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Speech-Language Pathologists (SLP) Treatment Methods and Approaches for Alzheimer's Dementia

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Abstract

Caring for individuals with Alzheimer's dementia requires an interdisciplinary approach, with speech-language pathologists (SLPs) playing a critical role. The SLP's role in the management of individuals with Alzheimer's dementia, and their families/caregivers, requires both direct and indirect assessment and intervention techniques. Therefore, the purpose of this article is to provide a succinct overview of the evidence-based assessment and intervention options across levels of severity and stage of the disease process.

Alzheimer's disease (AD) comprises 60–80% of all dementia cases in the world (Alzheimer's Association, 2015). This makes it the most encountered subtype of dementia. Alzheimer's dementia presents with decline in various areas of function including: memory/orientation, reasoning, visuospatial ability, word retrieval, and behavior changes. To address these deficits, a team of individuals is involved in the care of people with dementia. Speech-language pathologists (SLPs) are integral members of this team. The role of the SLP is to address various areas of impairment in various stages of the disease. Meanwhile, the goal of involvement is to maintain the participant's current level of function for as long as possible and improve or re-teach essential information that has declined (ASHA, 1987). However, SLP involvement must also go beyond direct treatment of targeted deficits. It also emphasizes and integrates compensatory strategies and family/caregiver education. In the coming sections, assessment, treatment, and approaches for cognitive linguistic deficits in those with Alzheimer's dementia will be discussed.

Assessment

In order to tailor the most appropriate and efficacious treatment to each patient's individual needs and environments, several factors must be considered. The SLP must take into account the patient's current level of function, family and caregiver support, stage of dementia, and level of independence. These factors should be addressed by both formal and informal measures, and from various perspectives based on information gathered from both patient and family (Klein & Mancinelli, 2010). All of these factors will aid the clinician in choosing the correct approach, creating functional goals and tailoring a treatment plan.

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To begin the process of ensuring a meaningful assessment, the SLP must collect both a medical history and personal history. Shipley and McAfee (2009) recommend collecting information regarding the client, the caregivers, and the disorder. This can be achieved using a comprehensive questionnaire or interview. Each of these modes of information gathering should include questions regarding education, vocation, hobbies, and daily activities.

It is recommended that formal means be used in conjunction with the above-mentioned informal means to get a clear picture of the patient's cognitive linguistic abilities and how they impact daily function. Several assessments have been developed for this purpose and specifically for this population of patients. To aid in assessing functionality and current level of daily activity skills, a clinician may use the skills assessment inventory created by Klein and Hahn (2007). The skills assessment inventory asks patients or their caregivers to rate the patients' ability to do various tasks of basic living skills and social, leisure, and work activities. Other standardized measures included the Assessment of Language-Related Functional Activities (ALFA), which uses activities such as telling time and using the telephone to assess cognitive linguistic function (Baines, Martin, & McMartin-Heeringa, 1999). Regardless of the measure used, it is essential to get a complete picture of the patient's current functional abilities and participation in daily life activities (ASHA, 2007).

One measure designed specifically to assess communication abilities in patients with Alzheimer's dementia is the Arizona Battery for Communication Disorders of Dementia (Bayles & Tomoeda, 1991). This measure is composed of fourteen subtests that assess communicative components of judgment, objection identification, and direction following. Examining cognitive components can be useful in understanding breakdown in communication and scaffolding repairs in functional tasks.

An alternative assessment is the *Communicative Activities of Daily Living*-Second Edition (CADL-2; Holland, Frattali, & Fromm, 1999). This standardized assessment evaluates skills needed for functional communication, including but not limited to social interactions, making plans, and reading menus. Each of these activities requires both verbal and non-verbal skills often impaired in Alzheimer's disease (AD). For example, memory is a component of most social interactions—remembering who someone is or what was said is important to participate in conversation. This assessment is useful in that it includes verbal and nonverbal behaviors and takes under an hour to administer.

Each of the assessments focus on the impact of communication impairments on functionality. Whichever assessment the clinician chooses, whether it be one of the two described above or clinician-selected measures, should be individually chosen for each patient and correspond to the goals of care. Further information specific to language and communication can be gathered from observation of interactions and medical records. Once a full clinical assessment has been conducted and the clinician understands both the patient's strengths and deficits, a meeting with the patient and caregiver to establish goals is necessary. A collaborative approach to goal selection is essential, because even though clinician and client goals may be similar when it comes to communication (e.g., increase naming), clinicians need to consider the client's functional life participation outcomes (e.g., effective participation in a book club may be a client's outcome goal; Rohde, Townley-O'Neil, Trendall, Worrall, & Cornwell, 2012).

