AUGMENTATIVE AND ALTERNATIVE COMMUNICATION STRATEGIES FOR ADULTS WITH ACQUIRED DYSARTHRIA

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Introduction

• Adults with acquired dysarthria have a complex constellation of motor, language, and/or cognitive impairments
• Needs and interests change over time, as many individuals experience gradual or sudden changes in social networks
• Use of augmentative and alternative communication (AAC) strategies is a dynamic process; early intervention may combat common myths and fears regarding its use

Common Myths and Fears

• AAC should be introduced only after giving up hope for return of natural speech
• AAC reduces motivation to work on speech
• AAC devices will inhibit speech production

Outcomes Research in Summary

• Supplementation strategies:
  o Topic and gestural supplementation increased speech intelligibility, but alphabet supplementation had greatest impact, increasing listener perception an average of 25% (Helm-Estabrooks, et al., 2004)
  o Patients with cognitive impairments may benefit from topic supplementation and use of scripts (Klasner and Yorkston, 2001)
  o Listeners ranked speakers more favorably when using supplementation strategies; they were more willing to interact with speakers and persist in their interactions (Helm-Estabrooks et al., 2004, Hustad and Gearhart, 2004)

• Caregivers and AAC:
  o Caregivers for individuals with ALS reported that AAC technology was used for a wide variety of purposes
    ▪ 80% indicated it helped them stay connected (Fried-Oken et al., 2006)
    ▪ Family members preferred hands-on training and detailed instructions (Ball et al., 2005)
    ▪ A competency-based training model may be useful to teach caregivers to be AAC facilitators (Schepis & Reid, 2003)

• Acceptance and Use in the ALS population:
  o 96% in a recent review; increased significantly over past ten years (Ball et al., 2000)
Number of users has increased (Ball et al., 2004)
Duration of use has increased (Ball et al, in press)
Rejection or abandonment more likely in individuals with co-occurring dementia or other serious health conditions such as cancer (Ball et al, 2004)
Individuals use low and high technology devices with familiar and less familiar listeners (Beukelman & Lasker, 1988; Richter et al., 2003)

Acceptance and Use in the TBI population:
Few studies have examined long term acceptance and use
In one study (Fager et al., 2006), 81% continued to use high tech devices three years after recommendation
Reason for abandonment was most often lack of facilitator support
Most individuals used letter-letter spelling
63% continued to use low technology approaches three years after recommendation; most who discontinued had regained functional speech

Acceptance and Use in the Brain Stem Impairment Population:
Early and more recent studies indicated individuals have successfully used a combination of low and high technology options (Beukelman et al., 1985; Katz et al., 1992; Culp & Ladkow, 1992; Soderholm et al., 2001)

Variables Impacting Use and Acceptance

Demographic
- Age
- Literacy/education
- Discharge disposition

Severity
- Medical stability
- Concomitant cognitive and language impairments
- Physical limitations of access

Process
- Security for high tech devices
- Identifying potential for other prosthetic management tools
  - Abdominal binders, palatal lifts

Trends in AAC Technology
- Speech generating devices (SGDs) with many integrated functions
- Multi-lingual products
- Use of context based, visual scenes
- Voice banking
- High quality voice synthesis
  - Improved eye gaze systems
Tools to Guide AAC Decision Making


2) The Communication Effectiveness Survey (Donovan et al., 2007)

3) Intervention Staging (Yorkston et al, 1999, Ball, 2005)

4) Multimodal Communication Screening Test for Persons with Aphasia (Garrett and Lasker, 2005)

5) AAC Classification for Persons with Aphasia (Garrett and Lasker, 2005)

6) Social Networks: A Communication Inventory for Individuals with Complex Communication Needs and their Communication Partners (Blackstone and Hung Berg, 2003)

7) Communication Device Use Checklist (Fried-Oken et al., 2003)

Case Study

- Background
  - 33 year-old male s/p assault to head and face – dragged 500 feet by a car
  - HCT: SAH, IVH, multiple parenchymal contusions in B frontal and temporal lobes; + LOC
  - Edema at C4, disc bulge at C6-7, herniation at C4 - 5
  - VP shunt, PEG, trach with vent dependency
  - College grad, lived alone, professional, independent

- Early stages of inpatient rehabilitation
  - "Non-verbal" at times
  - Maximal cues to achieve voicing
  - Decreased respiratory effort most salient speech characteristic
  - Unable to determine differential diagnosis of dysarthria vs. aphasia vs. cog-communication impairment

- 1st opportunity for intervention via AAC
o Why? Facilitate differential diagnosis, allow for expression of basic wants/needs
o Options: supplementation strategies, comprehensibility strategies, communication boards, written choices, simple recording devices
o Challenges: drooling, limited consistent movement of upper extremity, presumption of aphasia by staff
o Interventions: education, alphabet board, SGD with word prediction, word level drill, overarticulation, multi-modal training
o Decision making guided by: Communication Index, patient's goals and perceptions, carry over, successful exchanges

• Middle stages of inpatient rehabilitation
  o Speech improves and AAC systems integrate
  o 80% intelligible at phrase level
  o Relaying complex ideas with minimal cues via multi-modal communication

• 2nd opportunity for intervention via AAC
  o Why? Facilitate more complex message production, continue differential diagnosis
  o Options: range of electronic/computer-based communication systems with voice output, storage capacity, and other computer functions
  o Challenges: Access/speed, security of high tech devices inpatient, perception that AAC strategies will limit recovery of speech
  o Interventions: Artic drill, comprehensibility strategies, mounting no-tech system to lap tray, ongoing practice with SGD, group treatment for peer feedback
  o Decision making guided by: Communication Index (artic strategies resulted in intelligible but unnatural speech), patient's goals and perceptions, successful exchanges

• Late stages of inpatient rehabilitation/transition to outpatient services
  o 80% intelligible with unfamiliar listener but unnatural
Discharged to home

- 3rd opportunity for intervention via AAC
  - Why? Increased need for technology to increase independence at home
    - Brother is good coach/listener but other family members are not
    - Need for successful communication with untrained listeners
    - Benefit from environmental controls
    - No tech AAC strategies were too limiting at home
  - Options: selecting a SGD appropriate to his needs and identifying a funding source
  - Challenges: Family buy-in, signs of depression, limited upper extremity access
  - Interventions: SGD device trials and potential use of software on existing computer; ruled out palatal lift
  - Decision making guided by: Communication Index, patient's goals and perceptions, successful exchanges

- Discharge from SLP Services
  - Identified a palm-sized SGD as optimal based on limited demands on ROM, portability, word prediction, and ease of use, but no funding source
  - Hospital-based resources were used to acquire SGD as able to show need
  - Downloaded free share-ware onto home computer
  - CH used speech as his primary mode of communication with supplement from SGD as needed; used SGD to pre-load phrases for telephone and community interactions

**Funding**

- Medicare and Medicaid cover SGDs for beneficiaries
- Many private health benefit programs cover SGDs for beneficiaries
- The AAC evaluation and report are regarded as the most important parts of the funding process
Medicare sets the standard; follow Medicare guidelines for assessment and report writing.

Website with funding information and resources: SGD Funding Solutions from the Assistive Technology Law Center - aafundinghelp.com

Some vendors can assist with the funding process

Conclusions

• Consider incorporating AAC interventions early and often, including low-tech strategies

• Consider the most flexible options

• Keep an eye on the industry as the technology is ever changing

References


