

## Cerebral Palsy

## Cerebral Palsy

- A non-progressive disorder
- Caused by brain injury pre (70-80%), peri, or post nately
- Injure occurs before CNS reaches maturity
- Patients often have great potential masked by their condition

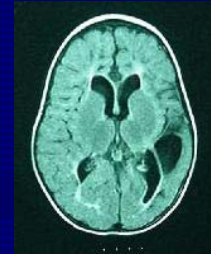


Image from:  
<http://www.emedicine.com/neuro/topic533.htm>

## Etiology of CP

- Congenital cerebral defects
- Anoxia at birth
- Hemorrhage at birth
- Pre-maturity (3 1/3 pounds are up to 30 times more likely to develop cerebral palsy than full-term babies)
- Infection rubella (German measles), cytomegalovirus and toxoplasmosis
- Toxemia of pregnancy
- Rh incompatibility
- Developmental abnormalities

## Manifestations

- Malfunction of motor centers
- Postural and balance difficulties
- Normal life expectancy possible
- Early death respiratory involvement



## Characteristics

- Impaired movements
- 65% speech defects
- 50% are mentally retarded
- 50% ocular defects
- 25% hearing impairment
- 40% seizure disorders
- 20% seriously disabled
- 1.5 to 2.5 per 1,000 births will result in severe to moderately severe CP



## Head and Neck Findings

- 24% inability to chew
- 20% inability to swallow easily
- 20% frequent dental caries
- High rate of temporo-mandibular disorders

## Cerebral Palsy

### Spastic Type



Photo from:  
[http://www.thespasticcentre.org.au/information/stories/dot\\_cp.htm](http://www.thespasticcentre.org.au/information/stories/dot_cp.htm)

## Spastic CP Findings

- 52-70% of all CPs
- Hyperirritability of muscles
- Arms flexed, legs internally rotated
- Difficulty bending into a sitting position
- Difficulty with head control
- Postural difficulty
- May not have protective extension



## Spastic CP Findings (con't)

- Speech impairment
- Swallowing impairment/drooling
- Spastic tongue thrust
- Primitive reflexes



## Cerebral Palsy

### Athetoid or Dyskinetic Type



## Athetoid CP Findings

- 25- 30% of CPs
- Uncontrollable writhing movements of opposing muscle groups
- All four extremities involved
- Neck and face involved
- Voluntary movements are flailing
- Difficulty uprighting and balancing
- May lack protective extension



## Athetoid CP Findings (con't)

- Grimacing
- Drooling
- Speech defects
- Continuous mouth breathers
- Excessive head movements
- Tongue protrusion
- Primitive reflexes of varying severity

## Ataxic cerebral palsy

- 5 to 10 %
- Affects balance and coordination.
- They may walk with an unsteady gait with feet far apart, and they have difficulty with motions that require precise coordination, such as writing.



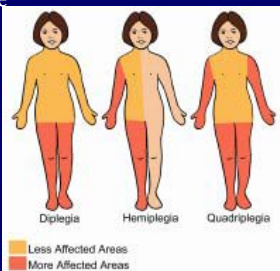
## Other Types of CP

- Tremors (rare form) of CP
- Rigid 5 -10% of CPs
- Flaccid (Hypotonicity)
- Mixed 15 - 40% of CPs



## Limb Involvement

- Can be single or multiple (except in athetoid)
- Monoplegia
- Hemiplegia
- Diplegia
- Quadriplegia



Picture from <http://www.cplqld.org.au/>

## Oral Conditions

- Periodontal
  - Disease incidence – 3X normal
  - Large % gingivitis
  - Extensive calculus
  - Gingival hyperplasia due to Dilantin



## Oral Conditions

- Malocclusion
  - Incidence 2 X normal
  - Anterior open bite
  - High, small palate
  - Constricted arches
  - Interceptive orthodontics – yes
  - High relapse rate unless permanent retention



## Oral Conditions

- Bruxism
  - Incidence 2 X normal
  - Usually athetoids
  - Closure of bite
  - Attrition



## Oral Conditions

- Caries
  - Incidence same as normal population
  - More missing teeth as a result of dental treatment

## Oral Conditions

- Enamel Hypoplasia
  - In primary and permanent dentition
  - Incidence 30% greater than normal
  - If CP cause is Rh incompatibility – incidence is 68%

## Oral Conditions

- Habits
  - Usually tongue thrust
  - Mouth breathers
  - Drooling as a result of dysfunctional swallow



## Oral Conditions

- TM Joint Problems
  - Significantly increased
  - Caused by neuromuscular imbalance
  - Caused by malocclusion
  - Is a result of significant overusage

## Oral Conditions

- Trauma
  - Usually a result of no protective extension
  - Increased damage to maxillary centrals
  - Lip protection lack in Class II (div II)

## Management

- Position to avoid triggering primitive reflexes
  - Keep head in midline
  - Stabilize head with one arm and chest
  - Allow legs to bend
  - Maintain relaxed atmosphere
  - Compromise operator's position when needed
  - Stand-up dentistry
  - No surprises – inform of chair



## Preparing Patient and Dentist

- Obtain history, background, level of independence
- Understand emotional context of patient
- Explain to patient what will happen at appropriate level of understanding
- Explain equipment
- Evaluate primitive reflexes
- Evaluate meds, need for premeds

## Dental Treatment

- Swallowing difficulty and exaggerated gag
  - High volume suction
  - Use rubber dam, sit upright
  - Mouth props w/ extra-oral attachment
  - If gagging – clear mouth and roll head to side
  - Nitrous to control gag

## Dental Management

- Uncontrolled head and mandibular movements
  - Mouth props
  - Cradle patient's head w/ dentist's chest and arm
  - 6 handed dentistry
  - Use mirrors made of metal

## Dental Management

- X-ray procedures
  - High KVP and MA
  - Shorten exposure time
  - No panoramics
  - Position film and have attendant hold

## Dental Management

- Durability of Materials
  - SSC rather than extensive amalgams in primary teeth
  - Cast restorations in permanent teeth
  - Provide gold guidance not porcelain
  - Temporary crowns should be radio-opaque
  - Dry field

## Dental Management

- Premeds
  - Spastic CPs, always spastic
  - Athetoid CPs respond to antianxiety meds
  - Behavior modifications
  - Consider oral, inhalation or parenteral route
  - Obtain consult

## Dental Management

- Prosthesis Fabrication
  - Fixed over removable w/ major metal connectors
  - Adjust in centric relation
  - Splint anterior mandibular teeth
  - Free normal movements and bruxism patterns
  - Evaluate ability to clean
  - Evaluate ability to insert and remove

## Dental Management

- Preventive
  - Speak to patient, parent or attendant re: importance of oral hygiene
  - Modified toothbrushes
  - Helper must be comfortable
  - Fluoride in office and at home
  - Reward with non-cariogenic food
  - Shorter dental recall
  - Pit and fissure sealant possible treatment

