ORAL HEALTH OF CHILDREN WITH INTELLECTUAL DISABILITIES
- AN INSTITUTIONAL STUDY

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ABSTRACT
Intellectual disabilities apply to a person who has a lower intellect compared to a normal person. The ability of them to cope with the environment is very low. It is seen that people with intellectual disabilities require help and assistance for their personal maintenance. The study aims at determining the oral health status of children with intellectual disabilities. A retrospective study of sample size 15 was conducted. Among the 15, 8 patients were the cases with intellectual disabilities and 7 patients were taken as the controls. The DMFT and OHI score of the patients were tabulated in Excel and imported to SPSS. The statistical test performed was the Pearson Chi Square test. The average DMFT of the patients with intellectual disabilities was 5.4 and OHI score was said to be 1.8. It was also seen that the controls had a better oral hygiene status than the cases. Chi square test shows p>0.05. The overall oral hygiene status of children with intellectual disability was poor and attention is required for maintenance of the oral hygiene of these patients.

Keywords: DMFT, Intellectual disabilities, OHI, Oral health
INTRODUCTION:

Intellectual disabilities are also known as intellectual developmental disorder or in earlier terms known as mental retardation (Casamassimo et al., 2012). According to the World health organisation individuals with disabilities of any form comprise 10% of the population in developed countries and 12% in developing countries (Casamassimo et al., 2012; Nacar, Cetinkaya and Baykan, 2012). Intellectual disability is characterised by limitation both in intellectual functions and in adaptive behaviour both in social and practical skills. The disability is said to originate before 18 years. Intellectual disability comprises general mental capacity such as learning, reasoning and problem-solving (Oluwanya, Davis and Hoffman, 2019). 3% of the world's population has some form of intellectual disability among which 85% are mild, 10% are moderate, 4% severe and 2% profound (Nawoczenski, 1991; DeLong and Robert DeLong, 2006). Clinically Features of a patient with intellectual disability are said to be hyperactivity, impulsiveness, fearful behaviour, self mutilation and craving for non-food items (Nirmala, Saikrishna and Nuvvula, 2018). Such patients generally need supervision with their day to day activities. In addition it is required that they attend a training or an occupational Centre on a regular basis (Gordon, Dionne and Snyder, 1998; Hulland and Sigal, 2000; Ferreira et al., 2011).

While considering the fact that such children need assistance for everything, focus should be given on maintenance of that oral health as well. As the treatment procedures consume time and tend to cause a lot of anxiety among such patients it is always different that the treatment is done under general anaesthesia. The caries tend to be a little higher than an average person and they generally have a very periodontal condition (Al-Sufyani et al., 2014). Lip biting is most common among such patients, speech impairment due to early loss of teeth, salivary flow alterations, congenital missing teeth are some commonly observed features that they possess. The study is essential to be carried on because the treatment of mortalities for the children as such is a challenging task thus making it very essential to focus on the oral health of children who are not able to cooperate even as much as the normal kids can.

Newer studies are being carried on by our team in order to provide efficient treatments for children (Jeevanandan, 2017; Jeevanandan and Govindaraju, 2018). Also studies that are comparing new and old techniques are being carried on to know the rate of effectiveness of the treatment being provided (Govindaraju, Jeevanandan and E. M. G. Subramanian, 2017; Govindaraju, Jeevanandan and E. M. G. Subramanian, 2017; Govindaraju, Jeevanandan and E. Subramanian, 2017; Nair et al., 2018; Panchal, Jeevanandan and Subramanian, 2019). Various surveys and reviews are being conducted to get a clear insight on everyone's views on treatment being provided (Govindaraju, Jeevanandan and E. M. G. Subramanian, 2017; Ravikumar, Jeevanandanand Subramanian, 2017; Christabel and Linda Christabel, 2015; Packiri, Gurunathan and Selvarasu, 2017; Subramanyam et al., 2018). Research that aims at the awareness to be provided and also on several aids to increase the maintenance of oral hygiene make a very
important role in our evaluation of maintenance of oral hygiene (Mahesh R, 2018); (Somasundaram et al., 2015; Govindaraju and Gurunathan, 2017; Govindaraju, Jeevanandan and E. Subramanian, 2017; Gurunathan and Shanmugaavel, 2016). Not only it is found essential to provide treatment for patients with intellectual disabilities but also it is essential that this treatment provided it to be maintained by having a proper oral hygiene schedule, applying pit and fissure sealants if needed and regular fluoride applications. The study aims at determining the oral health status of children with intellectual disabilities.

