Conversation Intervention with Alzheimer's Patients: Increasing the Relevance of Communication

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Abstract

The effectiveness of conversation in improving verbal communication of nursing home residents with Alzheimer's disease was compared to exercise and a combination of both interventions. Fifty-five participants were randomly assigned to treatment group and raters were blinded. Treatment was given three times weekly for 30 minutes, for 16 weeks. Although all groups evidenced decline in the total number of words used as a group, the conversation-only subjects' performance was significantly better in terms of the number of nonredundant units of information produced (p = .0433) and conciseness (p = .0101) using analysis of covariance controlling for baseline performance. Individual subjects' change in performance was also examined. Active engagement in structured one-on-one conversation may improve relevance of communication in this population.

Keywords

Alzheimer's disease; dementia; conversation; exercise; communication; picture description

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One of the most tragic symptoms of Alzheimer's disease (AD) is the progressive loss of ability to communicate. This loss has obvious adverse consequences for the older individual and their loved ones. For the person with AD, sequelae include isolation, depression, disturbed behavior, and decreased quality of life (Zanetti, Frisoni, Bianchetti, Tamanza, Cigoli & Trabucchi, 1998; Lyketsos, Steele, Galik, Rosenblatt, Steinberg, Warren & Sheppard, 1999).

Deterioration of verbal communication becomes evident in pauses, word substitutions and discourse that eventually becomes "circuitous and verbose, yet empty" (Appell, Kertesz & Fisman, 1982, p. 87). Vocabulary decreases and irrelevancies increase. Maintaining a topic becomes difficult (Ellis, 1996; Mentis, Briggs-Whittaker & Gramigna, 1995). Declines may be exaggerated due to the individual's awareness of the problem and resultant frustration, embarrassment, or anxiety, leading to further withdrawal (Cohen, 1991; Pepping & Roueche, 1991). The communicative difficulties also evoke discomfort in the caregivers, inhibiting their attempts to communicate and further reducing opportunities for meaningful interaction with others (Beck, 1996; Ekman, Norberg, Viitanen & Winblad, 1991; Pepping & Roueche, 1991; Hendryx-Bedalov, 2000).

There is some evidence that the communication disability associated with AD can be reduced or ameliorated. A variety of interaction-based approaches have been used with cognitively impaired populations. For example, improvement in naming has been reported after exposure

to a semantic judgement task (Huff, Spencer & Protetch, 1990), and simplified speech by the nonimpaired partner was found to improve communication with demented adults (Kemper, Anagnopulos, Lyons & Heberlein, 1994).

Bourgeois (1991) reports that use of traditional language training does not generalize to other tasks but that training in conversation does. Use of a memory aid ("memory wallets") stimulated an increase in novel, relevant statements during conversation (Bourgeois, 1992). A family caregiver-led cognitive stimulation program, including both conversation and cognitive tasks, helped to maintain word fluency of older adults with dementia (Quayhagen, Quayhagen, Corbeil, Roth & Rodgers, 1995). In a pilot study, a combination of exercise and conversation produced significant improvement in a sample with Alzheimer's disease while social conversation alone did not (Friedman & Tappen, 1991), although it has been more recently noted that demanding cognitive tasks have been found to interfere with normal ambulation (Camicioli, Howieson, Lehman & Kaye, 1997).

CONCEPTUAL FRAMEWORK

According to Bayles (2000), conversation has the potential to strengthen communicative abilities via a multi-step process. First, old learning is "called into consciousness" by engaging the individual in conversation about personally relevant material. Second, repetition and practice within ongoing conversations strengthen and reinforce old learning. Finally, new learning may be added to the foundation of old learning as conversations continue. The more frequently information is called into consciousness, the more accessible it may become, even in dementia (Bayles, 2000).

Given the assumption that language is a reflection of thought, Peplau (in O'Toole & Welt, 1994) suggests that engagement in conversation may have a corrective effect on thought patterns as well as reinforce learning. Verbal interchange may, for example, be used to clarify vague references. If a patient uses an unclear pronoun such as "they," he or she may be asked to whom "they" refers. Continued requests for such clarification could eventually affect thought patterns and resulting communication. Such strategies can be incorporated into conversation with individuals with AD.

Conversation alone and conversation during exercise were examined in this study. Specifically, the purpose of this study was to compare the effects of conversation intervention with exercise and a combination of the two on the verbal communication performance of nursing home residents with Alzheimer's disease. Based on the report of Friedman and Tappen (1991), it was anticipated that combining the stimulative effects of walking and conversation would produce greater improvement in verbal communication than conversation alone in nursing home residents with Alzheimer's disease.

METHOD

A three-group repeated measures design with randomized assignment to treatment group was utilized. Treatment (conversation, walking exercise or a combination of the two) was provided in 30 minute sessions three times a week for 16 weeks (four months). Data on participant responses were collected at baseline and at the end of treatment. Raters were blinded to treatment group assignment. Intervenors were graduate students with advanced training ranging from post baccalaureate to doctoral preparation.

