

Management of Dental Patients with Cerebral Palsy: Case Report

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Introduction

Cerebral palsy (CP) is a central nervous system (CNS) disorder of movement, coordination and posture. This developmental disability may be associated with uncontrolled body movements, seizure disorders, balance-related abnormalities, sensory dysfunction, and intellectual disability. It commonly occurs during prenatal or perinatal period and the birth prevalence among children ranges from 1.5 to 3.6 cases per 1000 children. (1) There are four main types of Cerebral palsy. The most common type that affects 70-80% of CP is Spastic where muscles get stiff and tight, and as a result, their movements lose control. 10-15% of patients have Dyskinetic (athetoid) CP and they have problems controlling the movements of their hands, arms, feet, and legs. The movements are uncontrollable and can be slow and writhing or rapid and jerky. (2) Patients with Ataxic CP (5% of case) has tremors or uncoordinated voluntary movements, and the combination of all types are classified as Mixed CP. There is no cure for cerebral palsy, but many patients enjoy near-normal lives if their neurological problems are properly managed. Treatment options can include medications, therapies and surgical procedures. (2) In most cases of mild and moderate forms of cerebral palsy, dental treatment can be done in general practice setting. However, providing proper oral health care to patients with cerebral palsy requires various considerations and management. This case report reviews dental manifestations, management strategies, and considerations for sedation.

Case Report

A 30-year-old special needs male presented to the dental clinic at Staten Island University Hospital with her mother for a recall examination on 8/25/2022. Patient's medical history includes intellectual and developmental disability, blindness, autism and cerebral palsy. Patient was uncooperative for a comprehensive exam and X-rays at the recall visit, so it was recommended to treat patient in the operating room under general anesthesia. Common dental/oral findings in patients with cerebral palsy are periodontal disease, dental caries-poor oral hygiene, malocclusions with anterior open bite and angle classification class II, bruxism, increased erosion, trauma and injury, hyperactive bite reflex, increased gag reflex, dysphagia, increased drooling and mouth breathing. (1) This patient demonstrated very poor oral hygiene with heavy calculus. (Figure 1a). Patient has Class II malocclusion (Figure 1b) and increased dentinal wear from possible bruxism was noted. (Figure 2b).



Figure 1a. Patient in occlusion. Illustrating poor oral hygiene



Figure 1b. Patient's left side. Illustrating Class II relationship



Figures 1c. Patient's right side.



Figure 2a. Patient's maxillary arch.



Figure 2b. Patient's mandibular arch. Illustrating increased wear on dentition

Management

For mild and moderate forms of cerebral palsy, several management strategies need to be considered for patients to receive dental treatment in general practice setting. Making the treatment environment calm and supportive will help patients relax to reduce muscle movements. Minimizing time in dental chair, frequent breaks and explaining the proposed action to minimize startling reactions are recommended. There are several ways to assist stabilization and postural maintenance for patients with CP. The dental chair must be adjusted carefully and many of these patients are best treated with the chair tipped well back to give a position of security, especially to those with ataxia. The spastic with fairly severe head and neck involvement will need even more control and support and can be seated on the knee of the parent or an assistant, leaning back against the right shoulder. (3) Considering props to support for limbs and to avoid unnatural positions are important. For restorative treatment, it may be difficult to keep a dry field, but this may be assisted by the use of a rubber dam. In case of treating patients with sedation, there are a few features of cerebral palsy that can complicate sedations. Compromised gag reflex may cause increased aspiration risk. Therefore, it is important during sedation to protect the patient's airway. The patient being sedated is supine in the dental chair and is at risk for aspiration of dental filling materials, debris from preparation of the tooth, an extracted tooth, or calculus being scaled. Saliva can be produced in copious amounts and can flow backward, causing coughing. A throat pack should always be used to protect the airway when a rubber dam is not in use. It should be changed frequently as it gets wet or full of debris. (4) For patients with special needs require general anesthesia or premedication for extensive and comprehensive dental work. The patient in this case report received complete oral rehabilitation under general anesthesia for optimal care on 12/30/2022. Patient was seen by his primary care doctor and surgical team at Staten Island University hospital for medical clearance and had covid19 PCR testing prior to dental treatment. On the day of surgery, patient was intubated by anesthesiologist. Full mouth series of X-rays were taken and evaluated. After intra and extraoral examination, it was decided that patient needed upper right, upper left, lower right and lower left quadrants of Scaling and root planning and 9 class I restorations. Cavitron and hand instruments were used for comprehensive perio treatment due to heavy supragingival calculus build up. Caries were excavated on teeth #1,2,3,14,15,16,18,30 and 31 and they were restored with composite fillings. Patient was discharged in stable condition on the same day after surgery. Patient was able to get comprehensive and definitive dental treatment under general anesthesia and is scheduled to come back for a recall in 6 months.

Discussion & Conclusion

Patients with CP have a higher risk of dental problems creating significant morbidity that can further affect their wellbeing and negatively impact their quality of life. Studies have shown that the more severe the neurological insult in patients with CP, the higher is the risk of dental disease. (5) Children with cerebral palsy are less likely to receive oral care than children without disabilities. While 40% of the children without the disorder had regular dental visits, only 23.6% of the children with cerebral palsy had seen a dentist. (6) Home dental care and hygiene should be promoted from early on. Parents and caregivers should learn to start daily cleansing of younger children's teeth. For older children who are unwilling or physically unable to cooperate, the dentist should teach the parent proper brushing techniques and ways to safely restrain the child when necessary. To encourage independence of children with milder motor disabilities, an electric toothbrush may be utilized effectively. In conclusion, as oral health is increasingly recognized as a foundation for general wellbeing, parents and caregivers for CP patients should be considered an important component of the oral health team and must become knowledgeable and competent in home oral health practices. Such practices can significantly affect the child's quality of life and control dental costs.

References

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