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Oral Aspects and Dental Management of Special Needs Patient

Pinar Kiymet Karataban

Abstract

Individuals with special needs are the most underserved regarding healthcare needs in almost all populations. Special needs patients with intellectual disability have muscle coordination disorder, impaired oral motor function, drooling, weak muscles that cause chewing and swallowing problems. Also, soft diet consumption makes this population more prone to dental disease. They have more caries, missing teeth, orthodontic and periodontal problems. Besides more difficulties obtaining professional dental care than other segments of the population. Though many countries developed community-based systems to improve oral health for people with special needs, providing good oral health mainly depends on the effort of the families. Therefore the education of the caregiver about oral hygiene provision is also critical for the special needs patient to enjoy a lifetime of oral health the same as other members of the society.

Keywords: disability, dentistry for special needs patient, cerebral palsy, autism, down syndrome, intellectual disability

1. Introduction

According to the WHO World report on disability 2011, About 15% of the world's population lives with some form of disability, of whom 2–4% experience significant difficulties in functioning. The global disability prevalence is higher than previous WHO estimates, which date from the 1970s and suggested a figure of around 10%. This global estimate for disability is on the rise due to population aging and the rapid spread of chronic diseases, as well as improvements in the methodologies used to measure disability.

Individuals with disabilities have generally poorer health, lower education, fewer economic opportunities, and higher rates of poverty than people without disabilities. This is mainly due to the obstacles they face in their daily lives and the lack of services available to them. Regarding oral health and access to dental care, the same obstacles are of concern. Oral health is mostly ignored, oral hygiene is neglected, and dental treatments are postponed after other health issues. As a result, individuals with special needs present more dental caries, periodontal problems, orthodontic anomalies, and are more prone to dental diseases compared with the healthy population.

2. Dental management of special needs patient

2.1 Cerebral palsy

Cerebral palsy is a non-progressive movement, posture, and tone disorder characterized by the impairment of motor activities in the developing fetal or infant brain. Motor disorders are often accompanied by sensory, perception, communication, and behavioral disorders, epilepsy, and musculoskeletal problems [1]. In these patients, muscle weakness or paralysis, unbalanced and irregular gait, uncoordinated movements, sudden seizures, mental retardation, emotional disorders, learning, speech communication disorders, and weakness of swallowing, and coughing reflexes are seen. Because brain development continues during the first 2 years of life, cerebral palsy may develop as a result of brain damage occurring in the prenatal, perinatal, or postnatal periods [2]. However, more than 80% of cases are due to problems in the prenatal period.

Etiologically, in the prenatal period; maternal diseases, trauma, genetics, drug use, bleeding, consanguineous marriage, radiation, in the natal period; premature/late birth, birth trauma due to inappropriate position, low/high birth weight, cord entanglement, lack of oxygen, multiple pregnancies, difficult birth, birth trauma, in the postnatal period; febrile diseases, trauma, hyperbilirubinemia, hypoglycemia, seizure, and cerebral hemorrhage are risk factors for cerebral palsy [3].

2.1.1 Oral findings of patients with cerebral palsy

It has been reported that the rate of drooling in children with cerebral palsy is 10–58% [4]. Although drooling is normal in infants and young children, it is considered pathological after 4 years of age. Most children with cerebral palsy, who are drooling, are unable to swallow normal saliva due to oral-motor dysfunction, although not much saliva is produced. Perioral eczema, infection, and dehydration occur as a result of drooling out of the mouth [5].

Bruxism, especially in the “Spastic” type, is commonly observed in individuals with cerebral palsy [6]. It has been reported that 36.9–51% of children with cerebral palsy have bruxism. In addition to bruxism, the presence of parafunctional habits such as pacifier-finger sucking, biting objects have also been detected [7].

Periodontal diseases occur more often in children with cerebral palsy due to physical inadequacies, malocclusions, poor oral hygiene, chewing, swallowing difficulties, and consumption of soft food with high carbohydrate content. Besides, the use of phenytoin for seizure control causes gingival hyperplasia [8].