Clearly, goals of treatment and a patient's ability to participate will differ depending on impairment, severity, and location (e.g., home vs. skilled nursing facility). If patients are not able to participate in goal setting, or are too impaired to do so, the Global Deterioration Scale and the Allen Cognitive Scale are alternatives to aid the clinician in goal setting.. These scales match levels or scores to functional presentation and potential target areas (see Strunk & Host, 2005) to improve quality of life for the patient in all stages of Alzheimer's dementia.

Quality of life and safety are the focus of goal setting (Watson & Shadowens, 2009) for patients in all stages of dementia. However, specific goals differ by stages and individual needs.

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For example, patients with newly diagnosed early-stage Alzheimer's disease (AD) may be interested in retaining their independence for household responsibilities and their caregivers may have goals that focus on safety so they may leave the patient alone for intervals of time during the day, while those in advanced stages of the disease may want to recall names of loved ones, or appropriately press the nurse call button for safety. Regardless of the specific goal, each must be measurable, functional, and necessary (Watson & Shadowens, 2009). Several treatment options have been examined by researchers and clinicians to address these goals; these options are discussed in the following section.

Treatment

Several treatment methods have been used to target the cognitive linguistic deficits associated with different stages of Alzheimer's dementia. Some methods are useful to target several types of goals at various stages of decline, when adapted properly.

One of these methods is spaced retrieval training. This training has the patient repeat the stimulus at increasing time intervals to facilitate learning (Camp & Schaller, 1989). This technique has shown long-term gains in name retrieval in advanced dementia (Camp & Schaller, 1989), naming everyday objects (Cherry, Simmons, & Camp, 1999), medication recall (Hochhalter, Bakke, Holub, & Overmier, 2004), and overall recall of episodic and declarative memory in mild AD (Lee et al., 2009). Spaced retrieval treatment has proven useful in training memory deficits for everyday tasks.

Another frequently used method to train memory and improve quality of life is memory aids, created by the SLP in conjunction with the patients and family members. Memory books contain many areas of information about the patient including: personal information, schedule, and safety strategies. They have been shown to improve recall (Hawley & Cherry, 2004), quantitatively improve speaking quality (Bourgeois, Dijkstra, Burgio, & Allen-Burge, 2001), and increase production of factual information (Hoerster, Hickey, & Bourgeois, 2001). Memory books help promote independence and lead to increased meaningful interactions between patients and family members, and between patients and clinical staff. They provide a tool with which a patient, when trained, can independently scaffold interactions.

Two opposing methods have shown mixed results in improving recall and teaching of communication for various situations patients with encounter—errorless learning and effortful learning, two techniques that use opposite premises during treatment. Errorless learning uses the premise that reduction or elimination of errors during training helps memory (Baddeley & Wilson, 1994). This method discourages guessing and encourages participants to acknowledge when they do not know something. For example, if a person with AD is shown a picture of a loved one and they cannot recall the correct name, they are asked to state, "I don't know" and the SLP will then provide the correct answer to eliminate incorrect guesses. It has been successful in teaching information in patients with Alzheimer's dementia when paired with caregiver training for use between sessions. Participants showed improved performance in calendar use, naming people, and item recall in most stages of the disease (Clare et al., 2000).

Errorless learning has often been compared to effortful learning, which uses the principle that trial and error, and conditions requiring more effort are more conducive to learning (e.g., Dunn & Clare, 2007; Metzler-Baddeley & Snowden, 2005). While many studies show that both methods are effective, both seems to be comparably effective in learning familiar information, while effortful learning appears more effective in learning novel information (Dunn & Clare, 2007). The mixed results, both showing success, illustrate the need for individualized treatment approaches even if goals are identical. As there is currently no evidence to determine the appropriate approach based on patient characteristics, the best course of action to determine which method may be most appropriate for each individual is to pilot each and evaluate which works best to achieve the individual's goals. Research has provided insight to what type of information is best trained with each method (for a review see Middleton & Schwartz, 2012).

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Errorless learning initially relies on high levels of cueing. A vanishing cues approach is also often used for training recall and correct responses. Such cues are often used as a part of errorless learning, where more cues are provided initially and later reduced as the person's retention of information improves (Hunkin & Parkin, 1995). Combining vanishing cues with an errorless learning approach has produced positive outcomes for patients with probable AD for face-name associations (Haslam, Moss, & Hodder, 2010). To most effectively use this method, the clinician should start by providing the correct answer to the prompt, provide semantic and phonological cues, and gradually fade to provide fewer cues until the individual with AD can recall the correct answer independently.

