

Preventive oral health program for autism spectrum disorder patients

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ABSTRACT

The study's goal was to compare clinical hygiene indicators, patient collaboration, and oral practises in ASD (Autism Spectrum Disorder) individuals before and after a customised preventative programme. A total of 100 patients (78 boys and 22 females, mean age 80.7 years) with ASD diagnosis were enrolled, ranging in age from 7 to 16 years old. For each patient, we calculated the Index Plaque (IP), gingival in-

-dex (IG), dmft/DMFT, dental brushing frequency, and snack frequency. The Frankl scale was used to assess patient behaviour, and each patient was examined individually after five visits by the same operator. To compare the parameters before and after inclusion in the specific dental pathway, the t test was performed. We discovered a substantial improvement in the IP (p0.001), IG (p0.001), and teeth brushing frequency (p0.001) from T1 to T2. The differences in the observed averages for snack frequency and the metric dmft/DMFT were not significant (p>0.05). The Frankl scale revealed a statistically significant difference in collaboration between T1 and T2 (p0.001). The preventative programme was proven to have a considerable impact on clinical

INTRODUCTION

ASD is a severe multifactorial illness marked by a slew of symptoms in the areas of social communication, restricted interests, and repetitive behaviours. The severity of associated socio-communicative difficulties, as well as the degree of cognitive and language development, vary substantially among people with ASD. This illness has a complex aetiology and appears in the first three years of life; Kanner coined the name autism in 1943, and ASD is classified as a clinical category of neurodevelopmental disorders in the DSM-V. Even if autism has no direct impact on oral cavity health, patients with autism are more likely to develop carious lesions, have altered periodontal status, have altered oral microbiota, and are at higher risk of traumatic injury due to their failure to follow oral hygiene rules and their difficulty attending dental visits and therapies. The prevalence of dental caries was determined to be 60.6 percent in a comprehensive review and meta-analysis, while the prevalence of periodontal disease was 69.4 percent. During dental visits, it was noticed that children with ASD often behaved badly, if not more negatively, than healthy children without ASD; hence, therapeutic compliance can be difficult to accomplish. Furthermore, self-injurious behaviour and bruxism were shown to be common in children with ASD, suggesting that their behaviour and other life issues may make dental services more difficult to provide and limit access to paediatric

Dental Care

Unfortunately, family, educators, and operators have a propensity to focus almost completely on the neuropsychiatric components of the

patient's disease, discounting the possibility of oral cavity injury. These issues are only addressed in a hurry, when it is too late to achieve the desired effects, resulting in the halo effect. Because ASD is a heterogeneous condition with a wide range of manifestations in individuals, it necessitates the development of appropriate and particular methods. The dental management of a person with ASD necessitates a multi-step approach that meticulously plans all actions to be carried out before, during, and after outpatient treatment in order to obtain a personalised programme aimed at reducing or completely eliminating each person's mental, spatial, and perceptual obstacles. Gradual contact aims to gradually familiarise the patient with the tools and environment of care through various types of verbal and nonverbal communication. The "active" phase, which includes the "Tell, Show, Do" module, follows the "inactive" phase. This module makes the most of the subject's most basic and primary cognitive resources, promoting a positive association between the dental clinic's surroundings and the lack of risk and discomfort. Communication is the exchange of information between a person and the rest of the world, which is inevitably made up of various subjects who can connect via this exceptional medium.

MATERIALS AND METHODS

The research looked at children and adolescents with ASD who were diagnosed with autism spectrum disorder by local child psychiatry units and ranged in age from 7 to 16. The standardised methodology included an assessment of autism severity over the course of ADOS-2,

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as well as language development, cognitive, and adaptive functioning. All of the ASD subjects were native Italian speakers. Individuals with an autistic spectrum disorder diagnosis, permanent or mixed dentition, patients on whom a re-evaluation after at least five sessions with a Frankl scale score >1 , and patients whose parents had signed an informed consent form were all eligible. Individuals with a Frankl scale score of 2, patients who had undergone oral hygiene sessions in the previous three months, and patients with systemic disorders were all excluded from the study. An interview with the patient's parents was conducted before to the first dental visit. During the interview, an anamnestic file was created together with the data collecting file with the help of the child neuropsychiatrist in order to better characterise the patient's neuropsychiatric condition. T0 and T1 (after 1 week) dental checkups were performed, followed by two more visits one month after T1 and three months after T1. Furthermore, six months following T1, a last visit was conducted (T2). The first visit (T0) is a "cognitive" visit: it is an important opportunity for the patient to get to know the dental team and the clinic's facilities (roles, methods, and times). It was frequently able to familiarise the patient with dental instruments on the initial visit, and to capture these moments in images and movies that were later transmitted to the patient's family. Some objects, such as a mirror and a toothbrush, were given to the patient at the end of T0 to reinforce the visit and increase trust with the equipment. Furthermore, the first session increased patient compliance, and after one week, all participants with a Frankl score of 4 decreased their score (T1). A second appointment (T1) was scheduled after a week, with the purpose of the patient becoming more closely acquainted with the dental instruments using the "Tell, Show, Do" module. Other behavioural approach approaches included voice control (changing voice level), distraction technique (distracting the patient's attention away from what may be viewed as a painful treatment), and boosting control (raising a hand to interrupt the dental operation).