Caries formation is observed at a high rate in children with cerebral palsy. The most important reason for this situation is poor oral hygiene. Other risk factors for caries formation are mouth breathing, the effect of drugs used, and enamel hypoplasia [8]. Differences in food form, increased duration of food consumption, difficult cooperation, and structural defects in the teeth cause an increase in the prevalence of dental caries in children with cerebral palsy, and it has been reported that there are more extracted and untreated teeth compared with healthy children [9].

Malocclusions are observed two times more when compared with healthy individuals, and these patients have unilateral crossbite with excessive overbite and overjet. It has been reported that patients with cerebral palsy have a higher prevalence of malocclusion than healthy individuals, but the severity of malocclusion varies according to the degree of neurological disorder. In these individuals, musculoskeletal

anomalies, altered cranial base relationships, premature tooth eruption, mouth breathing, and inadequate lip closure, as well as increased overjet and overbite, can be observed [10, 11].

It has been reported that cerebral palsy is not an etiological factor for erosion, but an increase in erosion since gastro-esophageal reflux is frequently observed in these individuals [12]. It has been reported that in children with cerebral palsy accompanied by gastro-esophageal reflux, especially in the quadriplegia type, the risk of dental erosion is considerably increased and the incidence of oral diseases is quite high [13].

2.1.2 Oral hygiene challenges for individuals with cerebral palsy

Neuromuscular problems specific to cerebral palsy affect oral health in different ways. Changes in the orofacial region cause nutritional problems as well as the development of parafunctional habits and difficulties in maintaining oral hygiene [14]. In addition, dyskinetic movements cause pathological oral reflexes such as sudden biting or nausea. Gastric reflux associated with a blended diet, often rich in sugar, further puts these patients' oral health at risk. Neuromuscular problems also prevent the patient from brushing their teeth correctly [15]. Patients with cerebral palsy have difficulty in chewing and swallowing due to changes in tongue, cheek, and lip motility. In these patients, there is an imbalance in the oral microbiota, which favors the proliferation of acidogenic bacterial species, which initiate the caries process [15].

2.1.3 Dental management of patients with cerebral palsy

Treatment sessions should be kept brief for patients with cerebral palsy. Patients may need to be moved from a wheelchair to a dental chair. The patient should be placed in the middle of the dental chair with arms and legs as close to the body as possible. After the patient is placed properly in a dental chair, the patient should be checked whether he/she is comfortable and the position of the extremities is correct. To keep the airway open, the patient should be seated at a 45-degree angle, but not in the supine position. The dental chair should be moved slowly, and the light reflector should be turned on slowly to prevent spastic muscle movements and to eliminate the risk of seizure. Myorelaxant agents should be used when necessary.

During dental treatment procedures, it is crucial to balance the patient's head at all stages. Various mouthguards should be used to control involuntary jaw movements and accidental bites. The airway should be controlled, and frequent breaks should be given to allow the patient to relax and breathe normally. To minimize the startle reflex, the patient should be warned at every stage. The use of stimuli such as sudden movements, sounds, and lights should be avoided. Efficient, fast treatment should be done, and chair time should be minimized to reduce muscle fatigue. In patients with more complex situations, sedation or general anesthesia may be an option [15–17].

2.2 Down syndrome/trisomy 21

Down syndrome, defined by Down in 1866, is an autosomal anomaly associated with the trisomy of the 21st chromosome pair. Its incidence in the population is 1/800, and it is the most common chromosomal change. There is an extra 21st chromosome (trisomy) in 95% of cases. In some cases, there are 46 normal chromosomes, but the 21st chromosome has been replaced with another chromosome [18, 19]. Mosaic Down syndrome, on the other hand, is caused by the inability of chromosomes to

fully divide during cell division in the embryonic period. Some cells of the mosaic type have 47 chromosomes, while others have 46 chromosomes [19]. Individuals with Down syndrome represent learning difficulties, neuropsychiatric disorders, and behavioral problems as well as congenital cardiac anomalies, thyroid problems, seizures, visual and hearing disorders, early-onset dementia, and frequent infections. Also, some individuals with Down syndrome are hepatitis B carriers, and leukemia can be seen in patients with Down syndrome [20].