A final approach which relies on cueing and scaffolding is the Montessori Method. The method was initially developed for children and is designed to provide cognitive stimulation (van der Ploeg et al., 2013). However, it has been adapted for use with people with dementia (Camp et al., 1997) and has been shown successful in improving social interactions (Camp & Mattern, 1999) and engagement (Judge, Camp, & Orsulic-Jeras, 2000). The hallmark of such a program is the breakdown of activities into their simplest form; once the patient masters a simple form the task increases in complexity. During this process, real materials from the environment are used as tools to help promote independence and create functional activities (Camp et al., 1997). Activities should be focused on the person's interests. For example, someone who likes to cook may first be provided with cookies to arrange on a plate for entertaining, later with cupcakes and icing to finish creating the cupcake, and as they progress, with a safe environment for cooking or baking. This method engages the senses so it is essential that the participant is able to do these activities independently or with scaffolding. This engagement helps connect the person to their environment.

Overall, several reviews of these and additional treatment options have shown positive results in improving memory in patients with dementia and specifically AD. Patients with various levels of impairment in explicit memory have benefited from explicit memory treatment (for a review, see De Vreese, Neri, Fioravanti, Belloi, & Zanetti, 2001). Memory impairments also include semantic memory deficits which also impact patients with this disease. Semantic memory has been trained using the same methods discussed above and has also shown increasing accuracy with treatment (Abrahams & Camp, 1993).

Though the above methods have shown positive results for a myriad of goals and activities, it is imperative to discuss late-stage approaches, compensatory strategies, and caregiver training. The disease is a progressive one, and even though treatment has been shown to maintain areas of deficit at higher levels for longer times (Hopper, 2003), inevitably patients will reach the advanced stage of the disease. At this stage, SLP involvement must take several other approaches. Safety is a concern in patients with AD secondary to their impaired judgment, increased confusion for their surroundings, and their orientation. These approaches are described in the next section.

Approaches Beyond Treatment

During the course of Alzheimer's dementia, SLPs can assist patients via providing indirect support. The Alzheimer's Association has created a campaign for quality of care. The campaign includes several recommendations for meaningful interaction, safety, independence, and preventing wandering (Alzheimer's Association, 2009).

Caregiver education is one of these indirect approaches that is essential during all stages of the disease. Several methods of caregiver education have shown to be effective. One of these methods was based on the Communication Enhancement Model for Aging for individuals with dementia of the Alzheimer's type (Orange, Ryan, Meredith, & MacLean, 1995). This modified education plan consisted of one series of education sessions and one series of strategy training for the caregiver. Sessions occurred two times a week for a total of 12 weeks. The topics focused on education regarding communicative and executive function deficits and training on how to repair

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breakdowns in communication with the patient. Outcomes included stable language performance, meaning little to no decline, and reduced caregiver effort (Orange et al., 1995).

Overall, structured caregiver engagement programs appear to have positive results for both patient and caregiver (for a review, see Zientz et al., 2007). The instruction and information gathered from such programs can, and should, be reinforced with informal education methods including handouts, written directions, and appropriate resources regarding communication, sequencing, problem-solving, and executive function (ASHA, 2007).

Home modifications, including written directions and labels, are also a helpful tool for patients with AD. Some of these modifications include labeling items to support semantic knowledge, increasing memory aids by supplying notes for orientation or object use/label and designated "to-do" areas, and increasing orientation to decrease wandering by placing orientation guides, clocks, and emergency information. Studies have shown that modifying a patient's environment reduces dependence on caregiver and improves the patient' self-efficacy (Gitlin, Corcoran, Winter, Boyce, & Hauck, 2001). Several studies also showed reduced negative behaviors (e.g., belligerence, combative acts, noncompliance, and reduced safety use) as a result of modified environment (for a review, see Day, Carreon, & Stump, 2000).

The approaches presented above can be modified for patients in all stages of dementia to result in positive outcomes and/or slowed decline in response to intervention. It is imperative to examine all possible treatment options and tailor them appropriately to the client. Moreover, several approaches and treatment methods can be blended together or fluidly presented in sequential order to adapt to the changing needs of those affected by the disease. SLPs are part of a team that provides evaluation services as well as direct and indirect treatment. People with dementia, as well as their family members and caregivers, are also critical members of this team. To support the team-approach, SLPs can provide consistent and clear communication with caregivers, conduct in-service presentations, and model appropriate communication strategies, all aimed at supporting the quality of life for the person with dementia. With clients, cueing, and scaffolding, spaced-retrieval training can make crucial knowledge more available in early-to-mid-stages, and memory aids can facilitate engagement in interactions in mid- and later stages of the disease. At all points, functional communication for safety and successful interactions are the goal.

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