Sample and Setting

Residents of two large (272 and 462 bed) superior-rated, long-term care facilities were screened for eligibility for study. Criteria for inclusion were a diagnosis of probable Alzheimer's disease

based on independent review by a geropsychiatrist using the NINCDS-ADRDA criteria (McKhann, Drachmann, Folstein, Katzman, Price & Stadlan, 1984), Mini-Mental State Examination score of 23 or less, ability to walk 25 feet with the assistance of one individual and/or an assistive device, and medical clearance to participate in the walking exercise. Exclusion criteria were evidence of vascular dementia, stroke, Parkinson's disease or history of major depression, schizophrenia or mental retardation.

Consent for participation was obtained from the resident's health care surrogate as defined by the University's Committee for the Protection of Human Subjects and State of Florida law. Subjects themselves assented to participate in the activities of the study and were informed when they were being tape-recorded. Participants were randomly assigned to one of the three treatments: conversation, assisted walking or a combination of the two.

Intervention

Conversation treatment was based upon the previously described recommendations of Peplau and Holland's use of conversation in the treatment of newly aphasic individuals (Holland, 1993; Holland, Swindell & Fromm, 1984) with the addition of facilitative techniques designed for individuals with Alzheimer's disease (Tappen, 1997; Tappen, Williams-Burgess, Edelstein, Touhy & Fishman, 1997). These strategies were utilized in natural conversation as opposed to repetition and drill. Information about each participant's interests and past experiences was obtained from staff and significant others so that intervenors could engage participants in conversation on topics that were of personal interest to the participants. Intervenors also initiated conversation about objects and events within the immediate environment (Holland, 1993). They were instructed to use open-ended follow-up questions to maintain conversation and not to correct participants but to respond to any attempt to communicate under the assumption that there was some meaning in it. Intervenors were also told to avoid filling in every moment with talk, give the person adequate time to respond to questions and to repeat or rephrase statements or questions if they were misunderstood. They were instructed to provide information if it was desired or sought by the participant. Further, intervenors were instructed not to talk down to the individual, structure conversations as a reminiscence session, support or add to factual errors or change the subject when the individual expressed emotion or concerns (Tappen, 1997; Tappen et al., 1997).

The walking exercise involved self-paced independent or assisted walking according to participants' abilities. Participants were encouraged to walk as much of the 30 minutes as possible but were allowed to rest as much as they wanted or needed. When they discontinued ambulation, they were allowed to rest several minutes to delay fatigue (Miller & Marley, 1987) and then encouraged to resume walking. Participants in the assisted walking group were not engaged in conversation during the 30 minute sessions. Intervenors were instructed to respond to exercise group participants' attempts to communicate but not to initiate conversation.

The third treatment group, combined walking and conversation treatment, received both the walking exercise and the conversation treatment simultaneously. Intervenors both encouraged the individual to walk for as much of the session as possible and engaged the individual in conversation for as much of the time as the participant tolerated. Both the walking and conversation were conducted under the same protocols as the separate walking and conversation interventions.

Measures

Sociodemographic Data—Information regarding participants' age, gender, cognitive status, and length of stay was obtained. Scores on the Mini-Mental State examination (Folstein, Folstein & McHugh, 1975) were used to describe cognitive status.

Communicative Ability—The Picture Description Test was developed by Bayles and Tomoeda (1991) to assess functional linguistic skills in Alzheimer's disease. They administered it annually for five years to evaluate the changes in communication ability of 116 individuals with Alzheimer's disease and 59 controls (Tomoeda & Bayles, 1993). Participants' descriptions of the picture within the three minute time limit are recorded, transcribed, and checked for accuracy. From analyzing the 456 responses obtained, eight measures of discourse were generated: total words, total information units, conciseness, circumlocutions, frustrations, aborted phrases, revisions, and ideational repetitions. Total words, information units and conciseness were the measures found to most consistently track the performance of the individuals with Alzheimer's disease. Conciseness is calculated as a ratio of information units to total number of words. Interscorer reliability in five randomly selected samples ranged from .90 to .99 (Tomoeda & Bayles, 1993; Croisile, Ska, Brabant, Duschene, LePage, Aimard & Trillet, 1996; Ripich, Fritsch, Ziol & Durand, 2000).

For this study, an alternative Norman Rockwell picture without religious significance (*Spring*) was used but the test was otherwise conducted in the same manner. Participants' responses were tape-recorded and transcribed. Transcriptions were checked for accuracy by an independent reviewer. Transcribed responses were then scored for total words, information units and conciseness. Interscorer reliability on a subset of 13 recorded and transcribed responses was .99 for the total number of words and .97 for the number of information units.