The only factor known to cause Down syndrome is the age of the mother during pregnancy, the risk increases in pregnancies over the age of 35. However, because young women, in general, have more babies, 75–80% of children with Down syndrome are babies of young mothers. There is no difference between country, nationality, or socioeconomic status [21].

2.2.1 Oral findings of patients with down syndrome

Craniofacial features of individuals with Down syndrome include brachycephaly, broad and short neck, maxillary hypoplasia, sloping palpebral fissures, short ears, midface hypoplasia, curved eyes, narrow, flat nose [22].

Palate: Compared with the mandible, the middle face of the patients shows less development. As a result, the palate has not completed its development in terms of length, height, and depth [23].

Lips and mouth opening: The corners of the lips are located below due to hypotonic muscles. Due to mouth breathing, a predisposition to angular cheilitis, chronic periodontitis, and respiratory infections develops [23].

Tongue: The tongue is fissured and hypotonic. Majority of the individuals with Down syndrome present macroglossia. With the abnormal pressure on the teeth due to macroglossia, traces of teeth in the form of a white round border can be observed on the tongue, either bilaterally or unilaterally. In addition, diastemas, tongue thrusting, tongue sucking are also observed due to macroglossia [23].

Microdontia: Microdontia is observed in the primary and permanent dentition in 35–55% of children with Down syndrome. Clinical crowns are generally conical, short, and smaller in size [23].

Hypoplasia: Hypoplastic defects are usually the result of significant systemic disease or prolonged febrile illness [23].

Dental agenesis: Congenital tooth deficiency is 10 times more common in Down syndrome patients than in the healthy population. The transfer of genetic codes is held responsible for this situation. The most prevalent teeth agenesis is the third molar, second premolar, lateral incisors, and mandibular incisors, respectively. Boys are more affected than girls, the mandible is more affected than the maxilla, and the left side of the jaws is more affected than the right side [24].

Delayed tooth eruption: Tooth eruption is usually delayed in the primary dentition, especially in maxillary and mandibular anterior teeth and first molars [25].

Dental caries: The prevalence of caries in Down syndrome children is lower than in healthy children. Many factors such as delayed tooth eruption, congenitally missing teeth, high salivary pH and bicarbonate levels, and shallow fissures on the teeth play a role in the formation of this situation [26].

Periodontal problems: Diffuse gingivitis and rapid periodontal destruction are observed in children with Down syndrome compared with healthy children with similar plaque levels. The most common periodontal diseases are as follows: marginal gingivitis, acute necrotizing ulcerative gingivitis (ANUG), aggressive periodontitis,

gingival recession, horizontal and vertical bone loss, exposure of bifurcations, or trifurcations in molars, mobility and tooth loss especially in the incisor region of the mandible [27].

Occlusion: Occlusion and orthodontic problems such as Class III malocclusion, malocclusions due to mouth breathing, bruxism, shifting of the maxillary midline, anterior open bite, Temporomandibular Joint (TMJ) dysfunction, hypotonic ligaments of the mandible, and developmental disorders of the maxilla are encountered in children with Down syndrome [28].

2.2.2 Oral hygiene challenges for individuals with down syndrome

Although individuals with Down syndrome have usually a cooperative personality, providing sufficient oral hygiene depends on the family's knowledge and education level. Down syndrome children might also experience anxiety or fear of dental visits and parents are usually not aware of the dental problems of their children. Also, Down syndrome children using medical agents suffering from seizures experience dry mouth due to a decrease in the salivary flow rate, which may lead to xerostomia preparing a suitable environment for caries and periodontal problems [29, 30]. In addition, high levels of tooth wear are observed in these patients. This is mainly due to bruxism and the acidic oral environment (reflux and vomiting) [22].

