Implementing an Intensive Aphasia Treatment Program

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Intensive treatment at the Puget Sound VA

- Based on the Program for Intensive Residential Aphasia Treatment and Education (PIRATE) at the Pittsburgh VA. [1]

Intensive aphasia therapy: What is the evidence?

  • Larger effect sizes for studies providing 2 or more hours of treatment per week compared with less than 2 hours per week.
  • “The more intense the treatment, the greater the change.”
• Bhogal, Teasell and Speechley (2013)[3]: Examined 10 clinical trials, comparing mean change in scores and intensity of treatment.
  • Studies that demonstrated a significant treatment effect provided an average of 8.8 hours of therapy per week for 11.2 weeks vs. ~2 hours of therapy per week for 22.9 weeks.
  • Conclusions support intense therapy over a short amount of time.

Intensive aphasia therapy: What is the evidence?

• Cherney, Patterson and Raymer (2011)[4]: Systematic review of studies comparing higher vs. lower doses of aphasia therapy.
  • Results examined based on chronicity of sample (acute vs. chronic) and types of outcomes measures obtained (impairment vs. activity/participation).
  • No clear advantage of intensive treatment schedule compared to non-intensive schedules regardless of chronicity or types of outcomes measures used.

• Implications?
Intensive aphasia therapy: What is the evidence?

- Cherney (2012)\textsuperscript{[5]}: Differences in therapy intervention may account for different results across studies:
  - Studies finding benefit of intensive treatment targeted multiple strategies/modalities.
  - Studies finding no difference or benefit of less intensive therapy targeted more restrictive treatments.
- Chochrane Collaboration (2012)\textsuperscript{[6]}: Review of 6 RCTs comparing higher vs. lower doses of aphasia therapy.
  - “Some indication of the benefits of intensive approaches.”

Intensive aphasia therapy: Conclusion

- Evidence for benefit of intensive schedule of aphasia therapy targeting multiple strategies and modalities.
- Use of evidence-based cognitive-linguistic therapy as well as therapy directly targeting generalization of skills to social settings.
- Therapy targeting activity/participation tailored to client and family goals.
What is targeted in aphasia therapy?

• WHO’s International Classification of Functioning, Disability, and Health[7]

What is targeted in aphasia therapy?

• Living with Aphasia: Framework for Outcome Measurement (A-FROM)[8]
Treatment Options: Impairment-based

- Also referred to as “psycholinguistically oriented treatment approaches.”[1]
- Focus of treatment is on improving underlying cognitive-linguistic processes.
- Personally salient treatment stimuli may be selected.
Treatment Options: Impairment-based

- Examples:
  - Phonology: Phonomotor treatment, Phonological Component Analysis (PCA)
  - Semantics: Semantic Feature Analysis (SFA), Verb Network Strengthening Treatment (VNeST)
  - Syntax: Treatment of Underlying Forms (TUF), Verb as Core, Helm-Estabrooks Language Program for Syntax Stimulation (HELPSS).
  - Reading: Oral Reading for Language in Aphasia (ORLA), Multiple Oral Re-readings (MOR), Attentive Reading and Constrained Summarization (ARCS)
  - Writing: Anagram and Copy Treatment (ACT), Copy and Recall Treatment (CART)

Treatment Options: Activity-based

- Treatments targeting compensatory strategies, multi-modal communication, and other skills to improve communicative function.
- Examples:
  - Conversational coaching, script therapy, Response Elaboration Training (RET), Generative Treatment, Promoting Aphasics Communicative Effectiveness (PACE)
  - Other treatments targeting specific activity limitations (e.g. reading a recipe, making phone calls, filling out written applications).\(^9\)
Treatment Options: Group therapy

- Promote generalization of performance gains observed during individual treatment tasks to novel tasks.
- Enhance clients’ social participation by improving their strategies for overcoming barriers to communication in naturalistic social interactions.\(^{[10]}\)
- Opportunity for discussion, for example:
  - Life with aphasia
  - Self-advocacy
  - Understanding stroke and stroke prevention

“PI-ATE” at the Puget Sound VA

- Based on the Program for Intensive Residential Aphasia Treatment and Education (PIRATE) at the Pittsburgh VA.\(^{[1]}\)
- Two patients with aphasia seen for intensive outpatient therapy at the American Lake campus.
- 2-hour initial and final evaluations before and after treatment program.
- Two-week long program (10 treatment days), June 1-12, 2015.
- Four hours of individual therapy and one hour of group therapy per day.
Why are we doing it?

