CASE REPORT

USE OF SILVER DIAMINE FLUORIDE IN DENTAL CARIES MANAGEMENT OF A CHILD WITH AUTISM SPECTRUM DISORDER- A CASE REPORT.

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ABSTRACT

Autism spectrum disorder (ASD) refers to a group of neuro-developmental disabilities characterized by impaired social interaction, communication, and restricted or repetitive behavioral stereotypes. Children with ASD are unique in their dietary preferences, dietary habits and oral hygiene habits making them susceptible to dental problems including dental caries. Dental treatment of children with ASD becomes difficult in the dental set up due to their behavioral problems and lack of knowledge on the part of the dental team. Elaborate treatment options should be avoided without general anesthesia in these cases. Considering these factors, application of Silver Diamine Fluoride to prevent further progression of dental caries was done in this case report which also mentions about the dental management of children with ASD.

KEY WORDS

Autism Spectrum Disorder, Dental management, Silver Diamine Fluoride.

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INTRODUCTION

Autism spectrum disorder (ASD) refers to a group of neuro-developmental disabilities characterized by impaired social interaction, communication, and restricted or repetitive behavioral stereotypes. According to Centers for Disease Control and Prevention 2014, worldwide, 16.8 per 1,000 (one in 59) children aged 8 years have ASD. Children with ASD are unique in their dietary preferences ,dietary habits and oral hygiene habits making them susceptible to dental problems including dental caries. Studies conducted by Md.Jaber in 2011 which stated that the overall prevalence of dental caries among the autistic children was 77.0%, the mean dmf, and DMF for all the autistic children and healthy control subjects was 2.4 and 0.9 respectively.[1-3]

People with ASD may be unable to cooperate in the dental clinic due to their difficulties with social interaction and communication, repetitive patterns of behaviour, aggressive behavior, unusual sensory interests or sensitivities and the presence of behavioural unpredictability. Elaborate treatment options can be difficult to implement due to very short attention span in them Also, using general anesthesia can be costly. Several basic behaviour guidance methods have been recommended to accommodate dental therapy of autistic patients, including the presence of parents, the use of tell-show-do technique, short, clear commands, and differential verbal reinforcement.[4]

Considering these facts, preventive measures can be taken for treating children with ASD effectively by using different methods. Silver diamine fluoride is a clear antimicrobial liquid that is applied on the cavities. As the silver compound kills the cavity-causing bacteria, and the fluoride hardens the remaining tooth, SDF temporarily stops the cavities from growing by arresting dental caries. Evidence-based guidelines are present on the use of 38 percent silver diamine fluoride (SDF) for dental caries management in children and adolescents, including those with special health care needs. The findings presented in this case report is about management of a child with autism and also emphasizes the early preventive measures to be undertaken in these patients.[5-7]

CASE REPORT

A 12 -year old male patient accompanied by his mother reported to the department of Pediatric and Preventive Dentistry with the chief complaint of decayed teeth in upper and lower left and right back teeth region but no pain was reported. The patient showed signs of both physical and mental retardation. Medical history revealed that the child was diagnosed with mild to moderate degree of autism accompanied by ADHD, mild mental retardation and anxiety disorders since 3.5 years of age with I.Q score of 57. He has poor muscle tone and control over his extremities.

The child was under medications prescribed by his Psychiatrist and was undergoing speech therapy and psychotherapy. Oral examination revealed pit and fissure caries in the first permanent molars and white spot lesions in the anterior teeth.

Keeping in mind the importance of prevention, a vigorous approach to preventive measures such as oral hygiene practices, dietary advice and brushing with fluoridated toothpaste was advised. Since the child had mild to moderate degree of Autism he could follow simple instructions and could communicate to some extent after using various behavior management techniques and modifications in treatment modality. Short structured appointments, Tell-show-do technique, positive reinforcement, clear short simple instructions were helpful in making the child comfortable. On the first visit, MI Varnish was applied. After a week SDF application was planned on the carious molars after obtaining consent and proper explanation of the procedure and benefits.