2.2.3 Dental management of patients with down syndrome

The behavior management skills of the dental professional are the key factor in a child's acceptance of dental treatment [19]. Before determining the right approach to the Down syndrome child, the dentist should consider the level of the mental, emotional, and social development of the child [31]. Most Down syndrome children are affectionate and cooperative for their dental treatment and can be treated easily with the tell-show-do technique [32].

When treating Down Syndrome children, the need for prophylaxis of subacute bacterial endocarditis and the patient's compliance level should be considered [22]. During treatment, the gag reflex can be reduced by behavioral management techniques, as comforting and distracting patients. It can also be reduced by intraoral massage and pharmacological or non-pharmacological interventions [33]. The recalls should be planned frequently, and preventive dental treatments should be included in the treatment plan. The education of caregivers is crucial for sufficient oral hygiene provision and follow-ups. Mild sedation may be used in children with moderate anxiety. Extremely resistant patients may require general anesthesia [17].

2.3 Autism spectrum disorder (ASD)

Autism was first described in 1943 by an American child psychiatrist, Leo Kanner. Autism spectrum disorder (ASD) is a neurodevelopmental disorder, characterized by difficulties in communication, social relationships, and limited and repetitive behaviors [34, 35].

Individuals with ASD have characteristics such as stereotypical or repetitive motor behavior (flapping, rocking back and forth), repetitive use of objects (turning coins, putting objects in order), or making repetitive speeches. Many patients adhere to rigid routines in their lives and may have a more rigid thinking pattern. They react negatively to even minor changes or transitions [36].

No specific etiology has been identified for ASD. However, studies indicate a combination of genetical and environmental factors before and after birth, such as parental age, fetal environment (e.g., sex steroids, maternal infections/immune activation, obesity, diabetes, hypertension, or ultrasound examinations), perinatal and obstetric events (e.g., hypoxia), medication (valproate, selective serotonin reuptake inhibitors), smoking and alcohol use, nutrition (e.g., short inter-pregnancy intervals, e.g., vitamin D, iron, zinc, and copper), vaccination, and toxic exposures (air pollution, heavy metals, pesticides, organic pollutants) and low birth weight [37, 38].

2.3.1 Oral findings of patients with autism spectrum disorder

Bruxism: It has been reported that bruxism and dental wear due to bruxism are seen in one of every five children with ASD [39].

Xerostomia: One of the possible side effects of medications, such as central nervous system stimulants (methylphenidate), antihypertensives (clonidine), antidepressants (fluoxetine), anticonvulsants (carbamazepine and valproate), and antipsychotics (olanzapine and risperidone), which are often prescribed for the symptomatic relief of autism is xerostomia [40].

Delayed tooth eruption: Phenytoin is commonly prescribed for people with ASD. The tooth eruption may be delayed due to phenytoin-induced gingival hyperplasia.

Self-injury: ASD children may present self-injurious behavior and damaging oral habits such as picking at the gingiva or biting the lips; and pica—eating objects and substances such as gravel, cigarette butts, or pens. Self-injury to oral tissues results in ulcers, periodontitis, gingivitis, and self-extraction [41].

In addition, problems such as tongue thrusting, erosion, hyperactive gag reflex, and some malocclusions such as anterior open bite and maxillary retrognathia were also reported in these individuals [42, 43].

2.3.2 Oral hygiene challenges for individuals with autism spectrum disorder

Clinical conditions that ASD children present, such as sensorimotor and attention deficits, anxiety and related emotion regulation, comprehensive difficulties, and general speech disorders, create various difficulties for families, educators, and dentists in the provision of oral health care of these children [44]. Besides, parents face difficulties in brushing the teeth of the ASD children due to the sensory sensitivities of their children and the unpredictable or aggressive behavior that may require physical restraints.

In the literature, the caries experience of ASD individuals is controversial. Research reports state that ASD children are more prone to dental caries due to the consumption of sugar-containing food [45–47]. Besides, insufficient chewing and prolonged time of food staying in the mouth also increase caries formation [48]. The fact that autistic individuals are more difficult to accept oral and dental health care than healthy individuals and that their hand skills are not sufficiently developed and that they cannot perform adequate and effective tooth brushing is also effective in the formation of caries [49].

