Dysfluencies in Persons With Aphasia Showing Improvement: AphasiaBank Transcripts

Lisa LaSalle, Ph.D., CCC-SLP

Communication Sciences & Disorders Department, University of Redlands, Redlands, CA

INTRODUCTION

- Fluency is the forward flow of communication
- Dysfluency is any abnormal self-interruption to fluency, or Stutter-Like Disfluencies (SLD):
  - Whole-word repetitions [W] (and and)
  - Sound-lyrical repetitions [S] (a-a a a)
  - Proclivities: Inaudible - and Audible [A]: (a oo a)
- Dysfluencies are self-interruptions other than SLDS, presumed more normal in type:
  - Phrase repetitions [P] (He is go - he is going; He is - he is going)
  - Revisions [R] (He is - she is going)
  - Interjections [I] (uh uh)

PURPOSE & RATIONALE

From a speech fluency perspective:
1. What is so-called neurogenic or acquired stuttering? Is it best termed “non-developmental stuttering” (NDS) [Logan, 2015]?
2. How does NDS manifest in persons with aphasia (PWA) over time? PWA account for 37% - 50% of the neurogenic stuttering cases (e.g., Market et al., 1990; Thys et al., 2008, as cited in Logan, 2015)
3. Where to access transcripts of PWA so we can learn about NDS?

METHODS

- Eleven participants from www.aphasia.halkbank.org (AphasiaBank), were selected based on Holland, Fromm, Forbes & MacWhinney (2016) showing that these individuals showed significant improvement on the Western Aphasia Battery-Revised (WAB-R; Kertesz, 2006; i.e., AQ<SEM) and on various discourse measures between their first and last visit.
- Dysfluencies or Stutter-Like Disfluencies (SLDs), i.e., [W],[S],[A] were coded using CLAN transcripts. Inaudible sound prolongations (R) were excluded due to their prevalence and validity and reliability concerns.
- Each instance of an Um/Uh was counted within the words for Interjections (I). The other two non-SLDS, Phrase Repetitions (P) and Revisions (R) were coded as per many available guidelines (e.g., Logan, 2015)
- Interjudge and intrajudge reliability was 92% and 95% respectively, collected on 20% of the data (i.e., 1100 words x 23 raters, 220 randomly selected words per pt)
- Descriptive data and nonparametric statistical analysis were used to test the hypothesis that fluency would improve between Time1 and Time2.

RESULTS

- Seven of the 11 participants decreased the frequency of the SLDs they produced between Time1 (a) and Time2 (b): a significant (W=44; n=11; p=0.03) difference between Time1(a) (Mean=5.5; SD=1.7) and Time2(b) (Mean=4.4; SD=0.12). No differences (p=0.03) between Time2 for Dysfluencies and Total Disfluencies were found.

Regarding Aphasia Diagnosis at Time1 or by Time2 when diagnosis changed, of the 11 participants, 4 Conduction, 3 Anomia, 2 Broca’s, 1 TransSensory (TS), and 1 Wernicke’s aphasia cases were represented in the present data.

As can be seen in Table 1, in 3/4 pts with Anomia, in 2/4 pts with Conduction aphasia, 1/2 pts with Broca’s and 1/4 pts with TransSensory, a substantial (~20%) percent reduction from baseline occurred in SLDs, Dysfluencies, and/or Total Disfluencies (See yellow highlights).

- However, 1/3 Wernicke’s, 1/2 Broca’s, 1/3 Anomia, and 1/4 (conduction), showed a substantial increase (see blue highlights) in Dysfluencies (IC,PK), and the individual with Wernicke’s was the only pt to increase both dysfluencies and total disfluencies.

- Next, the speech sample tasks were important to analyze. Because mean length of utterance (MLU), propositional aspects of speaking, and speech errors are related to increased disfluencies (E.g., Eisensohn, 1959; Bloodstein & Bernstein Ratner, 2008), those changes in discourse measures are taken from Holland et al. (2016) and shown in Table 2:

<table>
<thead>
<tr>
<th>Language Measure</th>
<th>Time1 (a)</th>
<th>Time2 (b)</th>
<th>Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prop. Density in FS</td>
<td>34.8</td>
<td>36.3</td>
<td>+4.7%</td>
</tr>
<tr>
<td>Discourse measure Errors in FS</td>
<td>14.9</td>
<td>13.8</td>
<td>+33.3%</td>
</tr>
<tr>
<td>MLU in Cinderella</td>
<td>20.9</td>
<td>19.6</td>
<td>+16.7%</td>
</tr>
</tbody>
</table>
| Anomia | 3/3 | 3/3 | 0%
| Conduction | 2/3 | 3/3 | +33.3% |
| Broca’s | 2/3 | 1/3 | -33.3% |
| Wernicke’s | 1/3 | 1/3 | 0%

- AphasiaBank Protocol List Discourse Tasks:
  1. Free Speech (FS) Samples:
     a. Stroke Story and Coping
     b. Refused Umbrella
  2. Picture Description (see AphasiaBank for copyright)
  3. Story Narrative: Cinderella
  4. Procedural Discourse (Expository): Peanut Butter and Jelly Sandwich or other simple sandwich

DISCUSSION

- This preliminary investigation into both overall disfluencies and dysfluencies in persons with aphasia who show improvement over time has provided support for using fluency/dysfluency frequency-type analysis as one measure that could serve as a linguistic marker or “struggle” with increased prevalence. Increased awareness of markers that require repair (e.g., Levet, 1989) and thus can be used as a partial picture of aphasia improvement.

- Fluency experts mine data for dys/disfluencies, type, loci, etc. AphasiaBank mines data for language measures and changes. Fluency and Aphasia experts should collaborate more often than has commonly been the case.

- Future directions include: (a) Work with an aphasia expert in English and Spanish samples provided on AphasiaBank; (b) Investigating SLDs; (c) and possibly test types in specific; (c) Investigating Disfluencies: P, R, Types in specific; (d) separating out the samples, as it appears, as would be expected that Cinderella Narrative is the most dysfluency task; (e) investigating discourse errors (e.g., Hailey & LaSalle, 2006)

REFERENCES


ACKNOWLEDGEMENTS

AphasiaBank: Hannah Barrick, for interjudge reliability.