

# Communication and Swallowing Issues for Adults with Cerebral Palsy

May 12, 2008

Marilyn Seif Workinger, PhD  
Speech Language Pathologist  
Marshfield Clinic  
Marshfield, WI





# THREE TOPICS

---

- EFFECTS OF AGING ON SPEECH PRODUCTION
- EFFECTS OF AGING ON USE OF AAC
- EFFECTS OF AGING ON SWALLOWING



---

# SPEECH PRODUCTION



# Speech Disorders: Dysarthria

---

“A collective name for a group of speech disorders that are due to disturbances in muscular control of the speech mechanism resulting from impairment of any of the basic motor processes involved in the execution of speech” Darley, Aronson, and Brown (1975)



# Dysarthria Associated with Spasticity

- Breathy voice quality
- Monopitch
- Monoloudness
- Hypernasality
- Voice quality change through an utterance



# Dysarthria Associated with Dystonia

---

- Slow rate
- Dysrhythmia
- Inappropriate voice stoppage or release
- Reduce Stress



# Severity and Extent of Dysarthria

---

- Severity of motor involvement
- Topographical distribution of motor involvement (Hardy, 1983)





# Change Over Time

## Dysarthria of Spasticity

---

- Mild to moderate motor involvement
- Speech milestones WNL or mildly delayed
- Dysphonia secondary to disorders of speech breathing
- Can be regression in speech production
- Question related to periods of rapid growth or spending greater time in fixed positions



# Changes: Spasticity

---

- Reduced loudness
- Changes in voice quality
- Changes in resonance (increasing hypernasality)
- Keesee, 1976



# Change Over Time

## Dysarthria of Dystonia

---

- Speech milestones severely delayed
- With gain in body weight, stability and increased motor control, improved speech motor control is seen
- May become intelligible in teen years and early adulthood
- AAC early on and many continue to use through adulthood



# Dysarthria and Aging

- Decline for both groups (speculation)
- With increasing scoliosis and kyphosis, less standing, decreased mobility would expect reduced control of speech breathing with reduced loudness and changes in voice quality
- May also see increased velopharyngeal incoordination with increased hypernasality, reduced loudness and voice quality changes



# Treatment

---

- Palatal lift speech prosthesis
- Lee Silverman Voice Treatment (LSVT)
- Reports of improved speech production with use of intrathecal baclofen pump



---

# **AUGMENTATIVE/ ALTERNATIVE COMMUNICATION**



# Augmentative/Alternative Communication

- Long-term study shows that individuals using AAC change in their pattern of communication over time. (Lund and Light, 2007.
- AAC users have a restricted range of communicative functions.
- High number of confirmations and denials
- Infrequently ask questions
- Range of functions in adults similar to their use at preschool level



# Change in AAC Use

---

- Use of AAC is a multi-modal process
- Develop unaided modes, eye gaze, gesture or vocalization
- Develop most efficient and effective means
- Modes dependent upon familiarity with communication partner





# Augmentative/Alternative Communication

---

- Access to AAC may become increasingly more difficult with decreased motor ability
- Michael Williams, AAC user: “People with CP often have narrow functional windows. ... The limitations of age can push familiar independent functioning right out the window.”



# AAC

- MW: “...individuals with significant CP tend to find the one ‘best’ way to do things. ...they use one set of muscles and joints until they wear out. Clearly back-up and secondary AT interfaces need to be supported throughout the lifespan”



# AAC

---

- David Beukelman: Tends to see most change in individuals who use head movement to access devices. As they experience reduced motor control and range of movement, they are no longer to use that mode of access or are much less efficient



# AAC Treatment/ Research Needs

- Whenever possible, develop more than one means of access
- Establish a fitness program that includes work on maintenance of ROM, strength and coordination for maintaining access mode
- Develop interventions to teach active participation in interactions and social strategies to extend interactions
- Interventions to change communication partner's behaviors to facilitate more effective dialogue



---

# SWALLOWING



# Swallowing

- Michael Williams: “Most important would be the fact that many, many individuals with CP who use AAC are NOT growing old. Something happens around age 40 that causes aspiration, pneumonia and death. This is unacceptable and a critical area for research.”



# Swallowing: Children with CP

---

- Feeding problems present in 25% to 90% of children with CP, dependent upon extent and severity of motor involvement.
- Of those who aspirate, 94% of patients showed silent aspiration
- Aspiration secondary to GERD is also a significant factor
- Arvedson and Brodsky, 2002



# Swallowing: Speculation

---

- Many individuals with CP have compromised swallowing. As they age and have increased incoordination this “pushes them over the edge”
- Structural changes could also be implicated





# Contributing Factors:

---

- Most individuals show involvement of the oral phase. If pharyngeal weakness begins, they are not able to protect the airway.
- Reduced respiratory effort for cough



# Contributing Structural Factors:

---

- Dental changes
- Scoliosis influencing head control/posture or respiratory support



# Research Needs:

---

- Who is most at risk?
- What is the natural history?
- What treatments (if any) are beneficial? LSVT, Shaker exercises
- At what point should an alternate means of nutrition be considered?
- Would periodic monitoring of swallow be beneficial for some individuals?



# Thank You