2.3.3 Dental management of patients with autism spectrum disorder

The impaired behavioral activities and complicated medical conditions make the dental management of patients with ASD challenges. Children with ASD have remarkable difficulties in establishing relationships with other people, understanding

and the following information, and dentists may be insufficient in providing cooperation during the dental treatment process [40]. Furthermore, the invasive nature of dental treatment procedures along with the hypersensitivity of children with ASD to sensory stimulation (sound, touch, and light) may trigger undesired responses during dental treatment.

In the dental treatment of autistic individuals, many basic behavior management techniques such as tell-show-do, desensitization, and voice control behavior management can be successfully applied [50].

The dental treatment sessions of autistic individuals should be kept short and the sensory stimulation should be minimized. However, it has been reported that in many cases it may be necessary to use advanced behavior management techniques including sedation and general anesthesia [51, 52]. Also, a dental office filled with unpleasant smells, sounds, and colors can be an overstimulating environment for patients with autism [53].

To minimize anxiety and uncooperative behavior pattern, soothing light, rhythmic music with or without headphones, and having minimal visual stimuli on the walls should be considered. It may also be beneficial to improve cooperation by having the same dental professional in the same operating room at all sessions [54].

If traumatic ulcers or lesions are observed on oral mucosa or gingiva, a mouth guard may be prescribed for patients who have problems with self-injurious behavior or bruxism.

2.4 Intellectual disability

The term intellectual disability (ID) is generally used to describe mental retardation. The most widely used current definition of disability is the World Health Organization's (WHO) International Classification of Functioning, Disability and Health (ICF), which incorporates the complex interactions between health conditions, environmental factors, and personal factors. Regarding a person with an ID, this definition would consider how their factors, health condition, and environment affect their lives (WHO 2001). Three elements are common for people with ID:

1. Significant impairment of intelligence,
2. A resultant significant reduction in adaptive behavior/social functioning and
3. The development of the condition (which persists throughout life) before the age of 18 years.

Mental retardation is a developmental disorder that occurs before the age of 18. In addition to having significant retardation in normal functions, there is an inadequacy in the adaptive skills necessary to maintain daily life. Adaptive skills cover skill areas such as self-care skills such as feeding, dressing, bathing, home life skills such as housekeeping, speaking and understanding language, as well as communication skills, social skills, social usefulness, and professional skills [55].

Intellectual disability may be caused by a problem that starts any time before a child turns 18 years old—even before birth. It can be caused by injury, disease, or a problem in the brain. For many children, the cause of their intellectual disability is not known. Some of the most common known causes of intellectual disability—such as Down syndrome, fetal alcohol syndrome, fragile X syndrome, genetic

conditions, birth defects, and infections—occur before birth. Others occur during or soon after birth. Besides, other reasons for intellectual disability do not occur until a child is older; these include serious head injury, stroke, or certain infections [56].

2.4.1 Oral findings of patients with intellectual disability

Patients with intellectual disability associated with a syndrome may present typical facial appearance; e.g., in these individuals, the tongue is placed in a protruding position due to macroglossia with micrognathia. Malocclusion, enamel defects, short conical roots, delayed eruption of teeth, congenital tooth agenesis, and tooth malformation are other common intraoral findings [57]. Due to certain genetic conditions or a history of high fever, children with disabilities may have their enamel defects or malformation and thus be more prone to dental caries.

These individuals also have inadequate lip closure, impaired tongue movement, and destabilization of the chewing muscles [55]. Salivary flow rate alterations due to the use of multiple medications along with poor oral hygiene may increase dental plaque and calculus formation, which may lead to dental and periodontal disease and halitosis.

Due to early loss of teeth, speech disorders may also be observed in these individuals [58]. Individuals with intellectual disabilities often consume a cariogenic and soft diet. Besides, individuals consuming daily medicine in the form of syrup constantly have a high risk of caries due to the high sugar content.

It has been shown that individuals with MR (mental retardation) aged 4–18 present significantly higher mean DMFT and dental erosion scores than healthy individuals [59].

