

Oral Health Fact Sheet for Dental Professionals

Adults with Cerebral Palsy

Cerebral palsy is a disorder of movement and posture caused by nonprogressive abnormality of the immature brain that originates during the prenatal or perinatal period or first few years of life. This results in significant impairment of functional mobility. The four major subtypes are spastic, dyskinetic/athetoid (slow, writhing involuntary muscle movement), ataxic (low muscle tone and poor coordination), and mixed cerebral palsy, with spastic forms being the most common. (ICD 9 code 343.9)

Prevalence

- <1%
- 1.5:1 higher incidence in males
- Higher incidence in African-Americans
- Increasing incidence: Modern medical technology allows improved survival in perinatal period
- Diagnosis based on recognition of significant delays in motor development

Manifestations

Clinical

- Intellectual Disability (60% of patients)
- Seizure Disorder (30-50% of patients)
- Delayed motor development
- Limb spasticity
- Persistent primitive reflexes
- Involuntary movements, and ataxia

Oral

- Increased risk for dental caries and periodontal disease
- Enamel hypoplasia
- Dental erosion due to gastroesophageal reflux that can increase thermal sensitivity and, in significant cases, cause pain
- Dilantin hyperplasia for those with epilepsy
- Increased incidence of Class II Div I malocclusion
- Increased risk for oral trauma and injury
- Others:
Tongue thrust, mouth breathing, hyperactive or hypoactive gag reflex, dysphagia, oral hypersensitivity (overreaction to touch, taste, or smell), prolonged and exaggerated bite reflexes, bruxism, sialorrhea, poor oral hygiene, and food pouching.

Other Potential Disorders/Concerns

- Speech/communication disorders
- Vision and hearing impairments

Adults with Cerebral Palsy continued

Management

Medication

The list of medications below are intended to serve only as a guide to facilitate the dental professional's understanding of medications that can be used for Cerebral Palsy or conditions associated with Cerebral Palsy. Medical protocols can vary for individuals with Cerebral Palsy from none to multiple medications.

| SYMPTOM | MEDICATION | SIDE EFFECTS/DRUG INTERACTIONS |
|----------------------------|---|--|
| Seizures | Anticonvulsants | |
| | <i>Carbamazepine</i> (Tegretol) | Xerostomia, stomatitis, glossitis, dysgeusia, bone marrow suppression. Excessive bleeding may result when combined with aspirin or NSAIDs. |
| | <i>Valproate</i> (Depakote, Depakene) | Xerostomia, stomatitis, glossitis, dysgeusia, oral petechia. Excessive bleeding may result when combined with aspirin or NSAIDs. |
| | <i>Phenytoin</i> (Dilantin) | Xerostomia, gingival hyperplasia. |
| | <i>Gabapentin</i> (Neurontin) | Xerostomia, fever, mood changes, erythema multiforme, kidney failure, thrombocytopenia, viral infections, hyperkinesia, other neurologic symptoms. |
| | <i>Levetiracetam</i> (Keppra) | Hostility, irritability, mood changes, depression, anorexia, infection, gingivitis. |
| | <i>Lamotrigine</i> (Lamictal) | Angioedema of mouth, lips, tongue or face; oral lesions, xerostomia, nausea, headache, blurred vision, double vision, Stevens-Johnson syndrome (uncommon, severe). |
| | <i>Felbamate</i> (Felbatol) | Heartburn, vomiting, nervousness, drowsiness, facial swelling, runny nose, rapid or pounding heart rate, difficulty breathing or swallowing, depression. |
| | <i>Tiagabine</i> (Gabitril) | Dizziness, inability to concentrate, drowsiness, nervousness, irritability, tiredness, shaking. Alcohol, and drugs that cause sedation, may increase the sedative effect of this medication. |
| <i>Pregabalin</i> (Lyrica) | Xerostomia, dizziness, drowsiness, edema, blurred vision, difficulty concentrating, reduced platelet counts. Alcohol, and drugs that cause sedation, may increase the sedative effect of this medication. | |