MATERIALS AND METHODS

The study was carried out by choosing 7 controls i.e., patients without intellectual disability and 8 cases that are patients with intellectual disability. Population selection was random. Population type was patients with intellectual disabilities. The patient records were reviewed and analysed between June 2019 and March 2020. Cross verification was done by referring case sheets and photographs. To minimise sampling bias all available data was included. All the incomplete & censored was excluded. The inclusion criteria were all patients with Intellectual disabilities & exclusion criteria were patients with a good oral health. The study was carried on in a university set up. The internal validity of the study was set by referring to the DMFT and OHI scores.

Statistical analysis

After Excel tabulation, the data was transferred to SPSS. The analysis was done using SPSS version 19. Descriptive statistics were used to calculate correlation between OHI and DMFT of cases and controls. The dependent variables were OHI and DMFT scores. The independent variables were age and gender. The collected data was imported to SPSS and the chi square test was done. The type of analysis performed was correlation and association. The level of significance was set at 0.05.

Ethical approval

A retrospective study was conducted; ethical approval was obtained from Saveetha Resource Board.

RESULTS

The DMFT of patients with intellectual disability was 0, 2, 3, 4, 12, 13 and DMFT of patients without ID was 0, 1 which shows that the patients without Intellectual disabilities (controls) had a better DMFT score which signifies good oral health. (Figure 1). Pearson chi square test shows P value= 0.0667 (p>0.05); non-significant association. The OHI of patients with Intellectual disabilities were 1, 1.2, 1.4, 1.8, 2.2 showing an average of 1.8 and ones without Intellectual disabilities were 1, 1.1, 1.2 having an average of 1.04 signifying good oral health among the controls (Figure 2). Pearson chi square test shows P value= 0.442 (p>0.05); non-significant association. 62.5% of the children with Intellectual disabilities were females and 37.5% of them were males. (Figure 3). Pearson chi square test shows P value= 0.447 (p>0.05); non-significant association. The patients with Intellectual disabilities belonged...
to age group 3-17 years of age. The mean age being 8.6 years. (Figure 4) Pearson chi square test shows P value= 0.893 (p>0.05); non-significant association.

**DISCUSSION**

The current study reveals that patients with intellectual disabilities have a higher DMFT score (mean score 5.4) as compared to the patient’s without intellectual disabilities (mean score 0.42). The OHI score was also found to be higher in patients with intellectual disabilities (mean score 1.8) compared to patients without intellectual disability (mean score 1.04). The study shows that children with ID have poor oral hygiene and gingival health. This is consistent with studies conducted by Al-Sufyani et al. The main reason for gingival or periodontal problems in disabled individuals is the lack of proper oral hygiene and inadequacy of plaque removal. This suggests that there is a need for more assistance from their caretakers with their oral health care (Al-Sufyani et al., 2014). People with intellectual disabilities have a higher prevalence and greater severity of periodontal disease than the general population ((Renata de Oliveira Guaré, 2003; El Khatib et al., 2014).

Zhou et al said in his study that children with intellectual disabilities have lesser fillings and decay (Zhou et al., 2017) but Guare et al concludes with a statement opposite to this ((Guaré and Ciamponi, 2003). Thias et al states that longer brushing and daily brushing is required in order to maintain proper hygiene for patients with intellectual disabilities (Dutra et al., 2019). It is also said that tooth brushing provided by caregivers for the patient with intellectual disabilities was more effective that what was carried out by the patients with intellectual disabilities of the same age. Fisherman in his study has highlighted that there is poor oral health of patients with intellectual disabilities and worse periodontal status which indicates their difficulties in getting access to dental services back in 1967 (Fishman, Young and Haley, 1967). But as of now this doesn’t seem to be a big problem. Studies have stated that patients with intellectual disabilities had more decayed (3.52; p < .005), and missing teeth (1.17; p = .001), fewer dental restorations (1.67; p = .012) and had a greater need for tooth extraction (21.4%; p = .002) and also 30% of the subjects had never received dental treatment and had difficulty accessing public health services. Their treatment needs were, therefore, higher than the controls ((Oliveira et al., 2013).

