

WYOMING-SESSION 1

- Treatment of Aphasia



APHASIA TREATMENT

What's New?

DEFINITION IS NOT

- Aphasia is a language disorder across all modalities, following focal usually left hemisphere damage
 - Reading
 - Writing
 - Listening
 - Speaking
 - All else requiring language

OCCURRENCE IS NOT

- Occurs in 21-38% of acute stroke patients
 - Berthier. 2005. Poststroke aphasia: epidemiology, pathophysiology and treatment. *Drugs Aging*, 22, 163-182
- Stroke is third leading cause of death- 150,000 stroke deaths per year in US
- Approximately 700,000 new strokes per year

THIS IS RELATIVELY

- Know more about how recovery happens in the brain
- Therefore we know more about how to treat

SO IS THIS

- Must remember that the brain is plastic
- Regardless of locus of lesion, type of aphasia and so on
- And persons with aphasia (person first language) can improve

NOR IS THIS

- Ischemic lesions account for approximately 80%
- Global and non-classified aphasia account for 50% or more by type
- Approximately 33% of aphasic stroke patients die before leaving the hospital

NEUROPHYSIOLOGY OF RECOVERY

- Occurs because of areas around the infarction
 - Called the penumbra
- Or with partial resolution in the area of infarction
 - Hillis, Heidler. (2002). Mechanism of early aphasia recovery. *Aphasiology*, 16, 885-896
- Or to homologous areas on right
 - Mimura et al. 1998. Prospective and retrospective studies of recovery in aphasia, *Brain*, 121, 2083-2094

CRITICAL REHAB NOTION

- Plastic change does not occur completely on their own
- One guiding notions of this presentation is that the environment matters
- Another guiding notion of this presentation is
 - PLASTICITY IS USE/EXPERIENCE DEPENDENT
 - ALL USE/EXPERIENCE IS NOT EQUAL

TRANSITION

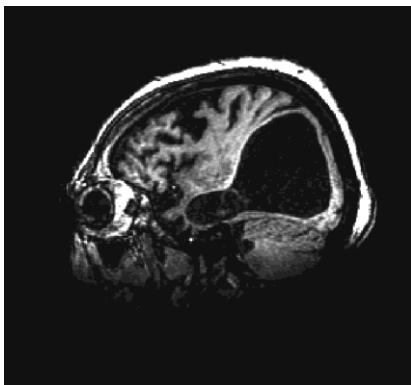
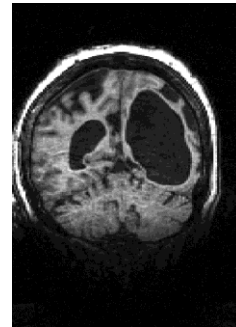
- So one part of aphasia rehab is very specific (use-dependent) practice
- But the other part is general stimulation from an enriched environment
- Lesson: treatment in a NH where nothing else happens the rest of the day is not likely to be of much success

MAIN NEW MESSAGE

- Treatment can work
- It can work best in those whose brains are best prepared by an enriched environment
- And conceptual and data-based support are all around us

EVIDENCE IN APHASIA

- Data are accumulating showing treatment effects even in severe, several years post
- Kendall showed functional change in a person with aphasia 40+ years post
- MRI on pt shows large chronic lesion
- Others documenting change at 1, 5, 10, and even more years post



ALSO

- Lots of summary reports of treatment effects
- These are good to keep on file
- Hand out to those bean counters who are always trying to cut costs
- And to those who want it all to be dysphagia

META-ANALYSIS IN APHASIA

- One of the best summaries of the treatment data to guide practice is by Robey
- Robey: JSHR, 1995
- The accumulated scientific evidence warrants the assertion that, on average, treatment for aphasic persons is effective
- Large gains are achieved from therapy with severe aphasic persons

A RADICAL NEW CONCEPT

- Instead of starting with easy and frequent, especially in chronic it may make sense to start with rare and difficult
- Why? Because generalization to untreated items is enhanced
- We simply can't treat all useful words in language

MORE ON GENERALIZATION

- Training of linguistically more complex sentence forms generalizes more than treatment of simpler
– Thompson et al. 2003. JSLHR, 46, 591-607
- Lead her to formulate a complexity account of treatment efficacy (CATE)

ANOTHER REVIEW

- Holland et al, JSHR, 1996
- “There is both experimental and clinical evidence that individuals with aphasia benefit from services of speech-language pathologists”
- Contains a complete review of the literature

GENERALIZATION OF HARDER

- Looked at typical and atypical exemplars as part of semantic feature training in naming therapy
- Atypical as in gibbon rather than chimpanzee
- Training on atypical produced more generalization to untrained items
 - Kiran, Thompson. 2003. JSLHR, 46, 773-787

NOW TO THE ENVIRONMENT

- Where are the boundaries of our job?
- Boundaries vary for each of us depending on tx
- What I have in mind is something more specific
- Is modification of the environment within our purview?
- Some say we are doing social work if we go here

MY VIEW

- Improvement of language skills with traditional methods IS CRITICAL
- Also targets may include any activity-even not directly related to communication- where aphasia is a barrier to participation
- Lets think about that one
- Targets may be in the environment

SO WHAT TXS FIT?