Adults with Cerebral Palsy continued

| SYMPTOM | MEDICATION | SIDE EFFECTS/DRUG INTERACTIONS |
|--------------------------------|--|--|
| Seizures <i>continued</i> | <i>Topiramate</i> (Topamax) | Dizziness, tiredness, speech problems difficulty with memory, sensory distortion. Alcohol, and drugs that cause sedation, may increase the sedative effect of this medication. |
| | <i>Oxcarbazepine</i> (Trileptal) | Xerostomia, toothache, earache, dysgeusia, headache, acne, nausea, vomiting. |
| | <i>Zonisamide</i> (Zonegran) | Dizziness, drowsiness, tiredness, lack of coordination. Alcohol, and drugs that cause sedation, may increase the sedative effect of this medication. |
| Muscle Spasticity and Rigidity | <i>Baclofen</i> (Lioresal) | Xerostomia (uncommon), angioedema of mouth, lips, tongue or face. |
| | <i>Diazepam</i> (Valium) | Drowsiness, dystonia, double vision, xerostomia or hypersalivation, seizures, CNS and respiratory depression, paradoxical CNS stimulation, tiredness, syncope, fatigue, ataxia, depression, headache, nausea. Alcohol, and drugs that cause sedation, may increase the sedative effect of diazepam. |
| | <i>Dantrolene sodium</i> (Dantrium) | Drowsiness (alcohol can increase this effect), weakness, dizziness, tachycardia (increased heart rate), abnormal blood pressure, diarrhea, constipation, liver failure. Use caution in combining with drugs that cause CNS depression. |
| | <i>Tizanidine</i> (Zanaflex, Sirdalud) | Drowsiness (alcohol can increase this effect), xerostomia, dizziness, hypotension, weakness, somnolence. Do not prescribe with ciprofloxacin or fluvoxamine. Fluoroquinolone antibiotics such as floxacin and norfloxacin interfere with tizanidine metabolism. Use caution in combining with drugs that cause CNS depression. |
| Abnormal Movements | Anticholinergics <i>Trihexyphenidyl</i> (Artane) <i>Benzotropine</i> (Cogentin) <i>Procyclidine hydrochloride</i> (Kemadrin) | Xerostomia, agitation, dizziness, drowsiness. |

Drug Interactions

- Local anesthetics can be used without adverse reactions-unless specified by a specific drug the patient is taking.
- Some muscle relaxants and anticholinergics cause CNS depression and potentiate other CNS depressants used in dentistry. Exercise caution with the use of Clonidine. Conscious sedation is not recommended.

Behavioral: Difficulty cooperating in the dental chair.

Guidance:

- The degree of intellectual disability varies with each individual. Some individuals may have normal cognition, while others may have severe deficit. Tailor explanations of dental procedures to the level of understanding.
- Ask patient or caregiver for medication updates at each appointment. Medication changes can affect the appropriate care of the patient from a medical and/or appointment management standpoint.
- Use short, clear instructions. Give only one direction at a time. Place dental instruments slowly into mouth and place chin in downward position to mitigate hyperactive gag reflex. Consider using a mouth prop with dental floss attached.
- Listen actively. Be sensitive to communication methods used, including gestures and verbal/nonverbal requests. Consult with caregiver if unable to understand patient's speech.
- Give positive verbal reinforcement. As appropriate, provide verbal and/or tactile reassurances.
- Develop trust and consistency between the dental staff and the individual. Use the same staff, dental operatory, and appointment time each visit if appropriate.
- Avoid interruptions and have as few staff as needed in operatory.
- Demonstrations are effective when introducing new instruments or procedures. Introduce instruments slowly into the oral cavity to allow the patient to adjust to the new addition.
- Do not force limbs into unnatural positions or attempt to stop uncontrolled body movements. Exert a firm, gentle pressure to calm shaking limbs.
- Minimize lights, sounds, and sudden movements that trigger primitive reflexes or uncontrolled movements. Inform patient of any stimulus before it appears.

