

Psychosocial-Environmental Treatments for Alzheimer's Disease

Jothika Manepalli, MD, Abilash Desai, MD, and Pooja Sharma, MD

ABSTRACT

As Alzheimer's disease progresses, it robs the individual of his or her independence. There is currently no cure for Alzheimer's disease. Although anti-dementia therapies may slow the rate of progression of Alzheimer's disease, pharmacotherapy for the behavioral and affective concomitants of Alzheimer's disease is often non-rewarding and carries risks of potentially serious side effects. The behavioral disturbances in Alzheimer's disease impact the quality of life of both patients and their caregivers and are economically burdensome. Psychosocial-environmental treatments for behavioral symptoms of Alzheimer's disease are emerging as an attractive, safe option. The use of these approaches can ease behavioral disturbances in Alzheimer's disease and decrease caregiver stress as well as lower the costs of care giving.

INTRODUCTION

Alzheimer's disease significantly impacts the quality of life of both patients and their caregivers. Present treatment is usually focused on pharmacologic therapies to either improve memory or slow progression. At this time, there are no drugs that can cure Alzheimer's disease. Current research is focused on pharmacologic and biologic agents that can treat and possibly prevent Alzheimer's disease. In addition, there is a surge toward psychosocial-environmental interventions for treatment of behavioral symptoms, potential prevention, and treatment of behavioral and affective symptoms related to depression and delusions seen

FOCUS POINTS

- Psychosocial interventions are beneficial and cost effective.
- People with dementia have resilience and can utilize resources in an adaptive manner.
- Meaningful activity can decrease depression and disruptive behavior.
- Psychosocial interventions have to be individualized.

in Alzheimer's disease. These nonpharmacologic interventions are a welcome addition and an attractive approach from a risk-benefit perspective, especially for the behavior and affective symptoms in Alzheimer's disease. Medication treatments have always been reactive to disruptive behavior that needs to be controlled quickly to decrease harm to the patient and the caregiver. Psychosocial approaches can be considered as proactive.¹ The research in this area is limited and sparse. This article describes current concepts on prevention and psychosocial-environmental treatments for managing behavioral and affective symptoms as well as improving quality of life.

PSYCHOSOCIAL AND ENVIRONMENTAL TREATMENTS

The concept of psychosocial intervention is that when the social and environmental issues confronting an individual are addressed and manipulated, there is a possibility of preventing or minimizing the consequences of the illness. These interventions have benefited the management of stroke, diabetes, coronary heart disease, and obesity, among

Drs. Manepalli and Desai are associate professors and Dr. Sharma is research fellow in the Division of Geriatric Psychiatry in the Department of Neurology and Psychiatry at St. Louis University Medical Center in Missouri.

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Please direct all correspondence to: Jothika N. Manepalli, MD, Associate Professor, Division of Geriatric Psychiatry, Department of Neurology and Psychiatry, St. Louis University Medical School, 1438 South Grand Blvd, Saint Louis, MO 63104; Tel: 314-977-4800; Fax: 314-977-4878; E-mail: manepaj@slu.edu.

other conditions. Healthy lifestyle and stress reduction strategies, such as diet, vitamins, exercise, yoga, and meditation, have helped prevent or delay disease and maintain health. The same concept can be applied to Alzheimer's disease where risk factors such as advanced age and genetic or familial risk cannot be altered. In this aspect, many programs and protocols have been developed to promote healthy brain aging and longevity, such as brain stimulation therapies, all to address prevention of Alzheimer's disease and other dementias.²

Social and cultural demands relative to the role of the older adult are constantly changing. The older adult has to adapt to the aging process, loss of health, loss of function, disability, loss of friends and family, and new technological advances, all of which place a demand and stress on the elderly individual to function at an optimal level and to maintain independence. Cognitive changes faced by the aging population range from age-associated memory impairment, to mild cognitive impairment, to dementia and its consequences. Demands to maintain optimal functioning can precipitate anxiety and depression. The diagnosis of dementia and its added restrictions can contribute to a decrease in independence, poor self-esteem, lowered self-confidence, and withdrawal into a more isolated lifestyle.

