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Review Article

Dentistry in Special Child- A Review

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ABSTRACT:

The main concern for the development of the future of our society is ensuring the healthy growth of our children. The disabilities of children with special health care needs (SHCN) directly or indirectly relates to their dental condition. Such children relatively have poor oral hygiene and also increased prevalence has been seen for gingival diseases and dental caries. However, the health planners have overlooked the importance of the dental care for these children. Unfortunately, usually the parents of disabled children do not seek for the dental treatment as they have been over burdened by the medical treatment. Earlier, the priority was based upon providing the basic dental care, but recently the dental profession has shown an increased concern in contributing to provide the complete oral health care to the physically or mentally challenged children. Pediatric dentistry provides the primary and comprehensive as well as the preventive and therapeutic oral health care to special children. In order to achieve an appropriate rehabilitation, these special children are also entitled to the opportunity that enables them not only to realize their maximal level of functioning and to help them in normalizing their lives but also in lengthening their life span.

Key words: Developmental delay, health care, mental impairment, special children

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INTRODUCTION

The American Academy of Pediatric Dentistry (AAPD) describes the special health care needs (SHCN) as “any physical, developmental, mental, sensory, behavioral,

cognitive, or emotional impairment or limiting condition that requires medical management, health care intervention, and/or use of specialized services or programs”. The condition may be developmental,

congenital, acquired through trauma, disease or environmental cause and can pose limitations in performing the daily self maintenance activities. It requires specialized knowledge, additional training, excessive awareness and attention in order to provide health care for special children.¹ Only 1 % out of the total about 12 million children with disabilities in India have access to the school.² Approximately 80% of such children do not survive past age 40. There are several conditions which can impact the child's oral health such as developmental disabilities, mental retardation, craniofacial abnormalities, cerebral palsy and seizure disorders. These children have relatively an increased prevalence of compromised gingival and periodontal health due to poor oral hygiene and also an increased prevalence of dental caries than general population. It is also a matter of great challenges to treat various dental diseases problems in this group of patients as these children may not understand the importance of preventive oral health practices. Moreover, due to huge burden of medical treatment, their parents or care givers do not seek dental treatment. Furthermore, the health planners often overlook the importance of dental care for these children. The present paper describes the commonly seen oro-dental problems in special, causes of their increased prevalence and various barriers to accessing dental care as well as the management of oral diseases in this population of children. Thereby by understanding the consequences of poor oral health in special children and to identify the potential barriers to oral health care, the health professionals can identify the at risk patients early and hence can provide guidance and refer to pediatric dentists.

SPECIAL CHILDREN AND ORO-DENTAL PROBLEMS: The disabilities of these children are responsible directly or indirectly for their dental problems and oral conditions. Due to various medical conditions and growth abnormalities, there can be adverse affect on the oral health. While in turn the oral diseases may also have a devastating impact on the general health of these children.³ Some of the commonly occurring oral problems in children with special needs are as follows-

Dental caries- The special children generally have an increased prevalence of dental caries due to many reasons such as in cerebral palsy, there is uncoordinated chewing which may leave more food in the mouth as well as an uncoordinated and weak tongue may not be able to clean all oral surfaces adequately.⁴ Furthermore, there is difficulty in practicing proper tooth brushing because of limited manual agility. Moreover, because of gagging on the toothbrush or paste there is incomplete brushing of all the tooth surfaces. An inability to spit may result in the swallowing of toothpaste. Also, those

children who reside at home are mostly pampered by their parents with cariogenic snacks and other unhealthy eating habits as well as xerostomia caused by certain medications cause dental caries. Moreover, the gingival hyperplasia and dental crowding are the risk factors for dental caries.

Enamel demineralization and hypoplasia- The children having developmental delays or with low birth weight as well as certain genetic syndromes may be at an increased risk for enamel hypoplasia, which is a predisposing factor for the dental caries.⁵ The enamel hypoplasia usually appears on the occlusal or middle third of the teeth, while the demineralization resulting from acidic environment and poor oral hygiene most often occurs near gingival line.

Eruption of teeth- There can be normal, delayed and even early tooth eruption in children special need. The delayed eruption is more common in children with Down syndrome.⁶

Dental anomalies and malocclusion- The teeth may vary in shape, size, or number. Anomalous teeth usually may increase the risk of caries as well as are of cosmetic concern. Crowded teeth and malocclusion are mostly seen in the children with abnormal muscle tone such as in cerebral palsy, craniofacial abnormality and mental retardation. In spastic type of cerebral palsy, the disharmonious relationship between the extraoral and intraoral musculature results in constriction of facial muscles and cause malocclusion like anterior open bite and posterior crossbite. While the facial musculature is hypotonic in athetosis type of cerebral palsy and there is flaring or spacing between teeth.⁷ There is an increased risk in of dental caries and periodontal diseases in the crowded teeth as they are more difficult to clean.