- Proof of concept for a different kind of therapy delivery model
- Space and capacity issues
- Because it has been successful at the Pittsburgh VA

Application to the private sector?

- Insurance limitations
- Allocation of therapy in Skilled Nursing Facilities
Inclusion Criteria

1. Primary diagnosis of aphasia (patient may demonstrate mild co-existing impairments such as cognitive deficits or apraxia of speech)
2. Able to travel to and from outpatient VA clinic each day.
3. Able to communicate need for medical attention in a timely fashion.
4. Medically stable
5. Ideally, support from family, friends, or relatives to encourage and reinforce treatment goals.

Exclusion Criteria

1. At risk for development of emergent medical condition
2. Significant cognitive, behavioral or psychiatric conditions that may limit ability to participate in intensive aphasia therapy.
Pre-Admission Evaluation

- Intake interview
- Comprehensive Aphasia Test (CAT)
- Connected speech analysis
- Communicative Participation Item Bank (CPIB) Short Form

Pre-Admission Evaluation

- Comprehensive Aphasia Test\[11\]
  - Measure of overall aphasia severity
  - Analysis of nature of language impairment in relation to current psycholinguistic theories of language processing
- Connected speech analysis as described by Nicholas and Brookshire\[12\]
  - Analysis of morphological, lexical, and syntactic elements of candidates spoken language.
  - 4 picture descriptions, 2 picture sequence descriptions, 2 personal narratives, 2 procedural narratives
Pre-Admission Evaluation

- Communicative Participation Item Bank Short Form\textsuperscript{[13]}
  - Unidimensional, self-report outcomes measurement instrument dedicated to the construct of communicative participation.

- Goal of initial evaluation is to provide information regarding nature and locus of linguistic processing deficits as well as impact on activity/participation to guide development of individualized treatment plans.

Daily Schedule

- 9am-9:50: Individual Treatment
- 10am-10:50: Individual Treatment
- 11-11:50: Group Treatment
- 12pm-1: Break for Lunch
- 1pm-1:50: Individual Treatment
- 2pm-2:50: Individual Treatment
DT: Background

• 68 year-old male
• L MCA stroke on 8/22/14 with severe global aphasia, R facial droop, dysarthria
• Inpatient rehab 8/28/14-9/23/14, outpatient 10/24/15-present

• Social history: Air Force (Vietnam era), worked as air-traffic controller and tow-truck driver. Now retired, lives in Rainier, WA with his wife. Enjoys fishing, using the computer, gardening, and reading.

DT: Initial Eval (5/26/15)

• CAT
  • Mild deficits in auditory comprehension, reading comprehension, verbal expression
  • Errors on receptive tasks c/b selection of semantically-related rather than phonologically-related foils.
  • Errors on expressive tasks c/b semantic paraphasias, delayed responses

• Connected Speech Tasks (Nicholas and Brookshire)
  • Observed frequent moments of anoma, use of general rather than specific language (thing, stuff), reduced syntactic variety, use of unspecified referents.

• CPIB
  • Noted that his condition affected talking to people he knows, people he does not know, and communicating in the community “quite a bit.”
DT: Treatment

- Impairment-focused treatment:
  - Semantic Feature Analysis
  - Verb Network Strengthening Treatment
  - Treatment of Underlying Forms (discontinued)
    - Not enough time!
- Activity/participation-focused treatment
  - Use of word-finding strategies in conversation
    - Practiced in role-play and using personal photos as stimuli
  - Development of photo folio to use as conversation starter/support when speaking to friends/family.
    - Based on observation of increased verbal fluency with reference to visual stimuli.

