Treatment for cognitive-communication deficits after right brain damage in the absence of evidence
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EBP Triangle: Client/Patient Values and Current Best Evidence

Clinical Expertise

- Talk with colleagues
- ASHA Division 2: Neurophysiology and Neurogenic Speech & Language Disorders
- Develop/boost your own expertise: need to facilitate referrals to SLP
- Experts in the field
  - Penelope Myers
  - Connie Tompkins
  - Leora Cherney/Anita Halper
  - Yves Joanette

Client/Patient Values

- Determine values, wants, needs
- important for clients with poor awareness (anosognosia) of deficits
- Educate, Empower, Encourage ownership of treatment/goals

Current Best Evidence

- Hemispatial Neglect: many studies
- Aprosodia: few recent studies, promising results
- Discourse/pragmatics: no direct studies with RHD

Current Best Evidence: Neglect

- Many studies, many reviews of the literature
- Results: generally good initial results
- Generalization: variable
- Maintenance: variable; often not reported
- Scanning treatments
  - scanning/cancellation/reading tasks
  - simple: scanning, reading
  - complex: somatosensory component, visuoperceptual organization
  - Evidence: 8 Class I, 9 Class II, 9 Class III studies; 300+ participants
  - results
    - improve scanning ability
    - generalization to functional tasks better with complex tasks
    - some gains in daily activities
    - maintenance: variable; up to 1 year; not tested in many studies
- Visuo-spatio-motor Treatment
  - combine visual and motor tasks
  - Evidence: 1 Class I; several Class II/III; 50+ participants
Limb Activation treatment
- move left limb during visual scanning
- activate right hemisphere, “spills” into attentional regions
- some improvement in movement
- maintained 24 months
- some improvement in reading and/or neglect

Lighthouse Strategy
- move head left to right, visualize movement of lighthouse
- treatment: scanning, route-finding
- improvements in negotiating environment
- less often bump into walls
- no measure of maintenance

Sustained Attention training
- Treat general attention => reduce neglect
- Evidence: 4 Class II/III studies; 10+ participants
- attention (sorting) tasks
- examiner knocks & says “ATTEND”
- gradually transfers external cue to patient
- results
- improvements in sustained attention & neglect
- effects lasted 24 hours to 14 days
- no measure of generalization

Characteristics of successful treatment
- clear, narrowly focused treatment
- a clear rationale for goal and tasks
- intensive practice (i.e., 5 hours per week for at least 4 weeks)
- active participation by the client in the therapy.
- external cues/anchors generally not effective

Summary of Current Best Evidence for Neglect
- Treatment works: good initial results
- Generalization: sometimes
  - better with complex scanning/visuo-perceptual tasks
- Maintenance: variable
- better with intensive treatment

Current Best Evidence: Aprosodia
- Phase I studies (Leon, Rosenbek et al)
- Data from 5 patients over 20 treatment sessions with 2 types of treatment
- Motoric-Imitative Treatment
  - aprosodia = motor speech theory
  - Goal: Use appropriate prosody for emotionally-laden sentences
  - 6-step hierarchy of cues
    - prosody + facial cue => unison
    - prosody + facial cue => repetition
    - prosody only => repetition
    - neutral intonation => produce
    - ask question => produce
• imagine speaking to family member
• Cognitive-Affective Treatment
  • apraxia = poor access to emotional words & prosody
    o Goal: learn the characteristics of emotional prosody & use them
    o 6-step hierarchy of cues
      ▪ written description of tone of voice => explain back
      ▪ match name of emotion to description, match face to description
      ▪ read sentence with prosody (description, name & face available)
      ▪ read sentence (name & face available)
      ▪ read sentence (face available)
      ▪ read sentence (no cues)
• Results: improvements with both therapies
• Generalization: to new sentences of trained emotions but not to un-trained emotions
• Maintenance: not yet tested

Current Best Evidence: Discourse/Pragmatics
• Minimal evidence specific to RHD
• Intensive day-program (Klonoff et al)
  o speech/language, cognition, behavior, pragmatics
  o Only general description of pragmatic therapy
  o No data collected on pragmatics
  o results (based on observation):
    ▪ some change in pragmatics
    ▪ some persisting (and debilitating) deficits
    ▪ all returned to work but with modified settings