Dental Treatment and Prevention

- Patients in wheelchairs may more easily be treated in the wheelchair. Lock wheels, use sliding board to support back, head, and neck, and recline wheelchair if possible.
- Consider daily use of Chlorhexidine or other antimicrobial agents. Evaluate patient; those with swallowing difficulties or inability to expectorate may benefit from brushing teeth and gums with Chlorhexidine or use Chlorhexidine spray application rather than a rinse.
- Consider use of a power toothbrush if the patient is able to tolerate.
- Caregivers may benefit from guidance regarding oral home care. Brushing the individuals teeth while in a semi-reclined position, and possibly with a mouth prop may be indicated. Positioning should allow the caregiver and/or individual to easily remove excess saliva or allow the individual to be able to swallow as easily as possible. Reinforce often with patient and caregiver.
- Determine orthodontic needs for malocclusion; treatment may be feasible.
- Consider mouth guards to treat severe bruxism – only if symptoms of gagging/dysphasia will allow safe and comfortable use.
- General anesthesia is often indicated to accomplish restorative or surgical treatment.

Some patients with Cerebral Palsy are fed by tube. Patients fed by tube typically have low caries, rapid accumulation of calculus, GERD (Gastro-esophageal Reflux Disease), oral hypersensitivity, and are at high risk for aspiration in the dental chair. Swallowing difficulties may occur with thin or thick liquids. No antibiotic premedication is needed for Gastric or Nasogastric tubes. Position the patient in as upright a position as possible and utilize low amounts of water and high volume suction to minimize aspiration.

Adults with Cerebral Palsy continued

Considerations due to associated medical conditions:

- 30–50% of patients with cerebral palsy have a seizure disorder. Be prepared for seizure management during treatment: **Remove** all dental instruments from the mouth. **Clear** the area around the dental chair. **Stay** with the patient and turn the patient to one side. **Monitor** airway to reduce risk of aspiration. **Note time** seizure begins: if seizure continues >3 min call EMS – Danger of Status Epilepticus (potentially life threatening).
- Place patient in slightly upright position for treatment to keep breathing passage open due to dysphagia. Use suction frequently as tolerated by the patient.
- Review safety issues in office to prevent accidents such as slipping on rugs, etc.

As needed for patients with xerostomia:

- Educate on proper oral hygiene (brushing, flossing) and nutrition.
- Recommend brushing teeth with a fluoride containing dentifrice before bedtime. After brushing, apply neutral 1.1% fluoride gel (e.g., Prevident 5000 gel) in trays or by brush for 2 minutes. Instruct patient to spit out excess gel and NOT to rinse with water, eat or drink before going to bed.
- Recommend xylitol mints, lozenges, and/or gum to stimulate saliva production and caries resistance.

Look for signs of physical abuse during the examination. Note findings in chart and report any suspected abuse to 1-866-ENDHARM (www.dshs.wa.gov/endharm.shtml) as required by law. Abuse is more common in people with developmental disabilities and often manifests in oral trauma.

Additional information: [Special Needs Fact Sheets for Providers and Caregivers](#)

Below are references and resources which, although some are labeled for children, are very helpful for reviewing implications in adults. Cerebral Palsy manifests early with lifelong implications impacting the delivery of dental care.

References

- Costa, MM, Afonso, RL, Ruvieri, DB, Aguiar, SM. (2008) Prevalence of dental trauma in patients with cerebral palsy. *Spec Care Dentist* 28(2);61–4
- Goncalves, GK, Carmagani, FG., Correa, M.S., Duarte, D.A., Santos, MTBR. (2008) Dental erosion in cerebral palsy patients. *J Dent Child*, 75(2): 117–120.
- Rodrigues dos Santos, M.T., Masiero, D., Novo, NF., Simionato, MR. (2003) Oral conditions in children with cerebral palsy. *J Dent Child*, 70(1): 40–46.
- Dymont, H.A., Casas, M.J. (1999) Dental care for children fed by tube: a critical review. *Spec Care Dentist* 19(5):220–4. Review.
- [NIH Institute for Cerebral Palsy](#)

Additional Resources

- [NIH Institute for Cerebral Palsy](#)
- [ASTDD-Special Needs](#)
- [Block Oral Disease, MA](#)
- [NOHIC-NIDCR publications](#)
- Free of charge CDE courses: [NIDCR CDE](#) (2 CDE hours)



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