Gingival enlargement- Certain drugs like antiepileptic (phenytoin) given for seizures cause gingival hyperplasia. The other medications causing gingival hyperplasia are cyclosporine A and calcium channel blockers (nifedipine). The medication induced gingival enlargement can also be exacerbated by chronic gingivitis resulting from poor oral hygiene. Moreover, the gingival hyperplasia can also result in the impaired tooth eruption, difficulty in chewing, severe gingivitis as well as the cosmetic concern.

Bruxism and trauma- Bruxism is more commonly seen in children with severe mental illness or cerebral palsy. It can lead to the enamel loss as well as difficulty with chewing and tooth sensitivity. In the children with developmental delays, seizures, abnormal protective reflexes and poor muscle coordination, the trauma to the face and mouth more frequently seen. Moreover

some children with special needs also exhibit self-injurious behavior which may damage the oral structures.

MANAGEMENT OF ORO-DENTAL PROBLEMS IN SPECIAL CHILDREN: It is generally carried out in three phases: Control of infection and relief of pain, elimination or treatment of the existing untreated disease and thirdly the planning for prevention of further disease. In special children, the treatment of dental diseases is the same as that carried out in other children except that they may require sedation even for routine restorative procedures, oral prophylaxis and minimal oral surgery. The patient should be considered for the referral to a pediatric dentist or a specialist with training in sedation, if there is concern about a child's cooperation or ability to tolerate the oral manipulation.⁸

PREVENTIVE DENTISTRY FOR SPECIAL CHILDREN

- **Toothbrushing:** The amount of toothpaste should be minimized to less than a pea-sized amount as there are concerns about swallowing the toothpaste or non-fluoridated toothpaste should be used.

- **Fluoridated toothpaste and rinses:** Children of age, 3–6 who cannot spit, let them drool into a cup. A non-fluoridated tooth paste should be used if the child continues swallowing the toothpaste.⁸ Fluoride rinses should only be used for the children who are able to swish for 1 min and can spit. The children with oral motor dysfunction tend to swallow the rinse, thus it can be applied with a cotton swab or other form of fluoride must be used. Alcohol-free rinses should be used.

- **Professionally applied fluoride foam or gel:** It is beneficial for children who are at a high risk of dental caries or those who are unable to use home fluoride oral. There may be need for adaptations for the children who have oral hypersensitivity like overreaction to taste, touch or smell or motor dysfunction such as abnormal muscle control or reflexes. Foam or gel can be applied in trays and it also requires frequent use of suction in order to prevent the choking, aspiration or excessive drooling.⁸

- **Chlorhexidine (CHX):** In children who are at high risk for dental caries, CHX is effective against *Streptococcus mutans*. It is available in the form of gum, gels, rinses and varnishes as well as in various concentrations. Gels and varnishes would be more appropriate than the rinses for many children with special needs. The rinses can be applied with a cotton swab twice daily.

- **Xylitol:** It is a low-calorie sugar substitute which has been used in certain chewing gums. The short-term exposure to xylitol has been shown to decrease the levels of *S. mutans* in plaque and saliva. Xylitol has an additive effect with fluoride in prevention of dental caries. The children over age 3 can use xylitol if they are able to chew gum without choking. Xylitol should be used three to five times daily for 3–5 min per session.⁹

- **Dental sealants:** The children often cooperate with the dental sealant application because its application does not require any placement of a rubber dam or any injection. However, the children having severe bruxism may not be candidates for the dental sealants as there are flattened occlusal surfaces. It is often difficult to isolate the working field with some children who have oral motor dysfunction. The wet bond dental sealant does not require a dry field for application and can chemically bond to the moist teeth. Moreover, effective and efficient suctioning is required for a successful application of the dental sealants.

- **Oral prophylaxis:** There is development of excessive calculus as a result of mouth breathing, metabolic disorders, inadequate salivary flow, kidney disorders, inadequate oral hygiene and oral motor dysfunction. Hand scaling can also be done.¹⁰

CONCLUSION: The general and the oral health are very closely related. The oral examination of a special child is similar to routine child oral examination. The examination can be more difficult due to increased gag reflex, oral defensiveness and oral motor hypotonicity. A complete examination checklist should be made by the primary care physician. The practitioners should examine the following areas and also document abnormalities i.e., teeth, gingival, palate and oral-facial anomalies. There should be an early referral to a pediatric dentist in order to ensure a complete examination of all the oral structures.

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