A Comparison of DMF index and oral hygiene index between down syndrome subjects and a control group in Riyadh

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Abstract

Introduction and objective: Down syndrome is a genetic disorder of chromosome 21 that is characterized by physical and mental disability. The incidence of Down Syndrome in Saudi Arabia is estimated to be 1 in 500, which is higher than the world average. Many studies have been done around the world to compare the DMF Index and OHI between the children with Down Syndrome and the normal children. No such study has been conducted in KSA therefore the aim of this study was to compare the DMF Index and the Oral Hygiene Index between the children with Down Syndrome and normal children with no Down Syndrome in Riyadh, KSA.

Materials and methods: It was a cross-sectional, observational clinical study with a sample size of 200 subjects. Our control group was composed of 100 Normal Children who were randomly selected and examined at an elementary public school in Riyadh. The other 100 subjects were Down Syndrome children. These subjects were examined at DSCA center, Saudi center for down syndrome, and Saut society in Riyadh. Oral examination done by using regular examination instruments on regular chair. The indexes used in this study:
Decayed-Missing-Filled Index (DMFT)
Oral hygiene index (OHI)

Results: All data was analyzed by Excel software using the student’s t-test
There was no statistically significant difference between any of the parameters in the control and study group. The results were calculated at 95% confidence level (P value = 0.05)
After comparison the values were:
D= 0.059, M=0.090, F=0.65, and OHI=0.098.

Conclusion: No statistically significant difference was observed in the DMF index or OHI between the Down syndrome subjects and the normal subjects in the control group.

Introduction

Down Syndrome is a genetic disorder of chromosome 21 that is characterized by physical and mental disability [1]. The incidence of Down Syndrome in Saudi Arabia is estimated to be 1 in 500 [2]. This percentage is higher than the Down Syndrome prevalence around the world that is estimated to be 1 in 700 [3]. The physical disabilities of Down Syndrome include underdeveloped midface, flat occiput, open bite, mouth breathing, small nose, small mouth, small and dysplastic ears [4]. Mental disability includes general anxiety, repetitive and inattentive behavior and obsessive-compulsive behaviors [5]. Oral manifestation includes macroglossia, oligodontia, microdontia, fissured lips and tongue, missing and malformed teeth, small roots, delayed eruption times, angular cheilitis, and crowding [1].

Most of the studies done around the world have reported that even with decreased learning ability the Down Syndrome patients have similar caries prevalence, and oral hygiene. No such study is available for the Saudi population; it is therefore required to do a similar study in the Saudi population to compare with other parts of the world.

Limited centers provide dental care for Down Syndrome children; only large hospitals have centers that provide dental care for Down Syndrome children. The treatment is mostly done under general anesthesia, rarely on dental chair. Dental schools do not welcome Down Syndrome children to be treated by undergraduate students.

Aims of the research

The aim of the study is to evaluate caries rate and oral hygiene in Down Syndrome children between 8 and 12 years old. The study will be conducted in DSCA Center, Saudi Center for Down Syndrome, and Saut Society in Riyadh.

Null hypothesis

There is no difference in the DMF and OHI indexes between the Down syndrome and normal children.

Material and methods

It was a cross-sectional, observational clinical study with a sample size of 200 subjects. The control group consisted of 100 subjects aged
between 8 and 12 who were randomly selected and examined at an elementary public school in Riyadh. Whereas the research group consisted of 100 subjects Down Syndrome children aged between 8 and 12. These subjects were examined at DSCA Center, Saudi Center for Down syndrome, and Saut Society in Riyadh.

Four students from RCDP participated in the examination of the children as undergraduate research project. Oral examination was carried out by the researches on a regular chair using regular examination instruments (mouth mirror, and dental explorer).

The study included oral hygiene index (OHI), which is a combination of Plaque Index and Calculus Index, to measure the (OHI). We divided each arch into three segments and measured the calculus and plaque on the buccal and lingual surfaces of each segments of both arches. The segment was represented by the tooth that showed the highest reading. After collecting all the data, we calculated the values. We added up all the values we got from plaque index, then we divided them by the total number of tooth surfaces in each segment. After that, we calculated the calculus index in the same way Greene et al. Then, we added up both values. Decayed-Missing-Filled index (DMF) or Decayed-Missing-Filled Teeth (DMFT) index was used to assess dental caries prevalence and dental treatment needed among the subjects. This index was recorded by the examination of individuals using dental examination kits and counting the number of decayed, missing, due to caries, and restored teeth [6].

**Statistical analysis**

All data were analyzed by Excel software using the Student’s T-test.

**Results**

There was no statistical difference between any of the parameters in control and study group. The results were calculated at 95% confidence level (P value = 0.05) (Figures 1-4)

**Discussion**

Down Syndrome children showed friendly cooperative behavior during the study comparable to normal children. Seven Down Syndrome children showed friendly cooperative behavior during the study comparable to normal children. Four students from RCDP participated in the examination of the children as undergraduate research project. Oral examination was carried out by the researches on a regular chair using regular examination instruments (mouth mirror, and dental explorer).

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No statistically significant difference was observed in the DMF index between the Down Syndrome subjects and subjects in the control group.

No statistically significant difference was observed in the OHI between the Down Syndrome subjects and subjects in the control group.

Our study here in Riyadh showed similar results to other studies done in other countries.
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