2.4.2 Oral hygiene challenges for individuals with intellectual disability

Individuals with severe intellectual disability present impaired oral motor functions and weakened muscles, which cause chewing and swallowing problems. These patients often consume a soft diet including puree or semi-solid foods. In addition, individuals with an intellectual disability usually need the help of their caregivers to consume liquids and do not benefit enough from the washing and cleansing effect of liquids because they consume less liquid than healthy individuals. Oral hygiene procedures such as tooth brushing, which require manual dexterity, may not be performed adequately due to varying degrees of motor dysfunction as well as cognitive deficiencies in mentally retarded individuals [55].

2.4.3 Dental management of patients with intellectual disability

Medical history is quite essential to assess the degree and type of ID and associated medical problems [60]. Complete information should be obtained from the parents/caregivers about the medical background, the medicine consumption, the level of communication of the child, the daily functions she/he can perform individually, and if there are behavior problems at home/institution [61].

It may be helpful to familiarize patients and/or caregivers with the clinical environment without any treatment at the first appointment. Dental office and instruments should be introduced patiently, and the tell-show-do method may be also introduced.

In the next session, the dental instruments that may cause anxiety are introduced, and then treatment may start. It is essential to keep the sessions short. The treatment

session should begin with the easy-to-tolerate procedures and no pain stimulus should be created during the first procedure.

Behavior management with positive direction and distraction with movies or music may be applied. Perception difficulties are observed in patients with MR. In these patients, directions and explanations should be short and simple and the instructions should be repeated. General anesthesia or sedation should be considered in patients who do not comply and cannot cooperate [55].

2.5 Physical disability

2.5.1 Hearing loss/(deaf)-visional disorder/(blindness)

Visual impairment was defined as visual acuity less than 20/40 in the better eye. Hearing impairment was defined as the pure-tone average air-conduction hearing threshold worse than 25-dB hearing level (dB HL) in the better ear, averaged over four frequencies: 500, 1000, 2000, and 4000 Hz. [62] Hearing loss can be mild, moderate, moderate, severe, or profound and can affect one or both ears.

Major causes of hearing loss include congenital or early-onset childhood hearing loss due to various chronic middle ear infections, noise-induced hearing loss, age-related hearing loss, and ototoxic drugs that damage the inner ear [62]. Hereditary hearing loss can be conductive, sensorineural, or mixed and is sometimes the result of a genetic trait passed down from a parent.

Children with hearing loss experience social isolation, loneliness, and frustration, and delayed language development due to the loss of ability to communicate with others [62].

Visual impairment is usually defined as a best-corrected visual acuity worse than 20/40 or 20/60 [63]. Visual impairment, or vision loss, is a degree of reduced vision that causes problems that cannot be corrected by general methods, such as with glasses [64]. The term blindness is used for complete or near-complete loss of vision. Physical injury risks such as falling, hitting, and traumatic injuries are reported higher in visually impaired children. Besides, their conceptual development and cognitive skills may be delayed, and they have challenges especially in skills that require abstract thinking [65].

The most common causes of visual impairment are globally uncorrected refractive error (43%), cataracts (33%), and glaucoma (2%). Refractive errors include myopia, hypermetropia, presbyopia, and astigmatism. Cataracts are the most common cause of blindness [66]. Other disorders that may cause visual problems include age-related macular degeneration, diabetic retinopathy, corneal clouding, childhood blindness, and several infections [67]. Visual impairment can also be caused by problems in the brain due to stroke, premature birth, or trauma, among others [68].

2.5.2 Oral findings of patients with hearing loss, visual impairment

Visual impairment may have a negative impact on an individual's oral hygiene. As a result of the inability to remove the microbial dental plaque appropriately, visually impaired individuals experience more dental caries, calculus, and gingivitis compared with healthy individuals [69]. Reluctance to consume solid foods due to prolonged infantile swallowing patterns and poor oral hygiene may be the main reason for the oral health problems. Besides, enamel hypomineralization has been identified as a possible oral manifestation in visually impaired children.

