most effective interaction with partner T and her least effective interaction with partner L appears to be differences in the nonaphasic partners’ interaction style. L tended to produce contentless back-channel “mhms” instead of utilizing her turns to produce understanding checks; then, when she did produce a check it contained a large number of content units. T, on the other hand, produced understanding checks on a higher percentage of her turns and each check contained much less information. Thus, the aphasic partner invites initiation of understanding checks by establishing eye contact but the nonaphasic partner must be attentive, receptive, and socially willing to initiate them despite the fact that they slow down the interaction and, worse, openly acknowledge that there may have been difficulty in understanding the aphasic partner.

Conclusion

The qualitative study permits us to see precisely how speakers jointly contribute to the transmission of information in a conversation. This type of information is concrete enough to be used as the basis for individually structured intervention that focuses on coaching a person with aphasia and his/her conversation partner in techniques for more effective communication.

REFERENCES


Treating Attention to Improve Auditory Comprehension in Aphasia

Nancy Helm-Estabrooks, Lisa Tabor Connor, and Martin L. Albert

Harold Goodglass Aphasia Research Center, Boston University School of Medicine

Aphasia has often been viewed as a purely linguistic deficit, a conceptualization that has profoundly influenced therapeutic approaches. However, other aspects of cognition may influence language performance in aphasia. For example, some aphasic individuals have attentional processing deficits that may have a significant impact on language performance: (1) Some exhibit substantial item-by-item variability on repeated tests of auditory comprehension (McNeil, 1983); (2) extralinguistic stimulation can enhance auditory comprehension performance, for example, slowing rate of input (e.g., Campbell & McNeil, 1985), providing emphatic stress (e.g., Kimelman & McNeil, 1987), and providing an alerting signal (Loverso & Prescott, 1981).
No previous study has directly examined the effects of an attention training program on auditory comprehension skills. The traditional approach to remediating auditory comprehension in aphasia is the language “stimulation” approach. At the same time, aphasia treatment programs that do not directly target linguistic skills have yielded substantial improvement in language performance, for example, the nonvocal Visual Action Therapy (Helm-Estabrooks, Fitzpatrick, & Barresi, 1982). In 1998 Helm-Estabrooks reported a case study of a moderately aphasic man who demonstrated significant improvement in auditory comprehension and nonverbal cognition with 10 sessions of treatment consisting of tasks of attention and concentration. These findings led to the study described here.

Method

Subjects. Subjects were two, premorbidly right-handed, high-school-educated women (Case 1, age 55 years; and Case 2, age 46 years) who sustained unilateral left hemisphere strokes 18 and 16 months, respectively, before entering our Attention Training Program (ATP). Baseline testing was repeated at 1-month intervals prior to initiation of treatment to control for natural recovery and practice effects (see Fig. 1). Prior to attention training, each patient was classified as having mixed nonfluent aphasia according to the Aphasia Diagnostic Profiles (ADP; Helm-Estabrooks, 1992). Case 1 scored at the 29th percentile on the auditory comprehension subtests of the BDAE (Goodglass & Kaplan, 1983) and the 10th percentile for age-matched, healthy adults on the Raven’s Coloured Progressive Matrices (RCPM; Raven, Court, & Raven, 1990). Case 2 scored at the 31st percentile on the BDAE auditory comprehension subtest and the 50th percentile on the RCPM.

Attention training program. The ATP was hierarchically organized beginning with nonlinguistic tasks of sustained attention and progressing to tasks of selective and alternating attention: symbol cancellation, trail-making, repeated graphomotor patterns, auditory continuous performance, and sorting tasks. Within each type of task, stimuli of increasing difficulty were used. Case 1 received 17 twice-weekly sessions of ATP followed by 16 sessions of Melodic Intonation Therapy (MIT) (Sparks, Helm, & Albert, 1974). Case 2 received 16 twice-weekly sessions of ATP followed by 23 weeks of no treatment.

Results and Discussion

Both patients improved with ATP (see Fig. 1). For Case 1, the BDAE auditory comprehension score improved to the 35th percentile (an increase of 6 percentile points), and RCPM to the 66th percentile (an increase of 56 percentile points). With subsequent MIT, her BDAE auditory comprehension score remained at the 35th percentile, but her RCPM dropped to the 50th percentile. For Case 2 the BDAE auditory comprehension score improved
FIG. 1. Percentile scores for the BDAE Auditory Comprehension subtest and Raven’s Coloured Progressive Matrices for two aphasia cases. Dotted lines depict pretreatment baseline performance and solid lines indicate treatment effects.

To the 38th percentile (up 13 percentile points), and RCPM to the 75th percentile (up 25 percentile points). When retested after 23 weeks without any treatment, her BDAE auditory comprehension had dropped 6 percentile points (32nd percentile), but her RCPM score remained at the 75th percentile.

We conclude that “attention training” shows promise as a rehabilitation strategy for auditory comprehension deficits in aphasia. Nevertheless, the promising results of our study seem to raise as many questions as they answer. Despite comparable levels of auditory comprehension deficit, these two patients had markedly different nonverbal reasoning skills. This underscores the findings of Helm-Estabrooks, Bayles, Ramage, & Bryant (1995)
and others that aphasia severity is not predictive of general cognitive ability. With ATP, both patients made large gains in RCPM and smaller, but functionally meaningful, gains in auditory comprehension. A key result of this study is that improvement in auditory comprehension and nonverbal reasoning occurred only with the ATP. For Case 1, the MIT program had no effect on auditory comprehension, and, in fact, eroded gains made in cognition. For Case 2, a period of no treatment was deleterious to her auditory comprehension.

These results challenge the conceptualization of aphasia as a purely linguistic deficit. Further, they demonstrate that cognitive deficits of aphasic individuals can be improved. Finally, they suggest that generalization of these improved skills can occur from one type of cognitive domain (i.e., attention) to another (i.e., analogical reasoning). This latter finding is important insofar as those with severe aphasia must compensate for their language deficits by bringing good problem-solving skills to communicative interactions.

REFERENCES


Address correspondence to: Nancy Helm-Estabrooks, Harold Goodglass Aphasia Research Center, VA Boston Healthcare System (12A), 150 S. Huntington Avenue, Boston, MA 02130. E-mail: nej927@aol.com.