Data Analysis—Descriptive statistics, analysis of variance (ANOVA), and chi-square were used to describe the sample. Repeated measures analysis of covariance (ANCOVA) with planned comparisons was used to examine the effect of treatment on the outcome measures. Change in individual scores was also examined.

RESULTS

The majority of the 55 participants on whom data were obtained were female (87%). Their mean age was 87, range 71 to 101 (see Table 1). Mean Mini-Mental State examination score was 11.05, range 0 to 23 (see Table 2), and length of stay in the facility was 943 days (SD = 731).

An analysis of covariance controlling for baseline level of communication performance revealed a significant decline over time in the total number of words used $F(2,51) = 16.44$, p = .0002. Inspection of the means shows a 50% decline in the mean number of words produced by participants in the walking group compared to a 22% decline in the conversation treatment group and a 26% decline in the combined walking and conversation treatment group. The differences in decline across the groups were not significant (Table 3).

In terms of the mean number of information units produced by participants in the three treatment groups, however, the change over time by treatment group was significant $F(2,51) = 3.34$, p = .0433. Pairwise comparisons revealed a significant difference between the assisted walking and the conversation treatment groups, p = .0151. The mean number of information units produced declined 49% in the assisted walking group and 29% in the combined treatment group but increased 10% in those who received the conversation treatment (Table 3).

Examination of the conciseness scores revealed a similar pattern of change over time between groups $F(2,51) = 5.04$, $p = .0101$. Pairwise comparisons indicated a significant difference between the conversation treatment and both the assisted walking groups ($p = .0030$) and the combined treatment ($p = .0498$), but no difference between the walking and combined treatment groups. Mean conciseness decreased 42% in the assisted walking group and 15% in the combined treatment group but increased 69% in the conversation treatment group (Table 3).

Individual subjects' changes in score over time were also examined. Eleven (67%) of the 18 walking group subjects declined from pretest to posttest in the total number of words used. This compares with a decline in 9 (47%) of the 19 conversation group subjects and the same number of combined treatment subjects. On the other hand, seven (37%) subjects in the conversation treatment group and 7 (39%) in the combined treatment group showed an increase in the total number of words used compared with 4 (22%) in the walking group. These differences were not statistically significant using chi square analysis (see Table 4).

The change in number of information units used followed the same pattern for the walking group (11 declined, 4 increased). However, more conversation treatment subjects produced an increased number of information units (42%) than did the combined treatment subjects of whom only 28% increased while another 28% remained the same. These differences were not significant using chi square analysis (see Table 4).

More walking group subjects experienced a decline in conciseness (67%) than did conversation treatment subjects (26%) or combined treatment subjects (50%). Conversely, 63% of the conversation group subjects increased in conciseness compared with 22% of the walking group and 28% of the combined treatment group, chi square $p = .0580$ (see Table 4).

DISCUSSION

Although it was hypothesized that combining the stimulation of walking with conversation initiated by an intervenor with whom the individual had had time to develop a relationship would be the most effective intervention, the conversation treatment without exercise was found to be the most effective approach in improving communication performance. As a group, participants regularly engaged in conversation without exercise evidenced only half the decline in total words experienced by the exercise only group, an increase in the amount of nonrepetitive information conveyed and a subsequently substantial increase in conciseness while the walking only subjects as a group experienced a decline in both relevance and conciseness. The latter two changes were statistically significant. Those who participated in simultaneous walking exercise and conversation fell midway between the conversation only and exercise only groups: a drop in total words used similar to the conversation-only group and a decrease in information units and conciseness about half that of the exercise only group.

These findings are in contrast to those of an earlier study in which the combination of walking and conversation was found most effective (Friedman & Tappen, 1991). There are several possible explanations for this difference. First, the conversation sessions in this study were designed to be therapeutic in the sense that facilitative techniques to encourage discourse and minimize the discomforts of failure were utilized by trained intervenors. This is in contrast to the social nature of the conversation utilized in the earlier study. Thus, the conversation-based intervention in this study was more focused and may have been more powerful than the social talk of the earlier study. Second, many of the participants in this study were quite frail physically. Intervenors reported that some were afraid of falling and others needed considerable assistance with ambulation, interfering with opportunities to engage in conversation and walk simultaneously. This would not occur in a more mobile population. One research assistant reported that when participants were asked a question, they stopped walking, supporting the

observations of Camicioli et al., that cognitive tasks can slow walking (1997). There were also more distractions interrupting the flow of conversation during the walk than there were during the conversation only treatment sessions.

Conversation was well accepted by this population. Although some participants initially responded to attempts to converse with irritability or annoyance, review of the transcripts of selected sessions and reports of the intervenors indicate that most eventually developed positive relationships with the intervenor and expressed disappointment, even sadness, at termination. This response supports Lamar and colleagues' observation that despite the individual's initial withdrawal or resistance, it is worthwhile to attempt communication with individuals in the later stages of Alzheimer's disease. They further suggest that a desire to interact with others is often hidden behind withdrawal and failure to initiate communication (Lamar, Obler, Knoefel & Albert, 1994).