DT: Outcomes Measures

<table>
<thead>
<tr>
<th>CAT</th>
<th>Initial Eval (5/26/15)</th>
<th>Final Eval (6/24/15)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Auditory Comprehension</td>
<td>56/66 (T-score 54, &lt;50th %ile)</td>
<td>60/66 (T-score 60, WNL)</td>
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<tr>
<td>Reading Comprehension</td>
<td>46/62 (T-score 53, &lt;50th %ile)</td>
<td>50/62 (T-score 56, &lt;50th %ile)</td>
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<tr>
<td>Repetition</td>
<td>72/74 (T-score 66; WNL)</td>
<td>74/74 (T-score 72; WNL)</td>
</tr>
<tr>
<td>Naming</td>
<td>51 (T-score 55, &lt;50th %ile)</td>
<td>57 (T-score 57, &lt;50th %ile)</td>
</tr>
<tr>
<td>Verbal picture Description</td>
<td>23 (T-score 55, &lt;50th %ile)</td>
<td>34 (T-score 60, &lt;50th %ile)</td>
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<tr>
<td>Written picture description</td>
<td>20 (T-score 68; WNL)</td>
<td>28 (T-score 71; WNL)</td>
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Connected Speech Analysis

<table>
<thead>
<tr>
<th></th>
<th>Initial Eval (5/26/15)</th>
<th>Final Eval (6/24/15)</th>
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<tbody>
<tr>
<td>Total words</td>
<td>453</td>
<td>737</td>
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<tr>
<td>Correct information units</td>
<td>415</td>
<td>687</td>
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<tr>
<td>Total time</td>
<td>361</td>
<td>611</td>
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<tr>
<td>Words per minute</td>
<td>75</td>
<td>72.37 (81.44)</td>
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<tr>
<td>%CIUs</td>
<td>91.6</td>
<td>93.2 (92.4)</td>
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<tr>
<td>CIUs/minute</td>
<td>69</td>
<td>67.46 (75.26)</td>
</tr>
<tr>
<td>CPIB</td>
<td>20</td>
<td>13.5</td>
</tr>
</tbody>
</table>
JS: Background

- 50 year-old male
- Intraparenchymal hemorrhage and L basal ganglia bleed February 2015.

- Social history: Navy veteran. Owns his own home in Mt. Vernon, lived alone with his cats prior to stroke. Brother lives in the area. Patient has an impressive collection of watches.

JS: Initial Eval (5/15/15)

- CAT
  - Significant receptive/expressive aphasia across domains with exception of repetition.
- Connected Speech Tasks (Nicholas and Brookshire)
  - Observed paucity of verbal output, anomic pauses, simplified syntax, semantic and phonemic paraphasias, distortions, and omissions
  - Evidence of apraxia: groping, awareness of errors, multiple attempts, articulatory distortion
- CPIB
  - Noted that his condition affected range of communicative interactions “quite a bit.”
JS: Treatment

- Impairment-focused treatment:
  - Semantic Feature Analysis
  - Phonomotor treatment
- Activity/participation-focused treatment
  - Use of self-anchored rating scales to evaluate satisfaction with overall communicative ability.

JS: Outcomes Measures

<table>
<thead>
<tr>
<th>CAT</th>
<th>Initial Eval (5/15/15)</th>
<th>Final Eval (6/17/15)</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Auditory Comprehension</td>
<td>43/66 (T-score 47, &lt;5th %ile)</td>
<td>46/66 (T-score 51, WNL)</td>
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<tr>
<td>- Reading Comprehension</td>
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<td>54/62 (T-score 60, &lt;5th %ile)</td>
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<td>- Repetition</td>
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<td>- Naming</td>
<td>41 (T-score 52, &lt;5th %ile)</td>
<td>57 (T-score 57, &lt;5th %ile)</td>
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<tr>
<td>- Verbal picture Description</td>
<td>1 (T-score 46, &lt;5th %ile)</td>
<td>28 (T-score 58, &lt;5th %ile)</td>
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<td>- Written picture description</td>
<td>0 (T-score 42, &lt;5th %ile)</td>
<td>7 (T-score 56, WNL)</td>
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<th>Connected Speech Analysis</th>
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<th></th>
</tr>
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<tbody>
<tr>
<td>- Total words</td>
<td>536</td>
<td>242</td>
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<tr>
<td>- Correct information units</td>
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<tr>
<td>- Total time</td>
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<td>- CIUs/minute</td>
<td>22</td>
<td>35</td>
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<td>CPIB</td>
<td>14</td>
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Patient Feedback

