

What Should be Done for Dental Care in Down's Syndrome Children?

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Abstract

People with Down syndrome also need oral care as well as other people. Helping children with Down syndrome is challenging. However, doing so for these children can be very difficult. That's why the role of the dentist becomes more important. Down syndrome, a common genetic disorder, is usually associated with medical, physical, and dental problems.

Children with Down syndrome have different oral health problems. However, some of the problems might be frequent and severe. The most common dental problems in this group of patients can be summarized as Anomalies, dental caries, periodontal condition, Malocclusion, and intellectual disability/behavioral concerns.

Many children with Mongolism can successfully be treated in the dental office without any complications and difficulties. But it should be taken into consideration that this can be merely achieved when the treatment group is composed of a skilled and expert team. Otherwise, in severe cases, the treatment should be accomplished by application of general anesthesia.

Keywords: *Down's Syndrome; Malocclusion; Anomalies; Periodontal Condition; Malocclusion; Intellectual Disability/Behavioral and General Anesthesia*

Introduction

Like healthy children of the same age, who refer to a good pediatric dentist and preferably painless one, many young people who have Down syndrome are looking for a painless dentist too. These people may not be able to agree with dental aggressive methods, although they have the capacity to come along with less intrusive preventive care such as fissure sealants and fluoride treatments.

Although in the past, the prevalence of caries in children with Down syndrome has been reported, but this may be a misleading picture because they have less erupted teeth to be exposed to dental caries compared to the healthy individuals. The enamel hypoplasia and the distance between the teeth may be one of the reasons for teeth decays. However, the use of sweet drugs in controlling seizure or infection, especially those that are used to control emotional and behavioral changes; cause dry mouth, and makes their teeth prone to dental caries.

The level of oral salivation, as well as its quality, may be reduced in young people with Down syndrome. Due to the damaged immune system, in particular, defective phagocytes, along with the cellular immune response, and in particular the altered immune response, children with Down syndrome may have a severe periodontal disease similar to the localized invasive periodontitis which would lead to a major involvement of the mandibular incisors. The regular examination and professional cleaning of teeth in young people with Down syndrome are effective in reducing the progression of destructive periodontal disease.

Oral and dental problems

It's difficult to visit a dentist to perform a six-month examination for most people, but this can be a big challenge for children with Down's syndrome. These patients often cannot inform the dentist of their problems and, on the other hand, they will not allow the dentist

to do any dental procedures easily. Therefore, all the treatment teams should have experiences working with these patients. Oral and dental problems in children with Down syndrome can be complicated and need more attention from the nurses of these patients.

Compared to healthy children, the primary and permanent teeth of this group erupt later than the prescribed time. Late development and delayed teeth eruptions are the most common symptoms in these patients. This delayed growth can cause other oral problems in children with Down syndrome. However, there are other complications that are often genetic. In fact, it can be concluded that the problems of these children are so complex that it is often difficult to distinguish between the occurrence of genetic problems, habits and other factors.

Some of the most common oral and dental problems in children with Down syndrome are as follows:

- **Periodontal disease:** Almost all Down's syndrome children suffer from a moderate to severe degree of periodontal disease. The prevalence of gum disease is due to the weak immune system (in adults 96 - 90%) [1].
- **Xerostomia:** Dry mouth, is usually caused by oral breathing and taking some medications (anticonvulsants, sedation) [2-4].
- **Infection:** Fissured lips and tongue that predisposes them to candidacies of oral area, aphthous ulcers and scars in the area [5-7].
- **Hypotonia:** This condition affects the muscles in various areas of the body, including the mouth and large skeletal muscles. Hence, in these patients, we see low muscle tone inside the mouth which will make the food always remains inside the mouth at the end of the meal. In another word, they have a problem with chewing foods [8].
- **Difficulty in oral hygiene and brushing:** Some people with Down syndrome can brush and floss independently, but many need help. So, caregivers should involve in brushing and flossing.
- **Dental Anomalies:** This condition is seen very frequently in Down's syndrome patients that include Enamel hypoplasia, Microdontia, impacted teeth, crowded teeth, missing teeth and malformed teeth [7,9-11].
- **Malocclusions:** In many instances, this causes a prognathic Class III occlusal relationship, Posterior cross bite, and anterior open bite [11-13].
- **Macroglossia:** The low growth of the medial area of the face causes the size of mouth decreases; hence, the tongue may protrude and appear to be too large.
- **Delayed eruption of teeth:** It may occur in an unusual order. Delay in the eruption of the primary teeth sometimes takes 5- to 4 years meanwhile in permanent teeth sometimes would continue until the age of fourteen to fifteen [14].
- **Sleep apnea:** It is important that the dental health provider be aware of the incidence of sleep apnea in the Down syndrome population [15,16]. This can happen due to the narrowing of the respiratory tract and low tone of the muscles in the head and neck region. This is accompanied by snoring and sleep disorder during the night.
- **Caries:** Tooth decay is not common in Down's syndrome. These children have fewer dental caries, and at least half of them are caries free [17]. In other words, those who have teeth decay, the number of cavities is still far less than would be expected in children without this developmental disability [18].
- **Halitosis:** Bad breath is caused by the growth of germs in the cracks of lips and fissures of the tongues [19].
- **Speech difficulties:** Speech difficulties is a delay in the development of spoken language and having a common communication problem [20].