Petroleum jelly was applied on the lips and surrounding area of the face to prevent any accidental staining which occurs due to SDF. Isolation was done using cotton rolls and high volume suction device. One drop of SDF was dispensed on a dappen dish and using a microbrush it was painted for 1 minute over the occlusal surface of the carious molar teeth after drying the surface of the teeth with compressed air. Excess SDF was removed using cotton pellets. Application of SDF was followed by gentle flow of compressed air and kept isolated for three minutes. Patient was also advised for reapplication of the SDF after 6 months.[6-8]

DISCUSSION

Oral health and hygiene is an important aspect of health for all children, and more so for the children with special care needs, where prevention is more important. Children with autism are often cited as having certain behavioral problems which may lead to an increased risk for dental caries like medications causing xerostomia, dietary choice (preference for soft and sweet foods), food rewards in the form of chocolates and confectionaries and poor maintenance of oral hygiene.[1,2]

Attitude and knowledge of the oral health care professionals is of extreme importance while rendering the oral health care to such children Communication should also be established with the parents/ care takers of these individuals. Brushing with a fluoridated dentifrice twice daily should be emphasized to help prevent caries and gingivitis. A

Figure 1: e-SDF by kids-e-dental, Applicator brush and Dappen dish

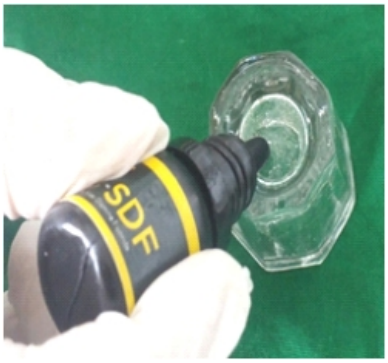

Figure 2: Dispensing of the SDF

Figure 3:Isolation using cotton rolls, suction device and drying the tooth surface

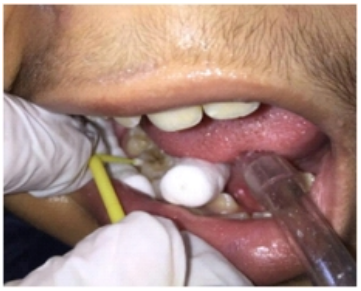

Figure 4: Application of SDF

non-cariogenic diet should be discussed for long term prevention and if a diet rich in carbohydrates is medically necessary, the dentist should provide strategies to alter frequency besides increasing preventive measures.

Carefully listening to the parents/caretakers is a key element in gaining their trust, which in turn will help tremendously in gathering data. Dentist should know the medical conditions of the child and should be ready for co-occurring medical and physical issues. For a successful dental visit of autistic child, the whole staff should be caring, empathetic, and aware of how to communicate with these patients. Patients are likely to be disturbed emotionally by surrounding distracting stimuli like sound, light, and taste. Such discomfort may be reduced by adjusting the dental clinic environment sensitively. For individuals with limited language, use of pictures or objects to explain what will occur. Example : Pictures of radiographic film, disposable plastic mouth mirrors, mouth props or rests, saliva ejectors/ suction tips. Distracting techniques like watching a favorite cartoon, listening to music, or holding onto special toys might help autistic patient to getting distracted while undergoing some procedures. Creating social stories, role playing and visual pedagogy also shows good results. Some require assistive communicative devices, such as a Smart/Scan 32 pro, an augmentative communication device, or a Picture Exchange Communication System (PECS). For autistic patients, PECS is an alternative communication technique with no or little verbal skills.[9-12]

Patients who may benefit from SDF include those:

- With high caries risk who have active cavitated caries lesions in anterior or posterior teeth
- Presenting with behavioral or medical management challenges and cavitated caries lesions
- With multiple cavitated caries lesions that may not all be treated in one visit
- With dental caries lesions that are difficult to treat and
- Without access to or with difficulty accessing dental care.

Given the economic benefits and efficiency of SDF and because they can be provided to patients much faster than traditional sealants, it has the potential to be used widely in such patients.[5]

CONCLUSION

As each patient is an individual, a thorough understanding about each patient is necessary for dentist and assistant. The ability to handle the patients should be guided by instinct and creativity, rather than by strict reasoning. Proper knowledge and training regarding the treatment of children with ASD in the dental set up can be extremely important for the entire dental team to successfully manage these children.

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