Visually impaired children are more prone to traumatic dental injuries, especially in the anterior teeth is also a predisposing factor. Visually impaired people generally require a high level of orthodontic treatment due to the increasing prevalence and severity of malocclusions [70].

Hard tissue anomalies such as enamel hypoplasia and higher rates of demineralization in the teeth are seen in patients with hearing impairment. Also, a high incidence of bruxism is one of the problems that occur especially when the individual has both hearing loss and visual impairment [71].

Due to the difficulties of providing oral hygiene, diet type, and problems of accessibility to the routine dental check-ups, dental caries are quite often seen in patients with hearing impairment [72]. The prevalence of gingivitis is also higher in these individuals due to poor oral hygiene and mouth breathing, and they are more prone to develop periodontitis early in life [73, 74].

2.5.3 Oral hygiene challenges for individuals with hearing loss, visual impairment

Visually impaired individuals experience difficulties maintaining oral hygiene since they cannot visualize plaque on the tooth surface and adequately assess whether dental plaque is removed effectively. This leads to the progression of dental caries and also to oral inflammatory diseases [74].

Compared with healthy children, individuals with hearing impairment may have a higher risk of experiencing oral diseases, including dental caries or periodontal disease, as they have difficulties maintaining good oral hygiene [75].

2.5.4 Dental management of patients with hearing loss, visual impairment

Individuals with hearing impairment should be informed about the procedures to be performed at the first appointment, and an individual method should be developed for the communication during treatment sessions.

The degree of hearing loss should be noted in the patient's medical history. In the first appointment, it is necessary to avoid exaggerated facial movements and mimics when communicating with the patient, not to cause difficulty to read lips. Comforting the child patient and increasing the sense of trust by smiling will help to establish confidence and healthy communication with the dental professional.

Before starting the dental treatment session, the instruments should be introduced using the show-tell-do method. If the hearing-impaired patient feels that she/he is unable to understand directions, she/he may show fear or aggression. For this reason, communication should be facilitated by reducing external sounds such as high-speed air turbines, dental aspirator, and radio or TV as much as possible. Mirrors, models, pictures, and written information should be used to establish communication [71].

In visually impaired individuals, treatment should be explained using the senses of touch, taste, and smell instead of the tell-show-do technique. The environment should be introduced, and necessary definitions should be made before each treatment. The dental professional should speak to the patient in a clear, warm tone of voice and should use a descriptive manner to explain the procedures. Also, patients should be informed about how the equipment may feel and sound and how the procedures will be performed before the instruments are inserted into the mouth.

The dental restorative materials should be placed in small pieces as the sharp taste may irritate the patient. Since such patients cannot see and remove dental plaque, tooth brushing should be explained by the dentist by holding the brush together with

the patient. Oral hygiene education and motivation should be given by the doctor to whom he is accustomed to the treatment of the patient [70, 75].

3. Conclusions

Special healthcare need patients are literally special patients who need special attention by means of healthcare provision including dental care. The major challenges they have with their overall health may create barriers to access to proper oral healthcare. Oral healthcare for this special group is often neglected or down the list, and as a result, they often attend to dental clinics with emergency.

Individuals with special needs are the most underserved regarding healthcare needs in almost all populations. Due to the challenges of nutrition and insufficient oral hygiene provision, this population is usually more prone to dental caries, periodontal disease, and orthodontic problems. Besides, they face more difficulties accessing professional dental care than other segments of the population.

The field of special care dentistry is attracting more interest of pediatric dentists and general dental practitioners. The inclusion of the specialty programs in the dentistry faculty curriculum may initiate the ideal treatment procedures and regular recalls of these special patients, which may facilitate the access to sufficient dental care provision and regular check-ups for this special group.

Though many countries developed community-based systems to improve oral health for people with special needs, providing good oral health mainly depends on the effort of the families. Therefore the education of the caregiver about oral hygiene provision is also critical for the special needs patient to enjoy a lifetime of oral health the same as other members of the society.

Conflict of interest

The author declares no conflict of interest.

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