Oral and Dental care

Children with Down's syndrome are usually good-tempered and respond positively to dentist requests and demands. These people, as compared to other people with mental disabilities, usually have fairly good intelligence and can learn and execute the dentist recommendations, but unfortunately, there is a problem with the communication, and this may force the dentist to make a mistake in his decision.

Observing oral hygiene from the youngest age is the best time to help the oral hygiene of children with Down's syndrome. However, if this person is a teenager, adult or an elderly person, remember that it is never too late for oral hygiene.

Oral hygiene recommendations for parents at home [21-23]:

- A- Teach her how to brush. Use the doll to do this or do yourself and ask him to repeat it. Parents are better to brush their teeth with a Down's syndrome and let them see it while doing it. He should see that his parents brush twice a day and they care about it.
- B- People with Down syndrome usually forget most of the things. So remind them of brushing time.
- C- If possible, use clear images that clearly show the process of brushing, and preferably put it in the toilet on the wall.
- D- Starting with a toothbrush is the best way. Use a soft toothbrush. Brush his teeth with fluoride toothpaste twice a day. Tooth brushing on the tongue should not be forgotten.
- E- For dry mouth, rinse patient mouth with water several times during the day
- F- If the person cannot spit out the toothpaste, talk to the speech therapist.
- G- Once parents finished training the person's oral hygiene habits; they need to make sure that his child is in his routine daily schedule. Even if the person might not engage in this work, let him see that oral health is part of the parent's daily schedule. Eventually, he will join parents as well.
- H- Encourage him if he is doing the correct person's oral health instructions. Be sure to encourage the action of this work all the time, and always remind him of the importance of oral hygiene. In this way, patience is the most important tool.
- I- Some people with Down syndrome have instability in the neck joints. When checking her mouth, be sure to move her head slowly.
- J- If he is not able to handle the tooth brushing and has a gag reflex, look for consulting.
- K- Use antibacterial mouthwash to prevent bacterial growth and bad breath.
- L- Beware of excessive consuming sweet food and snacks.
- M- Due to the specific circumstances of people with Down's syndrome, an examination is recommended every 3 to 4 months by the dentist.
- N- Sometimes oral and dental illnesses in these people can exacerbate their physical (heart) problems.
- O- Dental floss is the hardest job to help children's Down syndrome oral hygiene. If the patient is not interested in doing so, do not force him. But parents can show them that they do it for themselves. This may be a motive for breaking his resistance.
- P- The use of mouthwashes can also be as challenging as the application of the dental floss. It has often seen in patients with Down's syndrome that have difficulty with spitting out. If this is a problem for the child, parents should not use mouthwash for them because they might swallow it.