Also studies showed that Dental caries prevalence was 63.8% among patients with intellectual disabilities and the mean DMFT of the study participants was 2.55 ± 2.99. Participants with severe ID had the highest mean DMFT which was 5.66 ± 4.26 followed by moderate and mild ID who had DMFT of 2.15 ± 2.67 and 1.98 ± 2.27, respectively (Renata de Oliveira Guaré, 2003).Most patients reported are females, ie, 62.5% of them. Wilson et al argues that gender stereotypes are reinforced among patients affected with intellectual disabilities, particularly for males (Wilson, Fornasier and White, 2010). Patients of age 3-7 years have reported with oral health issues which are similar to the results of Zhou as most of the patients with intellectual disabilities belonging to the age group belong 18 years (Zhou et al., 2017). The mean age of the patients said to report here with a dental problem was 8.6 years. In the study conducted it was seen that the cases had a very poor oral hygiene status compared to the controls. The patients with intellectual disabilities would require more tedious procedures as compared to the people of their age.
The challenges faced by other researchers were said to be the lack of awareness among the patients and also the lack of cooperation (Jain et al., 2009; Bhambal et al., 2011). Thus giving a clear insight that they need to be taken extra care of and maintained.

CONCLUSION

Within the limitations of the study it was concluded that the patients with intellectual disabilities had very poor oral hygiene status. This study can further be helpful in future to conduct awareness programs and for the ease of treatment planning for children with intellectual disabilities.

AUTHOR CONTRIBUTIONS:

Preethi Mariona carried out the retrospective study, planning the study design, collection and analysis of data and drafted the manuscript. Dr. Mebin and Dr. Sree Devi aided in conception of the topic, supervision and appraisal of the manuscript.

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CONFLICT OF INTEREST - The authors have no conflict of interest.

REFERENCES


Figure 1: The bar graph shows association between DMFT of children with / without intellectual disabilities. X axis denotes the score of DMFT and Y axis denotes the number of patients. Poor DMFT scores are seen in patients with Intellectual disabilities (red) than patients without Intellectual disabilities (blue). Pearson’s Chi square value =11.786; df=6; p value=0.067 [<0.05]; non-significant association, proving that there is no significant association between DMFT scores and patients with/without intellectual disabilities.
Figure 2: The bar graph shows association between OHI of children with / without intellectual disabilities. X axis denotes the score of OHI and Y axis denotes the number of patients. Poor OHI scores are seen in patients with Intellectual disabilities (red) than patients without Intellectual disabilities (blue). Pearson’s Chi square value =4.788 df=5; p value= 0.442 ; non-significant association, proving that there is no significant association between OHI scores and patients with/without intellectual disabilities.
Figure 3: The bar graph shows association between gender of children with/without intellectual disabilities. X axis denoted the gender of the patients and Y axis denoted the number of patients. More females, 5 patients are affected with Intellectual disabilities (red) than patients without Intellectual disabilities (blue). Pearson’s Chi square value =0.579; df=1; p value is 0.447 ;non-significant association, proving that there is no significant association between Dmft scores and patients with/without intellectual disabilities.
Figure 4: The bar graph shows association between gender of children with / without intellectual disabilities. X axis denoted the age of the patients and Y axis denoted the number of patients. More patients of age 6 years, 2 patients (37.5%) are affected with Intellectual disabilities (red) than patients without Intellectual disabilities (blue). Pearson’s Chi square value =2.277; df=6; p value= 0.893 ; non-significant association, proving that there is no significant association between age and patients with/without intellectual disabilities.