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RESEARCH ARTICLE

A COMPARISON OF DMF INDEX AND ORAL HYGIENE INDEX BETWEEN DOWNSYNDROME 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.

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INTRODUCTION

Down Syndrome is a genetic disorder of chromosome 21 that is characterized by physical and mental disability (Mcdonald and Avery's, 2011). The incidence of Down Syndrome in Saudi Arabia is estimated to be 1 in 500(Niazi et al., 1995). Thispercentage is higher than the Down Syndrome prevalence around the world that is estimated to be 1 in 700 (Mutchinick, Lisker, and Babinsky, 1991). The physical disabilities of DownSyndrome include underdeveloped midface, flat occiput,open bite, mouth breathing, small nose, small mouth, small and dysplastic ears (Chen H, 2015).Mentaldisability includes general anxiety, repetitive and inattentive behavior and obsessive-compulsive behaviors (Munir, n.d.). Oral manifestation includesmacroglossia,oligodontia,microdontia, fissured lips and tongue, missing and malformed teeth, small roots, delayed eruption times, angular cheilitis, andcrowding (Mcdonald and Avery's, 2011). 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 populationto 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 Syndromechildren to be treated by undergraduate students.

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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, SaudiCenter for Down Syndrome, and Saut Society in Riyadh.

Null hypothesis

There is no difference in the DMF and OHI indexes between the Downsyndromeand 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 anelementary 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 includedoral hygiene index (OHI), which is a combination of Plaque Index and Calculus Index, to measure the (OHI).Wedivided 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 dividedthem by the total number of tooth surfaces in each segment.After that, we calculated the calculus index in the same way(Greene and Vermilion, 1960). 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 anddental 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 restoredteeth (Broadbent and Thomson2005).

Statistical analysis

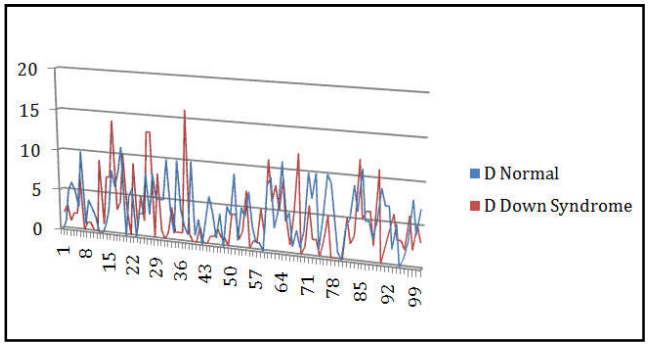
All data were analyzed by Excel software using the Student's T-test.

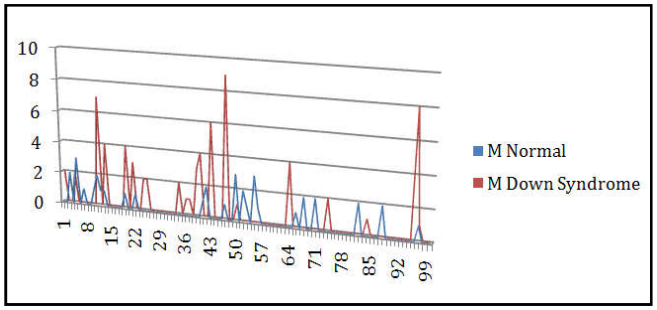
RESULTS

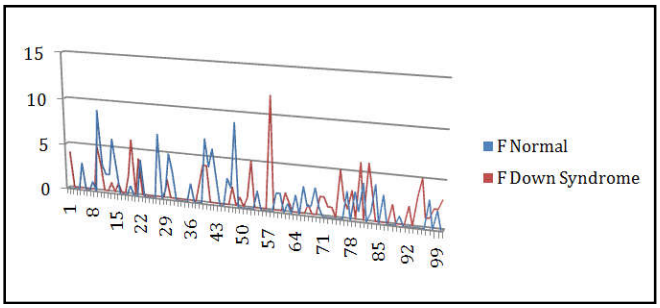
There was no statistical difference between any of the parameters in control and study group. The results were calculated at 95% confidence level (P value = 0.05)
D= 0.059, M=0.090, F=0.65, and OHI=0.098.

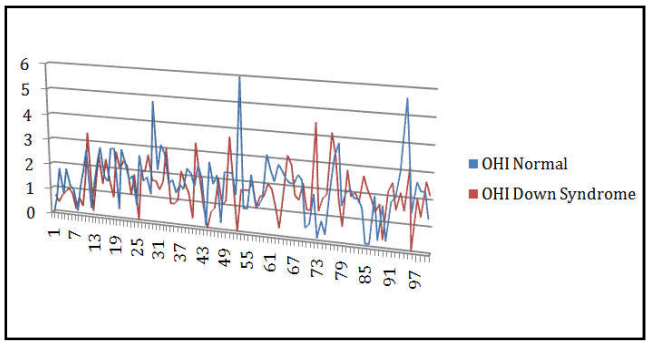
DISCUSSION

Down Syndrome children showed friendly cooperative behavior during the study comparable to normal children. Seven Down Syndrome were excluded as they refused to open their mouths for screening. No such restriction was there when examining the children in the control group.









A number of similar studies have reported the results comparable to our study. (Krishnan and Archana, 2014) (López-Pérez, 2002) (Moreira, 2016). Recently two literature review articles reviewed more than 226 similarstudies. They reported that some studies showeddecreased incidences of caries in Down Syndrome subjects but either the results were not statistically significant or there was no strong scientific evidence. Similarly, some studies have reportedhigher incidences of gingivitis and periodontitis in Down Syndrome subjects compared to the normal population and once again either the results were not statistically significant or there was no strong scientific evidence. (Deps and Angelo, 2015) (Moreira, 2016). Our results have shown that even with decreased learning ability the Down Syndrome subjects were able to have their oral hygiene and caries indexes similar to the control group. This is perhaps because the parents as well as the staff in the institutions are managing these children well.
The studies that reported higher prevalence of gingivitis and periodontitis may be related to adifferent age group.We did not

have such incidences as we studied children aged between 8 and 12; no adults were part of our study. (Barnett and Press, 1986).

Conclusion

- No statistically significant difference was observed in the DMF index between the DownSyndrome 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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