Studies of communication strategies used by formal caregivers have revealed a glaring need for improvement in the quality of interactions (Edberg et al., 1995; Bourgeois et al., 1997, Ripich, Ziol, Fritsch & Durand, 1999). In spontaneous conversation with individuals with AD, Edberg et al. (1995) reported that nurses used task-oriented conversation with little attention to reciprocity. Furthermore, conflicting evidence exists regarding the advantages of one strategy over another. For example, closed-ended questions were reported to be superior to open-ended questions in producing effective communication by Ripich et al. (2000) but not by Tappen et al. (1997). Clearly, caregivers need more research-based guidance regarding effective approaches to interaction with individuals with AD.

Further evaluation of this relatively untested treatment is needed. A limitation of the study was that there was no attention control group. Future studies should incorporate such a group. Studies should also be designed to better address the question of whether it is stimulation per se, certain types of stimulation, or other strategies that affect ability to communicate in this population. In addition, a critical examination of the elements of conversation-based interventions to identify those aspects that affect participants' willingness to participate and those that may facilitate improvement in verbal communication performance should be done. There are indications in the literature that individuals with Alzheimer's disease may perform at a higher level in familiar environments (Lamar et al., 1994) and with those who act as facilitators when engaging in interaction (Ramanathan-Abbott, 1994). Further study of those who fail to improve is also needed to identify the factors that contribute to these differences in response. Individuals who are physically able to walk independently may benefit from a combination of walking and conversation while frailer individuals may not.

It was by no means easy to converse with many of the participants in this study. Staff who are expected to do this need preparation and support to continue such efforts. Whether conversation eventually proves to be simply a type of stimulation that can improve communication, or to be of therapeutic value per se in reducing communicative disability, this study offers some evidence that it should not be foregone when working with this population.

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TABLE 1

Age Distribution of Sample

Age	Frequency	Percent	Cumulative Frequency	Cumulative Percent
70-79	5	9	5	9
80-89	31	56	36	65
90-99	17	31	52	96
100+	2	4	55	100

TABLE 2

Sample Distribution of Mini-Mental State Examination Scores

MMSE Score	MMSE Category	Frequency	Percent	Cumulative Frequency	Cumulative Percent
0	Very Severe	4	7	4	7
1-10	Severe	21	39	25	46
11-17	Moderate	22	40	47	86
18-23	Mild	8	14	55	100
24+	None/Minimal	-	-	-	-

TABLE 3

Analysis of Covariance (ANCOVA) of Treatment Groups' Mean Change in Verbal Communication Performance

	Total Number of Words Used by Subjects				
	Pretest		Posttest		Significance
	M	SD	M	SD	ns
Walking Exercise	64.61	51.85	32.50	43.41	
Conversation Treatment	55.68	61.42	43.15	43.01	
Combined Walking/ Conversation	43.60	42.41	32.27	38.75	

	Number of Information Units in Subject Responses				
	Pretest		Posttest		Significance
	M	SD	M	SD	
Walking Exercise	11.27	10.69	5.77	8.62	
Conversation Treatment	12.21	12.06	13.47	13.70	
Combined Walking/ Conversation	11.33	13.41	8.00	9.65	p = .0433

	Conciseness of Subject Response				
	Pretest		Posttest		Significance
	M	SD	M	SD	
Walking Exercise	21.10	18.61	12.23	13.29	
Conversation Treatment	21.14	18.75	35.84	28.47	
Combined Walking/ Conversation	24.96	21.27	21.28	14.18	p = .0101

TABLE 4

Chi Square Analysis of Individual Subjects' Score Changes by Treatment Group: Pretest to Posttest

	N	Declined	No Change	Increased	Significance
Total Number of Words Used by Subjects					
Walking Exercise	18	11 (61%)	3(17%)	4 (22%)	
Conversation Treatment	19	9 (47%)	3(16%)	7 (37%)	
Combined Walking/ Conversation	18	9 (50%)	2 (11%)	7 (39%)	ns
Number of Information Units in Subject Responses					
Walking Exercise	18	11 (61%)	3(17%)	4 (22%)	
Conversation Treatment	19	9 (47%)	2 (11%)	8 (42%)	
Combined Walking/ Conversation	18	8 (44%)	5 (28%)	5 (28%)	ns
Conciseness of Subject Responses					
Walking Exercise	18	12(67%)	2 (11%)	4 (22%)	
Conversation Treatment	19	5 (26%)	2 (11%)	12(63%)	
Combined Walking/ Conversation	18	9 (50%)	4 (22%)	5 (8%)	p = .0580