

Introduction

To communicate, individuals with severe aphasia require facilitation by a skilled partner and typically must use non-verbal modalities. Rehabilitation of functional communication, therefore, requires skills training for both the aphasic individual and their communication partners.

As severely aphasic individuals can convey very little in words, their contribution to successful conversational interaction involves alternative communication modalities such as drawing, gesturing, and pointing to visual referents. Intervention targeting use of such modalities is often necessary: Severe aphasia is associated with impaired recognition and production of both gesture and drawing (Feyereisen, 1991; Lyon, 1995) and individuals with severe aphasia may not use these compensatory strategies spontaneously.

In a conversation involving someone with severe aphasia, the non-aphasic participant needs to support the aphasic participant to understand what is being said and to express what they want to convey. Facilitating conversation with someone with severe aphasia requires considerable skill and expertise. Exposure to people with aphasia and motivation to communicate are not sufficient to establish these skills; explicit training is required (Kagan & Gailey, 1993).

Two studies have demonstrated that intervention can assist regular conversation partners to converse with people with severe aphasia. Hopper, Holland, and Rewega (2002) evaluated an intervention in which a clinician coached two individuals with chronic severe aphasia and their partners in the use of selected verbal and non-verbal conversational strategies. After coaching, the couples conveyed more information in a video re-telling task. Cunningham and Ward (2003) evaluated an intervention which included provision of information, identification of successful and unsuccessful conversation patterns, role-playing, and practice. Four single subject studies, involving individuals with chronic severe aphasia and their partners, revealed positive but not statistically significant changes, including increases in non-verbal communication and in successful repair sequences.

The provision of communication skills training to severely aphasic adults and their carers during the early rehabilitation phase has not yet been addressed. The early recovery period is, however, a time of high need during which severely aphasic clients and their families are struggling to communicate and are highly motivated. Early therapy targeting their communication can potentially provide them with needed skills and strategies at the outset, so initiating the process of establishing functional communication.

An intervention provided during the early recovery period needs to be brief: Length of stay within a particular therapy setting is typically short, and client time is often limited as clients are frequently involved in a variety of therapies, including conventional language therapy. Additionally, most speech-language therapists are under considerable time pressure, and are more likely and able to implement a brief but effective intervention than a lengthy one.

This study investigated whether a brief intervention delivered during the early rehabilitation period to severely aphasic individuals and their partners improved their communication. The effectiveness of specific components of the intervention was also explored.

Method

A single-subject multiple-baseline across behaviours design was employed. Six single-subject studies were completed. The participants were individuals with severe aphasia receiving in-patient post-stroke rehabilitation and their communication partners. Four of the six aphasic participants were male. Assessment via the Western Aphasia Battery yielded a diagnosis of global aphasia for three participants and of Broca's aphasia for three participants. The three participants with global aphasia also demonstrated ideomotor apraxia. Time post-onset ranged from two to seven weeks. All communicative partners were female: Three wives and three daughters. Subject characteristics are summarised in Table 1.

The first intervention component was a group-based education session for the partner involving aphasia education plus training in yes/no questioning techniques. The next component, complementary therapy for the aphasic participant targeting reliable yes/no responses, was not effective and was omitted for the final three

participants. The final intervention component, which treated the aphasic participant and their partner together, focussed on improving dyadic communication skills and teaching supported use of non-verbal communication. The final component was provided over three sessions: The first addressed pointing, the second gesturing, and the third drawing.

The outcome measures were obtained through analysis of communication between the aphasic participant and their partner during a video re-telling task. The variables of interest included communicative success and efficiency; use of pointing, gesturing, and drawing; and the partner's questioning style, utterance length, gesture use, repetition, verification, and prompts to use non-verbal communication. The *Communication Effectiveness Index* (CETI) (Lomas et al., 1989), and a simple rating scale completed by the aphasic participant were additional outcome measures. Three baseline measures were obtained, plus an additional baseline of communication with a stranger. The partner measure was repeated after each stage of the intervention, and one month after the final intervention; the stranger measure was repeated after the final intervention. The data were analysed via visual inspection of graphs.

Results

Five of the six dyads communicated more main concepts after intervention, and four of the six dyads communicated more efficiently (Table 2). For one of these dyads (Dyad E), the improvement resulted from improved verbal expression rather than skills acquired through this intervention.

Four of the six aphasic participants increased their use of non-verbal communication (Table 3). Two pointed more, two gestured more, and two drew more. One aphasic participant remained unable to use gesture or drawing to convey novel information. The aphasic participant whose verbal expression improved did not increase his use of non-verbal modalities.