Statistical analysis

The sample size was calculated using the IP score from a previous study. The sample size required 23 patients in each group to compare the two means with a power of 0.9, a size of the test of 1%, a standard deviation of 0.8, and a difference of 0.7. The link between brushing frequency and the number of times the video was played at home was evaluated using Pearson's Correlation Coefficient. The averages and standard deviations in a sample of 100 children were estimated using the SPSS 22.0 statistical programme at T1 and T2 (after 6 months).

DISCUSSION

Brushing frequency improved significantly in the re-evaluation session compared to the first. The role of parents in the protocol was critical, in addition to the medical approach. In fact, because they coached their child at home after being instructed, they were the most essential resource in fostering child behaviour changes. The correlation between the number of times the movie was played and brushing frequency improved significantly. Because the kid with ASD is so reliant on his or her parents, good parent motivation and active involvement in the entire therapy path yields positive results, particularly in the area of domiciliary dental hygiene. Parents were participated in the preliminary interview, which resulted in the creation of an additional folder on the child's special characteristics, in addition to an anamnestic folder. It's crucial to understand positive and negative reinforcements, as well as customary practises and the communication channel. The differences in sugary snack drink intake between T1 and T2 were not substantial, and can be explained mostly by the difficulties of changing mealtime habits; also, new healthier foods may induce anxiety in ASD children, who often have bad food choices.

Regarding the fact that children with ASDs attend daycare centres where educators occasionally use edible reinforcements such as chocolate, candy, and chips to stimulate and reward good behaviour, we should emphasise that extremely small quantities of snacks, often in the size of millimetres, are recommended to be used; furthermore, the amount and frequency of sugar intake during treatment should be constantly reduced. This is particularly common during the early stages of Applied Behaviour Analysis (ABA) therapy, and while it may be beneficial to employ other reinforcers than sweet reinforcers, implementing this approach is typically difficult. The results of the dmft/DMFT tests were not significant. Children with ASD do not have a higher risk of caries or periodontal disease than children without ASD, according to the literature, and their worst state of health is solely due to the greater difficulty in practising proper oral hygiene methods and the limited access to prevention and treatment facilities. In fact, despite a slight worsening trend, we found that with a decrease in plaque and gingival index and a higher brushing frequency, there was no significant increase in the prevalence of decayed, missing, or filled teeth (dmft/DMFT index) in our study based solely on preventive programmes and education rather than therapeutic procedures. As a result, even if the development of new caries lesions in these individuals is difficult to prevent, dental preventative measures are required for ASD children. Oral hygiene manoeuvres were conducted in the first sessions based on the specific condition of each patient. In fact, both the plaque and gingival indices improved significantly from T1 to T2. The application support was beneficial at home since the youngster improved both his home oral hygiene habits and his degree of collaboration through interactive pdf and video modelling. This was a crucial goal for our study, as it aimed to show how a focused and tailored strategy improved each ASD patient's degree of compliance. As a result, sedatives or general anaesthesia may be required only in the direst of circumstances. We did not use the ICDAS index, which is a more specific and dynamic measure than dmft, as one of the study's limitations. Furthermore, because both digital and traditional prevention programmes were conducted without comparing two groups, we were unable to discover the true benefit of individualised digital assistance. Another limitation of the study is the lack of a control group of healthy patients without ASD, which would allow researchers to see if the findings in the ASD population are comparable to those in the general paediatric community.

CONCLUSION

The findings revealed that a specific oral health preventive programme can help the ASD paediatric population achieve better oral health. The prevalence of decaying, missing, or filled teeth (dmft/DMFT) did not significantly rise at the end of the research, despite a significant improvement in clinical indicators (PI and GI). Furthermore, at T2, dental brushing was much higher, and snacking during the day was significantly reduced at the final follow-up. After six months, the Frankl scale of behaviour related to dental intervention improved significantly; therefore, it is hoped that the first dental visit for children with ASDs will occur soon after the disorder is diagnosed, allowing for a greater focus on prevention rather than therapeutic interventions, which are difficult to perform in young patients with anxiety and fears. Finally, tailored initiatives should be expanded across the region to allow children with ASDs to be treated with a specific oral health prevention programme.