- Both patients stated that they would “definitely” participate in an intensive treatment program again.
  - “I think it was very successful. I think it came through visual and it came through timely.” (JS)
  - “I liked everything about the program. Everything.” (DT)

JS: Patient Feedback

- High points of program:
  - “Best part was being...would be group, getting together and be with our...was to get together with the other person. Useful thing to do, but it was fun too.”
  - Regarding being an advocate for yourself: “To do that. It helps me to help others. It helps me to help myself. It overall is better. It is much better.”
  - Did not identify areas of improvement for the program.
DT: Patient Feedback

• Described benefits of intensive therapy
  • “One hour per week isn’t enough. Five hours a day...that is for five days a week, is a lot. Believe me, it’s a lot. There’s no way to compare those two, their apples and oranges. I mean, they’re not the same...I come in once a week for a week and in and out really quick. I mean, it’s an hour, but it’s really quick. It’s...by the time I finish up the homework and get it all straightened out what I’m going to do, I’ve got very little time left in the hour to do things. So it doesn’t really matter what you say, it doesn’t...it’s not the same.”

DT: Patient Feedback

• Anything you would change?
  • “And you come in with a bunch of words and I either know them or I don’t. But there’s a lot more words that I can’t say. So, I look at it and I don’t know what to think of it.”
DT: Family Feedback

- Email from patient’s wife
  - “Again I wish to thank you, for [D] has shown marked improvement in the fluency of his speech in this last two weeks. But that is not all. He is also regaining his sense of humor, and now makes jokes again! I am not alone in my observations here, because a couple of days ago when we visited our neighbors two different people remarked on how Dave’s speech had improved. They also commented on a positive improvement in his manner and bearing.”

Benefits of intensive delivery model?

- Delivery of evidence-based treatment protocols at intended intensity (or closer to it)
  - Typically not possible when patient seen only 1-2 times per week or for a limited number of treatment sessions
- Rapid development of patient/clinician relationship.
  - Observed that as patient became more comfortable, was able to share more about what was difficult in daily communication, areas that he would like to address in therapy.
Benefits of intensive delivery model?

- Observation of patient over extended time in multiple environments (e.g. during group, speaking to spouse, 1:1 treatment) informs treatment decisions. For example:
  - Does the patient have difficulty with certain words in conversation during group? Difficulty asking questions? Initiating conversation? These observations may inform decisions about what is targeted in individual therapy.
  - Is there a particular cueing hierarchy that works well in 1:1 impairment-based treatment? That same hierarchy may be implemented in group or when carrying out functional activities.
  - Are there certain self-cueing strategies that work particularly well for a patient? Impairment-based treatments may be modified to include these cues.

Benefit of outpatient vs. residential?

- Opportunity for patient and friends/family to practice implementation of trained strategies in home setting during course of treatment.
- Feedback on what worked well or did not carry over well to home environment informs treatment decisions.
- Patient is able to bring materials from home to aid in creation of personally relevant communication tools, or to use as personally salient treatment stimuli.
Suggestions for improvement

• More in-depth assessment of impact of aphasia on quality of life/communicative participation.
  • Aphasia Outcome Measure (ACOM; patient + surrogate report)
  • ASHA Quality of Communication Life Scale (ASHA-QCL)
  • Stroke and Aphasia Quality of Life Scale (SAQOL)
• Second day of pre-admission testing to administer additional assessments (e.g. PALPA subtests) to better understand underlying psycholinguistic impairment.
• Standardized protocols for evaluation to facilitate pre and post treatment comparisons.

• Lunch was a missed opportunity! Rather than both therapists in group, therapists could switch off leading group and facilitating communication during lunch break.

• Scheduled follow-up consultation to review progress, evaluate changes to community participation, update home therapy program as needed.
Suggestions for improvement

• 5 hours a day for 2 weeks...wasn’t enough!

Progress in therapy after 2 weeks (estimated)

Questions?
References