Three aphasic participants increased their use of non-verbal communication post-intervention when communicating with a stranger, with a corresponding increase in communicative success and efficiency (Table 3).

Five of the six partners modified some of the aspects of their communication behaviour which were targeted during intervention (Table 4). The sixth partner was paired with the man whose verbal expression improved significantly. Two partners asked a higher proportion of topic questions; two shortened their utterance length; four used more visual cues such as gesture which assisted the aphasic participants' comprehension; three used more repeats, one verified more; and three prompted their aphasic partner to use non-verbal communication more frequently.

Discussion

Overall, the results demonstrate that a brief intervention provided during in-patient rehabilitation was able to improve the communication between severely aphasic individuals and their partners.

Three one-hour sessions which included partners, each targeting a particular non-verbal modality, enabled severely aphasic participants to adopt or make more effective use of non-verbal alternatives. The therapy offered more than one alternative modality and did so in a therapy format which not only taught application of each modality but also demonstrated its communicative effectiveness with a regular communication partner. The results suggest that this format enabled and encouraged participants to select and subsequently use the modality or modalities which they found most comfortable and effective. The majority also utilised these modalities when communicating with a stranger.

The communication partners, who participated in a group session and the three one-hour sessions, also modified their communicative behaviours. The behaviours which were altered included questioning style, utterance length, verification, repetition, gesture use, and prompts to their partner to point, gesture or draw.

These are encouraging findings, as there are currently no early functional interventions with demonstrated effectiveness for this challenging group. The intervention is sufficiently brief for realistic delivery in the acute or post-acute setting.

References

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Table 1
Subject gender, age, aphasia type, Western Aphasia Battery (WAB) Aphasia Quotient (AQ), Boston Diagnostic Aphasia Examination (BDAE) severity rating (Goodglass, Kaplan, & Barresi, 2001), apraxia, time post-onset, partner relationship and partner age.

	Gender Age	Aphasia BDAE Severity WAB AQ	Apraxia	Time post-onset	Partner Age
Dyad A	Man 60	Broca's aphasia 1 20.4	No dyspraxia	5 weeks	Wife 57
Dyad B	Man 73	Global aphasia 1 5.0	Ideomotor apraxia	2 weeks	Wife 71
Dyad C	Woman 69	Global aphasia 0/1 6.2	Ideomotor apraxia	7 weeks	Daughter 37
Dyad D	Man 72	Global aphasia 0 10	Ideomotor apraxia	2 weeks	Wife 69
Dyad E	Man 80	Broca's aphasia 1 54.8	No dyspraxia	2 weeks	Daughter 47

Dyad F	Woman 73	Broca's aphasia 0/1 15.3	No dyspraxia	7 weeks	Daughter 39
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Table 2

Dyad communication: communicative success and efficiency

Measure	Dyad A	Dyad B	Dyad C	Dyad D	Dyad E	Dyad F
Communicative success	Improved	Unchanged	Improved	Improved	Improved	Improved
Communicative efficiency	Improved	Unchanged	Improved	Worse	Improved	Improved

Table 3

Aphasic participants' communication: communicative success and efficiency with stranger; yes/no response accuracy; use of pointing, gesture and drawing.

Measure	Subject A	Subject B	Subject C	Subject D	Subject E	Subject F
Communicative success, stranger	Improved	No change	Improved	No change	Improved	Improved
Communicative efficiency, stranger	Improved	No change	Improved	No change	Improved	Improved
Yes/no accuracy	No change	No change	No change	n/a	n/a	n/a
Pointing use, partner	No change	No change	Increased	Increased	No change	No change
Pointing use, stranger	Increased	Increased	Increased	No change	No change	Increased
Gesture use, partner	No change	No change	Increased	Increased	No change	No change
Gesture use, stranger	Decrease	Decreased	Increased	No change	Increased	Increased
Drawing use, partner	Increased	No change	No change	Increased	No change	No change
Drawing use, stranger	Increased	No change	No change	No change	No change	No change

Table 4

Partners' communication: Topic question use, utterance length, use of visual cues (gesture and pointing), prompts to partner to use non-verbal communication and use of repeats and verification

Measure	Partner A	Partner B	Partner C	Partner D	Partner E	Partner F
Topic question use	No change	Increased	No change	No change	Increased	No change
Utterance length	Decreased	Decreased	No change	Increased	Increased	No change
Gesture use	Increased	Increased	Increased	Increased	No change	No change
Prompts to use non-verbal modes	Decreased	Increased	Increased	Increased	No change	No change
Repeats	No change	Increased	No change	Increased	Increased	No change
Verification	No change	No change	Increased	No change	No change	No change