

Prevalence of Periodontal Disease Among Down Syndrome Patients in the Southern Region of Syria

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□ ABSTRACT □

Several cross-sectional studies have reported a higher severity of periodontal disease in Down's Syndrome patients. This study aims to estimate the etiology and prevalence of periodontal disease among these syndrome patients.

Methods and Materials

A cross sectional descriptive survey was performed in 178 individuals with Down-syndrome (male x female), aged 11-28. They were socio-economically homogeneous. A standardized set of records obtained from each, including a detailed periodontal examination. Data were analyzed using the (SPSS), version 11.0.

Results

There was no difference in the distribution of items according to sex group. Their periodontal conditions were 100% none-healthy (gingivitis 38.52%, periodontitis 61.47%).

Conclusion

This study has highlighted that there is a problem in the preventive dental programmes that deal with DS patients. It is necessary to take effective oral hygiene education programme together with frequently dental examination to carry out early diagnosis and treatment periodontal disease in patients that have this syndrome.

Keyword: Down Syndrome, Periodontal Disease,

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انتشار، أمراض النسيج حول سنية لدى مرضى تناذر داوون في المنطقة الجنوبية- سوريا

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□ ملخص □

أول من لاحظ هذا التناذر هو جون لانغدون داوون عام 1866. سجّلت العديد من الدراسات المقطعية نسبة عالية من الاصابات حول السنية لدى مرضى هذا التناذر. هدف البحث: تهدف هذه الدراسة لتقييم سبب ومدى إنتشار الاصابات حول السنية لدى عينة من مرضى تناذر داوون. مواد وطرق البحث: تم إجراء دراسة مقطعية لـ 178 مريضاً مصاباً بالتناذر (ذكور وإناث) أعمارهم بين 11-28 سنة من مستوى اجتماعي واقتصادي متجانس. تم تسجيل الفحص حول السنّي وفق استمارة خاصة. حللت النتائج بإستخدام برنامج الحزم الإحصائية للعلوم المجتمعية النسخة 11.0 . النتائج: لم نجد فروقاً في الإصابة حول السنية بالمقارنة مع الجنس. الحالة حول السنية سيئة بنسبة 100% (38% التهاب لثة، 61,4% التهاب نسيج حول سنية) الاستنتاج: تضيء هذه الدراسة على وجود مشكلة في البرامج الوقائية الموجهة لهذه الفئة من المرضى والى ضرورة التأكيد على نشر برامج تثقيفية للصحة الفموية، مع فحوصات فموية دورية لتحري ومعالجة الإصابات حول السنية بشكل مبكر.

الكلمات المفتاحية: تناذر داوون، أمراض نسيج حول سنية.

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Introduction:

This syndrome was first noticed in 1866 by John Langdon-Down[1]. Lejune et al, (1959)[2] discovered that Down's syndrome (DS) is a genetic disorder caused by an extra chromosome 21 (Trisomy), Mongolism. Jones in the early 1889 reported that the oral conditions in young children with Down's Syndrome (DS) differ from those in normal children[3]. From this time till now, the literature focuses on the problem of how to assess the prevalence, severity, etiology and special characteristics of the periodontal disease which is found in Down's Syndrome patients (DSP). Brown & Cunningham[4] examined 80 institutionalized DSP in the age range 1-39 years. The presence of periodontal disease was observed in 90% of the whole cases. The severity of the disease increased with age. Advanced periodontitis was present in 59%. 36% of the children below the age of 6 years had pocket formation. These results are in agreement with studies by (Julka, 1962)[5] et al, (Kisling & Krebs, 1963)[6], (Sznajder et al, 1968)[7] and (Keyes, 1978)[8] et al. (Cohen, 1961)[9] et al. (Shapiro, 1969)[10] et al. (Cutress, 1971)[11] and (Orner, 1976)[12] compared findings in DS children with findings in normal persons and came to similar conclusions. (McMillan & Kashgarian, 1961)[13] and (Silimbani, 1962)[14] examined with less accurate criteria DS children for periodontal disease and found lower prevalences of approximately 50-60%. In the study of Silimbani the young age of the investigated group and the fact that most of these children lived at home with their parents may have played a role in this latter finding. (Johnson & Young, 1963)[15] studied 70 DS children and 40 otherwise mentally retarded children (MR) living in an institution, their ages ranged from 9-30 years. The prevalence of periodontal disease was 96% in DS and 87.5% for the MR group.

Individuals with Down's syndrome have an increased prevalence of periodontal disease compared with otherwise normal, age-matched controls and other developmentally disabled people (Reuland, 1986)[16] (Cichon, 1998)[17] et al, (Desai, 1997)[18] and (Amano, 2001)[19] et al, and a pattern of periodontal destruction similar to that of localized aggressive periodontitis has been described in this group.

Several cross-sectional studies have reported a higher severity of periodontal disease in Down's Syndrome patients,(Barnett, 1986)[20] et al. (Hanookai, 2000)[21] et al, (Lopez, 2002) [22] et al. (Sasaki, 2004)[23] et al.

The cause of the increased progression of periodontal disease in DS children is still not clear. Endogenous conditions as well as exogenous factors have been linked to it. Exogenous factors can be divided into primary local factors such as lack of oral hygiene and secondary local factors such as tongue thrusting, lack of lip seal and malocclusion which is often an angle Class-III malocclusion or maxillary endognathism with an anterior open bite due to abnormal tongue position, (Fischer, 1988)[24]. (Hennequin, 1999)[25] mentioned that chronic gingivitis established early in the child due to mouth breathing, inadequate oral stimulation and lack of oral hygiene. It remains undetected as the primary dentition is shed but evolves throughout adolescence until serious periodontal disease appear at around 20 to 25 years of age. However, people with down syndrome likely to develop significantly greater severity of periodontal diseases which has been related to factors such as lower resistance to bacterial infection, malocclusion, traumatic occlusions, tooth morphology, and lack of normal mastication and lip seal[16].