- One major method within the general rubric of Life Participation Approaches to Aphasia (LPAA)
 - Communication partners (CP)
- How many of you know about LPAA?

DEFINITION

- LPAA is “a consumer-driven service delivery approach that supports individuals with aphasia and others affected by it in achieving their immediate and longer term life goals”

THE ENVIRONMENT

- Idea is that environmental barriers can be targets of treatment
 - Absence of a communication partner
 - Noisy distracting ignorant environment
 - Workplace insufficiently sensitive to the aphasic person’s needs
 - Uninformed service personnel

LPAA

- Life Participation Approaches to Aphasia (LPAA)
- Based on a Statement of Values for the Future
 - Chapey, Duchan, Elman, Garcia, Kagan, Lyon, Simmons-Mackie

FOCUS

- “It focuses on reengagement in life, beginning with initial assessment and intervention, and continuing after hospital discharge, until the consumer no longer elects to have communication support”
- LPAA does not dictate a particular therapeutic approach

MORE TO THE POINT

- “LPAA emphasizes the attainment of reengagement in life by strengthening daily participation in activities of choice”
- At the center is what the patient and significant others value

MAJOR METHOD: CP

- AIM: to restore a sense of independence, well-being, and need for communication use in those environments where aphasic persons lead their daily lives

PROCEDURES

- After traditional drill has established some communication competence
- Assemble a triad of clinician, patient, and CP
- Measure of patient and CP communicate without training
- This can be one baseline measurement

PRACTICAL IMPACT

- Evaluation includes determining specifically what the life participation needs of pts are and how their abilities allow or prevent that participation
 - Know any tests for this?
 - Of course not
 - Traditional eval emphasizes reading, writing etc in a totally clinician structured environment

MEANS TAKING THE FOLLOWING STEPS

- Training communication use FIRST but I describe the newest of these in a few moments
- Pairing the aphasic adult with a CP
- Help them develop a nurturing, communicating, relationship
- Use this relationship as basis for activities in the world using language competence developed with specific techniques
- However narrowly that world might be defined

PROCEDURES FOR CP CONTINUED

- Clinician patient practice a prepared scenario such as riding the ducks at Wisconsin Dells
- In this step the goal is successful communication between the two
- Then CP enters and aphasic person attempts to communicate the same scenario
- Clinician can score this attempt to make notes about successes and failures

OTHER CP PROCEDURES

- CP is supplied with a list of cues and they are explained
- Then patient and clinician work on a scenario with CP watching
- Then clinician and CP change places
- When going well, patient supplies other scenarios
- And so it goes

THIS IS NOT EASY

- Patient may be short on ideas and courage
- Will need lots of successes in clinic with CP
- Keep aims modest and have bailout criteria
- Clinicians will have worries about appropriateness
- Part of doing it will depend on what kind of luck you are having with severe patients

MORE ON REIMBURSEMENT

- Must be an expectation that condition will improve significantly in a reasonable period of time
- The more we leave speech drill behind for those who cannot profit the more reasonable expectation of change becomes

THE NEXT STEP

- Reentry into the community defined as broadly or as narrowly as patient's condition dictates
- Triad get together to plan activity and rehearse any parts needing it
- CP and patient do activity
- Triad evaluates

WHAT ABOUT REIMBURSEMENT FOR ALL THIS WORK?

- Practice must be with acceptable standards
- As but one example drawing and CP have received extensive reviews in recent years
- See Aphasiology 1997
- Must require expertise of qualified SLP
- No one else can do the basic work
- Communication does not mean nonprofessionl

AND WHAT OF GOALS?