Dental recommendations for parents

1. Find a dentist with experienced and knowledgeable dental problems for people with disabilities.
2. Before the visit, discuss the problems and medications with the dentist.
3. Coordinate with the dentist's secretary to appoint a visit at the private time.
4. In the case of an uncooperative child, ask about anesthesia. At the same time, the flexible appointment is also worth asking.
5. Ask the dentist about the things Down's child may need before starting the dental procedures.
6. At the same time, check the condition of the office. If the child is a Wheel chaired person, it is required the office to be equipped with a ramp or an elevator.
7. To find a suitable dentist for children with Down syndrome, parents can ask about relevant health and wellness centers.
8. At the same time, parents might ask families with similar problems to give a detail about their experiences. The introduction of an experienced dentist and specialist in the treatment of these children can be very helpful.

Finding a dentist for children with down's syndrome

Providing dental services to children with special needs is difficult. Most of these children lack the necessary co-operation to provide services and are afraid of dentistry. Finding a suitable dentist for children with Down syndrome can help them with their oral health.

In general, all doctors should be patient in the face of the patient. Dentists are no exception. This understanding and patience of children with Down syndrome are more important. These children often do not realize that dentistry does not pose a danger to them, and they are disturbed by the tools of the dentist. Consequently, the first step in creating a positive experience in these children is finding a good, patient and expert dentist.

Parents should choose a dentist for their child who has a systematic approach to treatment and examination. Before going to the dentist's office, getting information about the conditions of the office is essential. Also, collecting information about the amount of work experience with this kind of children will be of great help in the process of future treatment.

To find a suitable dentist for children with Down's syndrome, it is best to answer the following questions:

- Does the dental team (assistant, staff, and dentist) have a positive interaction with children with Down's syndrome?
- Will the dental team be patient and encouraging about these children?
- Can a child be comfortable in this office?
- Have the dental team been trained to meet the needs of particular patients?
- Is there a possibility to change the appointment time in case of a problem to be late?
- Does the treatment of children with special needs in this clinic involve private services for this category of patients?

Dental treatments

Patients with Down syndrome have a lot of fear of going to a dentist. They often do not understand what happens. For example, if this child becomes anxious about being with strangers, and scared of to be touched by them, indeed seeing a stranger with strange tools who want to put them in her mouth can be a terrifying situation for her. Dental treatments for people with Down syndrome require a lot of expertise and patience.

Oral dental care is important in these people because they are susceptible to oral and dental illness. For this reason, anxiety and fear control of the patient is necessary at the time of referral to the dentist. However, there are several methods in dentistry that can help these patients. General anesthesia and nitrous oxide are the most common sedation, which used for very apprehensive children and mild one [24].

Application of general anesthesia

All patients with any particular need can take anesthetics in dentistry. Anesthesia is necessary when the patient does not have the necessary cooperation with the dentist, and the treatment can endanger his health and the dentist.

In spite of many patients who do not have a specific medical problem, they prefer to use anesthesia due to dental phobia, so, using general anesthetics for dental treatments for people with anxious Down's syndrome is not uncommon at all.

Nitrous Oxide: Sedation or drowsiness can help the patient maintain calm. This kind of sedation is not at all similar to general anesthesia. This particularly affects the collaboration of patients with Down syndrome. Therefore, sedation in dentistry can help the process of treatment.

With proper management and collaboration with an experienced team, it is possible to identify and present appropriate dental treatments for this type of patients. Managing the aspects of dental treatment involves an early, regular oral health evaluation, and the establishment of a customized oral health care plan. Dentists should educate both parents and caregivers on optimal oral hygiene practices, and explain the limitations of dental care and some of the treatment choices [25].

Needless to say, talking to the caregiver or physician about techniques they have found might be effective in managing the patient's behavior. The dentists can share their ideas with them, and find out what motivates the patients.

Conclusion

Depending on the severity of the syndrome in patients, understanding the problem, the location of pain, the amount of pain and other oral problems can be difficult. As a result, even a simple dental problem can turn into a complicated problem in a short time. Hence, regular and timely referral to the dentist is important for the evaluation of oral and dental problems and timely treatment.

Finding a skilled and experienced dentist in treating these patients can have a huge impact on the outcome of the treatment. Due to the low level of patient collaboration, anesthesia is usually used to treat this group of patients.

Children with this syndrome have a high risk of developing malocclusion and periodontal problems and these should be the main concerns in their treatment needs. When planning the dental treatment of patients with Down syndrome, dental practitioners should always consider their general health, in order to achieve a holistic and interdisciplinary approach.

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