Cross-linguistic Generalization: Implications for Bilingual Aphasia Therapy

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Clinical Scenario

Gardenia is currently a speech pathology graduate student who is interested in working with patients with aphasia, particularly those who are bilingual. She anticipates she will be working with elderly Spanish-English bilingual patients diagnosed with Broca’s aphasia during her internship placement. She anticipates she will provide services to her clients nine months post onset for an hour twice a week. Broca’s aphasia patients’ speech is generally characterized as slow and agrammatic with difficulty on repetition and naming tasks. Gardenia does not have experience providing therapeutic services to patients with aphasia. However, she does have experience evaluating patients with aphasia. Her lack of experience working with aphasia patients, specifically those that are bilingual, has led her to consider whether therapy should be conducted in bilingual patients’ primary language or in their secondary language. Precisely, she wants to know whether providing therapy in one language will result in cross-linguistic generalization in the other language.

Introduction

• The population of Americans aged 65 and older is expected to double during the next 25 years to about 72 million (CDC, 2013).
• The elderly population is at a higher risk of suffering from medical conditions, such as strokes or traumatic brain injuries that can lead to aphasia.
• In fact, in 2009, 66% of people hospitalized for strokes were those aged 65 and older (CDC, 2015).
• The number of bilingual speakers in the United States is also expected to increase. (ASHA, 2015).
• An increase in elderly bilingual individuals will result in an increase in bilingual individuals with aphasia.
• For bilingual speakers, aphasia will result in disordered language in both languages. As a result, the bilingual speaker’s quality of life will be negatively impacted through decreased communication abilities (Spaccavento et al., 2014).
• The purpose of this paper is to determine if aphasia therapy in one language will result in cross-linguistic generalization for bilingual speakers. If so, is greater generalization achieved by providing therapy in the bilingual speaker’s primary language compared to the speaker’s secondary language?

PICO

For bilingual individuals with aphasia (P) will therapy in one language result in cross-linguistic generalization (O) compared to therapy in the individual’s secondary language (C)?

Methods


Search terms: bilingual aphasia therapy, bilingual aphasia systematic review, and bilingual aphasia cross-linguistic generalization.

Appraisal:
• Ten research articles that met research criteria were located.
• The articles were appraised and evaluated for validity and reliability using a CASM or CATE form.
• Inter-rater reliability of 85% or greater was achieved for all articles.
• The 5 articles with the best overall rating were selected for the study.

Results

<table>
<thead>
<tr>
<th>Author &amp; Date</th>
<th>Participants</th>
<th>Purpose</th>
<th>Dependent Variable</th>
<th>Results</th>
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</thead>
<tbody>
<tr>
<td>Amalddi &amp; Saidi (2014)</td>
<td>Adult Bilingual Aphasia and anoma</td>
<td>To discuss the literature on bilingual aphasia therapy, with a focus on cross-linguistic therapy effects from the treated to the untreated language.</td>
<td>Cross-linguistic generalization therapy effects</td>
<td>• Some studies suggest that premorbid proficieny should be considered and that treating the premorbid weaker language appears to facilitate cross-linguistic generalization.</td>
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<td>Edmonds &amp; Kiran (2006)</td>
<td>Adult English-Spanish bilingual Aphasia</td>
<td>To study the effect of semantic naming treatment on cross-linguistic generalization in 3 participants with English-Spanish bilingual aphasia.</td>
<td>Naming</td>
<td>• No consensus in the reviewed studies as to which language would provide cross-linguistic transfer.</td>
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<td>Faraji-Shay, Frymark, Mullen &amp; Wang (2010)</td>
<td>Adult Bilingual Aphasia</td>
<td>To examine outcomes when therapy is provided in second (less dominant) language, extent of cross-linguistic generalization (CLT) and variables that influence CLT.</td>
<td>Cross-linguistic outcomes of intervention (BAT, ILAT, SNB, BNT, and Wb-Q) conducted in either the primary (L1) or the secondary (L2) language targeting expressive skills</td>
<td>• Five of the eleven studies found CLT to the untreated L1 after L2 treatment (p &lt; .05). • Four out of five studies demonstrated CLT to the untreated L2 after L1 treatment (p &lt; .05). • The study suggested that SLF should consider L2 therapy for early and late bilinguals with moderate to high L2 proficiency.</td>
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<td>Kiran, Sandberg, Gray, Assoras, &amp; Kester (2013)</td>
<td>Adult Bilingual Aphasia</td>
<td>To examine if there was a principled way to understand the nature of rehabilitation in bilingual aphasia such that patterns of acquisition and generalization are predictable and logical.</td>
<td>Naming</td>
<td>Set 1: trained set. Set 1: untrained semantically related items to set 1. Set 3: untrained translation set.</td>
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<td>Kohneret (2009)</td>
<td>Adult Bilingual Aphasia</td>
<td>To discuss the potential transfer or generalization of positive effects from a treated to an untreated language in bilingual or multilingual individuals with primary acquired aphasia.</td>
<td>Cross-linguistic generalization outcomes</td>
<td>• All of the 12 studies reported improvement in an untreated language. • All 5 studies that reported treating the speakers second language (L2) demonstrated improvement in the untreated language (L1). • 3 of 5 studies that reported treating the speaker’s first language (L1) demonstrated improvement in the untreated language (L2). • 2 studies alternated treatment of L1 and L2. They demonstrated gains in the untreated language during each phase of treatment. • Some studies revealed treatment efficacy may be maximized by emphasizing structural similarities between the bilingual speaker’s two languages.</td>
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Discussion

The studies evidenced no consensus on whether the primary or secondary language leads to increased cross-linguistic generalization. Some studies resulted in cross-linguistic generalization when treatment was provided only in the primary language, whereas the rest of the studies indicated greater cross-linguistic success after treatment of the secondary language only. Researchers suggest that cross-linguistic generalization may be dependent on: the degree of structural overlap between languages, the type of therapy approach, the pre and postmorbid language proficiency profiles, and the status of patients cognitive control circuit (Amalddi & Saidi, 2014). Therefore, all of these factors should be considered on an individual basis for each bilingual aphasia patients. For my future bilingual aphasia patients, I would take these factors into account along with my clinical expertise and my patients’ preferences and perspectives regarding their treatment. In this regard, I would ensure that I am providing my patients the best service while integrating all three areas of evidence based practice.