- The aim is to communicate basic personal needs and emotional states
- The aim is not to say bathroom to the clinician
- The aim is to engage in social communicative interactions with family, friends, or caregivers
- The aim is not to say a wife's name ten times while pointing to a picture

OTHER GOALS

- The goal is to have interactions in the community regardless of how defined
- The goal is not to communicate only to the SLP in the suite

NOW TO SPECIFIC TECHNIQUES

- Constraint induced language therapy
- Attention therapy
- Intention therapy

Constraint Induced Language Therapy (Maher & Kendall)

- ❖ Based on principles of “constraint induced therapy”
- ❖ Notion of “learned nonuse” (CIMT)
- ❖ Negative consequence for recovery when rehabilitation is focused on compensation for impaired function, not restoration of potential function

Constraint Induced Language Therapy

- ❖ Promotes use-dependent learning
- ❖ Limits patient’s response modality to verbal production through the use of visual barriers (no pointing, gesturing, writing)
- ❖ Progressively more difficult responses are “shaped” during games
- ❖ Shaping- gradual, successive approximation of behavior in small steps

Constraint Induced Language Therapy

- ❖ Therapy tasks should consist of structured language output tasks
 - “Go Fish”
 - Twenty questions
 - Reiterative listing game

Constraint Induced Language Therapy

- ❖ Key task components:
 - Request or question by patient followed by a response from clinician
 - Request and response has to be successfully received by the patient for turn to be over

Constraint Induced Language Therapy

- ❖ Several levels of task difficulty
- ❖ Stimuli are manipulated to increase or decrease difficulty:
 - Characteristics of items (e.g. word+color)
 - Requirements of the response during the therapy games (e.g. name+word)
- ❖ Cueing provided if necessary to reduce error responses

Constraint Induced Language Therapy

- ❖ Shown to improve overall language in individuals with chronic aphasia (as measured by standard aphasia batteries)
- ❖ Increases discourse production qualitatively and quantitatively
 - Increase in number of words and utterances

ATTENTION/INTENTION

- attention and intention are related to language performance- hence appropriateness to aphasia rehab
- Reference: Coslett B. Language and attention. In RS Berndt (Ed). Language and Aphasia. Handbook of Neuropsychology, Vol 3. Elsevier, 2001, pp 257-268
- Another: Crosson B. Systems that support language processes: Attention. In SE Nadeau et al (Eds). Aphasia and Language: Theory to Practice. The Guilford Press, 2000

CONSIDER ATTENTION IN PRACTICE

- Coslett et al. Multi-modal hemispatial deficits after left hemisphere stroke. Brain, 1993, 116, 527-554
- Report on one 43 y-o aphasic man with left parietal-temporal and left anterior cingulate lesions
- He did better on a variety of motor and language tasks when focused on left hemisphere

RESULTS

- Naming and reading was quicker and more accurate when stimuli were presented 20 cm to left than 20 cm to right of midline
- Cinderella story retelling showed 58 narrative words per minute when listener was located 30 degrees to left of midline and 24 when listener was 30 degrees to right

MORE DATA

- Coslett Spatial influences on motor and language function. Neuropsychologia, 199, 37, 695-706
- 30 stroke pts with left, right, or subcortical lesions
- Did motor such as tapping and language tasks: naming, reading, auditory comprehension

RESULTS

- 9 of 18 with cortical lesions did best with stimuli in ipsilateral space
- Most had parietal lesions
- Not strongly related to neglect
- Findings replicated in larger sample of 57 persons

IMPLICATIONS FOR EVALUATION

- Where we have patients direct attention may have significant influence on how they perform
- This variable should be controlled in evaluation and manipulated in tx if found to be powerful
- The days of sitting across from the patient with the diagnostic material centered between them are drawing to a close

Attention Treatment (Crosson)

- ❖ Attention- facilitation of processing one source of sensory information as opposed to others
- ❖ Stroke can cause the inability for individuals to attend to their language output
- ❖ Engaging attentional mechanisms in the undamaged hemisphere can improve language performance



Attention Treatment

- ❖ Most effective in patients with fluent aphasia
- ❖ Placing pictures or objects in the left hemisphere during language tasks may improve the performance
- ❖ Sitting to the left of patients during therapy and other communicative interactions may improve language performance

Intention Treatment (Crosson)

- ❖ Intention- selection of one course of action over others in preparation to respond
- ❖ Stroke can cause a disconnection between intentional and production mechanisms affecting language output
- ❖ Intention treatment primes right hemisphere initiation mechanisms using the left hand

Intention Treatment

- ❖ Patient is trained to initiate a naming through a movement sequence with the left hand
- ❖ Movement sequence used in the first two phases of treatment is nonsymbolic (button press)
- ❖ Movement sequence in third phase of treatment is more natural and can be generalized to situations outside the clinic (hand)

APPROXIMATION

- Pt lifts lid off
- Reaches inside to press a button
- Then says name of item



Intention Treatment

- ❖ Most effective in patients with nonfluent aphasia and moderate to severe anomia
- ❖ Patients with language initiation difficulties may benefit from engaging right hemisphere intention mechanisms prior to naming

SUMMARY

- Men and women with aphasia can improve
- If the environment is right
- If the specific procedures are used
- Nihilism about rehab in general and in aphasia in particular is inappropriate