EBP in the Absence of Evidence
• Theoretically-based treatment
  o use theories of disorders to develop treatments
    ▪ Theories of normal right hemisphere function
    ▪ Explanations of deficits associated with RHD
• Select treatments initially designed for other patient groups
• Theories of RHD: Difficulties using context
  o suppressing unwanted/inappropriate meanings
  o Left hemisphere: use words, sentences & grammar used to determine meaning; quickly select best meaning
  o Right hemisphere: integrate ideas across sentences to determine meaning (make inferences); keep multiple options open
    ▪ so, RHD => inability to integrate
    ▪ so RHD => inability to use context
    ▪ theories of normal RH function may overestimate deficits caused by RHD
• Theory: Difficulty using Context – evidence from RHD
  o Can use context that is strong, or necessary
    ▪ *Joe put his rod in car and drove to lake.* => going fishing
  o Can link pronouns to referents
    ▪ *Henry spoke at a meeting while John drove to the beach. He lectured on the administration.* (He = Henry)
Problems using context when multiple interpretations are possible and they must select most appropriate meaning
- ambiguous words or phrases
- revising initial interpretation
  - Barbara became bored with the history book. She had already spent five years writing it. (READING vs. WRITING?)
- Suppression deficit hypothesis: adults with RHD can generate multiple meanings, but have difficulty selecting the “best” one
  - She picked up the spade and began to plant her daffodils.
- slow to suppress (inhibit/get rid of) less appropriate meanings
- Problems integrating multiple cues to arrive at correct interpretation
- Treatment based on difficulties using context
  - discuss alternate meanings and place item in context
  - Ambiguous words - homographs, homophones (e.g., BANK, SPRING, BALL)
    - discuss plausible meanings
    - identify cues that lead to different interpretations
  - Determine meaning based on context
    - Cinderella went to the ball.
    - The ball of string rolled down the stairs.
    - The spring in my mattress broke.
    - I love to see the first robin of spring.
  - Word pairs:
    - BANK - MONEY vs. BANK – RIVER;
    - WARM - KIND vs. WARM - COLD
  - Provide ambiguous contexts, discuss potential meanings, add context to clarify meaning
    - Huck Finn went fishing in the spring.
    - It was his favorite time of year. OR There were more fish in the spring than in the lake.
  - Idioms, metaphors
    - He’s a chip off the old block.
    - The apple doesn’t fall far from the tree.
    - Ask about familiarity (especially with multicultural society)
      - if unfamiliar, add context that narrows/explains the meaning
  - Other stimuli: headlines, jokes, cartoons.
  - Other stimuli: Client’s own language: idioms, metaphors used
    - Discuss intended meaning & literal meaning
    - How context supports intended meaning
- Theory: Social Inferencing Effects of RHD
  - Social inferences allow us to understand others’ behaviors, beliefs, intentions
  - Similar to Theory of Mind: belief about what another person thinks
  - RHD => selective problem with social inferences?
  - Social Inferences: complex, high-level inferences; involve integration of multiple cues that may include:
    - relationship between speakers
    - others’ point of view or beliefs
- tone of voice (in conversation)
  - difficulties with social inferencing may be due to complexity, and not specific to social inferencing
- Treatment based on the theory of Social Inferencing deficits
  - Create scenarios, manipulate who knows what, manipulate relationships (e.g., boss vs. co-worker or wife vs. sister)
  - Or use group treatment/discussions
    - Discuss intent of statements, potential interpretations, point of view
  - Discuss scenario & response:
    - Al & Rob are taxi drivers and good friends. Rob drove well and received many tips. Al says “You’re a good driver”
      - What did Al mean? (compliment? sarcasm?)
      - How did you figure it out? (what clues?)
      - which clues are important, which are not?
      - What if Al was jealous of Rob?
      - What if Al & Rob were not friends, but competitors?

- Theory: Executive Function/Frontal lobe model
  - Difficulties with: integration/inferencing, novel & challenging tasks, mental flexibility
  - Relation to discourse/pragmatics
    - conversation: rules differ with each setting/partner
    - cognitive characteristics reflected in language
    - disorganization, impulsivity, etc.
- Treatment based on executive function deficits model
  - Treat executive function deficit: organization, planning, problem solving
  - Stimuli: visuoperceptual, categorization, planning events, etc.
  - Discuss in relationship to communication
- Cognitive Resources Hypothesis
  - Performance linked to task difficulty
    - Performance declines with greater demand for cognitive resources
  - Doesn’t REPLACE other theories
- Treatment based on Cognitive Resources Hypothesis
  - Use to modify treatments - Alter complexity
    - number of cues (relevant vs. irrelevant)
    - number of distractors
    - length of passage
    - distance between cues & intended meaning
    - number of people in situation (social inferences)

**EBP in the Absence of Evidence**
- Select treatments initially designed for other patient groups
  - Treatments designed for TBI - Can they be used for patients with RHD?
  - Deficits: discourse/pragmatics, attentional deficits, executive function
  - Evaluate strength of evidence of TBI treatments. If reasonable, then evaluate for your client
• Is my client sufficiently similar, in most important ways, to those described in the treatment study?
  o age, etiology or location of lesion, acute versus chronic stage, degenerative condition
• Is the nature of my client’s cognitive impairment similar to that targeted in the treatment research?
  o attention, memory, executive function, discourse/pragmatics
  o Similarities reported in literature are ANECDOTAL ONLY
    ▪ ONLY 1 STUDY has directly compared RHD/TBI
• Are there coexisting cognitive impairments that are likely to influence the effectiveness of the treatment?
  o e.g., anosagnosia, memory deficits
• Is it feasible to apply the intervention in this setting?
  o amount of time available
  o intensive day program vs. traditional inpatient therapy
  o groups (appropriate group members)
  o access to computers
• What are the expected benefits & potential costs of applying the intervention?
  o benefits – may be unknown
  o cost (time & money) for treatments with unknown benefits
  o use clinical expertise, client values, and existing theories to help guide recommendations
• Is the treatment consistent with the patient’s own preferences, values and expectations?
  o Anosognosia (reduced awareness)
  o medical indications (diagnosis, prognosis)
  o quality of life
  o contextual features
  o social, economic, legal circumstances
  o patient preferences
  o dependent upon level of understanding & decision-making ability

References


