraq. The sample of the study was composed of 48 individuals divided into 2 groups each group consist of 24 members, down's syndrome patients (study group) were (12 males, 12 females) and normal children (control group) were (12 males, 12 females), aged (9-11) years old randomly selected from (Hibet Allah and Rami mongolism care institution).

The examination was carried out with the children sitting on wooden or plastic chairs under an artificial light. Each participant was subjected to a clinical assessment using a flat dental mirror and an explorer. Comparisons of the finding were done between the male and female samples and between down's syndrome and normal children, using gingival plaque, calculus indices. The proportions of different finding were estimated from the sample for each study group. In the present study, $p < 0.005$, $p < 0.001$ was considered as the level of significance.

Results

Table (1) illustrates the mean the mean plaque index (PLI) and statistical difference between Down's syndrome and normal children. It shows a highly significant difference between Down's syndrome and normal males and same relation between Down's syndrome and normal females (1.65 and 0.84) and (1.79 and 0.98) respectively. It showed that there were highly significant

differences in mean of PI in total sample; it was 1.72 and 0.91 for both down's syndrome and normal children respectively.

Table (2) shows the mean GI for Down's syndrome children and normal children. The study revealed a highly significant difference between Down's males and normal males (1.54, 0.75) respectively, while there is a significant difference between Down's females and normal females (1.58 and 0.81) respectively. Also it was showed that there were highly significant differences in the mean of GI in all groups females and males for total sample, it was 1.58 and 0.81 respectively.

Table (3) showed calculus index for Down's syndrome (male and females) and normal children at (9-11) years old. The study indicated that there was a significant increase in the mean calculus index between down's females and normal females (0.65 and 0.39) respectively, there is no significant difference in mean calculus index with Down's males and normal males. When comparing between total Down's female and normal females, significant difference in mean of calculus index (0.69) total males and females (0.46)

The distribution of both groups studied according to the severity of gingival inflammation is present in table (4). According to L oe (1976), the result of data analysis shows that approximately 33% of Down's syndrome children have mild gingival inflammation, 45.8% have moderate gingival inflammation. While in the normal children it was 75% of all normal children have mild gingival inflammation 25% have moderate gingival inflammation.

Discussion

When we compare normal individuals with those of Down's

Syndrome with similar plaque levels, individuals with Down's Syndrome develop an earlier and more extensive gingivitis⁽¹²⁾.

Our results showed a high prevalence of gingivitis in Down's syndrome children comparison to normal children, these results agree with Barnett et al. (1986) who compared the prevalence of periodontitis and dental caries in 30 Down's Syndrome patients and 30 matched, mentally handicapped controls, these result revealed a greater prevalence of gingivitis in Down's Syndrome patients .

The higher incidence or prevalence of gingivitis could be due to the lack of awareness about dental visits, irregular dietary habits, inadequate oral hygiene sucrose-containing food stuffs, parental neglectfulness and lack of initiatives towards prevention

Our results also agree with Cornejo et al 1996 that found a high prevalence of gingivitis in Down's Syndrome children in comparison to normal children aged (3-19) years old⁽¹¹⁾.

The mean PLI and GI in males is higher than females, these results are similar to the finding by fairs (1991), this is may be due to more frequent brushing in females than males.

This data in the present study showed that the amount of calculus is fairly small, this is in agreement with Sshaw et al (1986)⁽⁸⁾.

An optional oral health preventive program can be started no later than 18 months⁽¹³⁾. The program can be started as follows: (1) counseling for parents to provide parents with basic information about the growth and development of the mouth; (2) availability of optimal fluoride; (3) appropriate dietary management; (4) home based daily preventive program for oral hygiene follow up at home with active parental involvement; (5) a recall dental visits system as often as

three months with follow up maintenance appointments. (6) Chlorohexidine gluconate 12% mouth rinse; spray, dentifrice or topical gel^(11,14).

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Table (1): Differences in the mean plaque index (PL/I) scores between Down's syndrome and normal children (9-11) years old.

Study group			Control group			
	Sample size	PL/I mean \pm S.D	PL/I mean \pm S.D	t-test	P- value	Sig.
Male	12	1.79 \pm 0.68	0.98 \pm 0.72	2.89	0.000	H.S
Female	12	1.65 \pm 0.42	0.84 \pm 0.43	4.79	0.008	H.S
Total	24	1.72 \pm 0.55	0.91 \pm 0.58	5.02	0.000	H.S

H.S= high significant at level $P < 0.01$

Table (2): Differences in the mean gingival index (GI/I) scores between Down's syndrome and normal children (9-11) years old.

Study group			Control group			
	Sample size	GI/I mean \pm S.D	GI/I mean \pm S.D	t-test	P- value	Sig.
Male	12	1.54 \pm 0.61	0.75 \pm 0.72	4.16	0.001	H.S
Female	12	1.41 \pm 0.58	0.88 \pm 0.43	2.16	0.028	S
Total	24	1.58 \pm 0.58	0.81 \pm 0.58	4.54	0.000	H.S

S= Significant at level $P < 0.05$

H.S= high significant at level $P < 0.01$

Table (3): Differences in the mean calculus index (CI) scores between down's syndrome and normal children (9-11) years old.

Study group			Control group			
	Sample size	CI mean \pm S.D	CI mean \pm S.D	t-test	P- value	Sig.
Male	12	0.73 \pm 0.37	0.54 \pm 0.56	-	-	N.S
Female	12	0.65 \pm 0.34	0.39 \pm 0.26	2.09	0.050	S
Total	24	0.69 \pm 0.35	0.46 \pm 0.43	2.02	0.049	S

N.S= non significant at level $P > 0.05$

S= Significant at level $P < 0.05$

H.S= high significant at level $P < 0.01$

Table (4): Distribution of Down's syndrome and normal children according to the severity of gingival inflammation

GI score	Down s		Normal		Significance
	No.	%	No.	%	
0.1 -1.0	8	33.0	18	75	S
1.1 -2.0	11	45.0	6	25	S
2.1 -3.0	-	-	-	-	