Thus in Syrian Arab Republic, no previous studies described the periodontal status, among Down's syndrome patients have been reported.

The aim of this study was to:

1. Investigate the prevalence of periodontal disease among Down's Syndrome patient.
2. Investigate the oral hygiene among Down's Syndrome patient.

Methods and Materials:

A cross sectional descriptive survey was performed in 178 individuals with Down-syndrome (male x female), aged 11-28, they were socio-economically homogeneous.

The individuals live at home with their parents and attending a special needs institution in the two cities of Daraa and Sweida (southern region of Syria) which is affiliated to the Ministry of Social Affairs and Labour. A standardized set of records obtained from each, including a detailed periodontal examination, in dental faculty of the International University for Science and Technology (IUST) during the period 2008-2010. The clinical examination was done on a dentist's chair with a reflector, personal information were recorded for each item: (gender, age, income and education of the parents also obtained).

We have offered special exam and treatment to all the children examined free of charge in our dental college.

Periodontal disease was assessed by using the following:

1. Oral Hygiene index simplified (OHI-S)[29]
2. The Community Periodontal Index of Treatment Needs (CPITN)[30] ranged from 0 – 4:

0 = Healthy

1 = Bleeding on probing

2 = Supra and Sub-gingival calculus

3 = Shallow pockets (3.5-5.5 mm)

4 = Deep pockets (> 6 mm)

Using a WHO periodontal probe. Probing was done for every site of all deciduous and permanent teeth.

The following diagnostic criterion was adopted to indicate the presence of gingivitis or periodontitis:

Gingivitis-patients who had at least one area with bleeding on probing.

Periodontitis-patients that were classified as those who had slight to moderate periodontitis had at least one area with probing depth ≥ 4 and ≤ 6 mm and the individuals with > 6 mm were classified as having severe periodontitis. Data were analyzed using the statistical package for social science (SPSS), version 11.0.

Results:

The results of our study showed according to Table (1) which clarifies the whole results of this study, that DS patients experienced periodontal disease. There was no difference in the distribution of items according to sex group. Their periodontal conditions were 100% none-healthy (gingivitis 38.52%, periodontitis 61.47%). Regarding to CPITN (table2) index the pocket depth > 6 were higher in male group comparing to female. This periodontal condition reflected the low score of oral hygiene index of the DS patients (fair 17.40%, poor 69.70%). Though the relationship between the level of oral hygiene control and the periodontal health status was clear in this study.

Table (1)

	Female 79		Male 99		Sum 178	
Age	44.40%		55.60%			
11 – 16	38	48.10%	61	61.60%	99	55.60%
16 – 21	24	34.20%	25	25.30%	52	29.20%
21 – 28	14	17.70%	13	13.10%	27	15.20%
Oral Hygiene Control						
Use Tooth Brush	7	8.90%	11	11.10%	19	10.70%
Don't	72	91.10%	17	67.90%	159	89.30%
Other Aids (mouth wash, floss ...)	0	0%	0%	0	0	0%
OHI-S						
Good	9	11.40%	14	14.10%	23	12.90%
Fair	13	16.50%	18	18.10%	31	17.40%
Poor	57	71.20%	64	67.60%	124	69.70%
Periodontal Status						
Gingivitis	29	36.70%	40	40.35%	69	38.52%
Periodontitis	50	63.30%	59	59.65%	109	61.47%

Table (2)

CIPTN	Female	Male
0	0	0
1	9	6
2	20	34
3	33	35
4	17	24

Discussion

From the results in this study, the oral hygiene status of the DSP was significantly poor and this agrees with the report of (Amano et al, 2008)[31] which found that a majority of Down Syndrome patients demonstrated poor oral hygiene as compared to healthy individuals. The periodontal status was significantly high. Our results highlighted strongly because (Sakellari et al, 2001)[32] mentioned that plaque score was 100% in Down syndrome subjects. The results noticed in this study, associated with the review of the scientific literature[4,15,20,21,22,23]. The saliva secretion rate of DS patient approximately half that of the normal patient as reported by (Winer et al, 1972)[26] may encourage our results. Also, it seems that the personality disorders on this part of the patient lead to a refusal of treatment, and this mentioned by (Hennequin, 1999)[25]. Our results in this study, associated with the review of the scientific literatures, which show that there are an intimate link between DS patients and periodontal disease (Marta, 2006) [27] (Ana, 2007) [28]. (Shyama, 2003 et al)[33] concluded that supervised tooth brushing programme was effective in reducing plaque and gingivitis scores in DS in Kuwait; but as we notice in our study that 89,30% didn't hold tooth brush ever and never.

Conclusion & Recommendations

This study has highlighted that there is a problem in the preventive dental programmes that deal with DS patients. It is necessary to take effective oral hygiene

education programme to carry out early periodontal monitoring in patients that have this syndrome.

We must insist that regular reviews, preferably by a periodontist team, should be undertaken to identify, prevent and treat periodontal disease. These patients should be seen at least every 3 months in a recalling programme.

Dental health authority in this region of Syria must force their effort to deal with this problem. Every effort must be made to decrease the severity and progression of periodontal disease in DS patients. Patients with Down syndrome should be educated in proper oral hygiene. General and further investigations should be undertaken to confirm our findings.

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