Lack of meaningful activity may trigger depression and disruptive behaviors that may be linked to different causes. Wandering may be associated with seeking stimulation from the environment. Verbal agitation such as screaming or shouting repeatedly may be associated with pain or a need for social contact. Physical aggression may be related to the interactive style of the caregiver.³ Based on such assumptions and observations, physicians and other caregivers suggest certain strategies such as decreasing stimulation by providing a quiet area or finding meaningful activity, and decreasing pain by soothing massages or by improving social contact. Such interventions can modify the behavior and benefit both the patient and the caregiver. Two models have been suggested to explain problem behaviors in dementias such as Alzheimer's disease. In the unmet psychosocial needs model, the individual may be bored or lonely and lack sensory and social stimulation. In the decreased threshold model, coping skills are compromised and the environment is stressful.⁴ Several of the psychosocial interventions which are described below address these needs (Table 1).

The goal of psychosocial intervention is to increase the patient's sense of mastery and control, thereby increasing their sense of self. These interventions are not supported by large, randomized, double-blind prospective studies. There are several small controlled studies⁵ which provide evidence for the effectiveness of behavior therapy—a treatment which may include exercise, activity programs, music therapy, and

manipulation of the physical environment in general, thus increasing sense of well-being and fostering independence in certain tasks. A review⁶ of environmental interventions showed that proper structural design and lighting in nursing homes combined with appropriate visual, verbal, and tactile cues to compensate for sensory deficits can help improve activities of daily living—such as dressing, feeding, and bathing—thereby fostering independence and improving mood and behavior.

Studies have shown that educating and training a caregiver in psychosocial intervention decreases the burden and stress on the caregiver and improves the emotional well-being of the caregiver. Other studies showed that psychological improvement achieved by such interventions in the patient lasted from 3–18 months and some even up to 39 months, showing significant cost savings, as measured by caregiver time/effort.^{7,8} The effectiveness of the various psychosocial interventions is measured by frequency, severity, and duration of the behavior. It has been shown that there is no single, optimal intervention. A multidimensional evaluation is needed and factors that need to be considered are functioning of the dementia patient, personal and cultural background of the patient, availability of resources, motivation, and education of the caregiver. A range of psychosocial interventions that are flexible should be developed to match the needs of the patient and the caregiver. Several studies⁹ have shown the importance of individualized interventions.

TABLE 1
PSYCHOSOCIAL TREATMENTS TO DECREASE DISRUPTIVE BEHAVIORS

Change style of interaction and communication with the Alzheimer's disease patient
Meaningful activities
Reassurance and attempt to understand nonverbal communication
Provide a quiet area
Behavioral treatment: behavioral activation model or antecedent-behavior-consequence model
Education: patient, caregiver
Promote resilience
Psychotherapy: individualized to cognitive functions
Meditation
Massage, aromatherapy
Music therapy, dance therapy, bright light therapy
Multisensory stimulation therapy
Increase social contact in person or via pet therapy or simulated presence
Montessori-based activities

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BEHAVIORAL INTERVENTIONS

Behavioral interventions include behavioral activation and the use of the Antecedent-Behavior-Consequence (ABC) model. These two behavioral interventions have not been systemically studied in people with dementia. Preliminary research on some components of these interventions (eg, supervised exercise programs, therapeutic biking) and clinical experience support their use in treatment of behavioral and psychological symptoms of dementia.^{10,11}

Behavioral activation is a method commonly used in treating depression.¹² It involves developing a list of activities the patient is likely to enjoy or should be engaging in as part of a normal life. Depending on the patient's motivation and cognitive strengths, caregiver involvement may be needed. Although research using this method has not been conducted in patients with dementia suffering from depression, in the authors' clinical experience, many patients benefit from this method. Caregivers who are eager to participate in improving patients' well-being also find it useful. The authors of this article have used the "PSALMS" approach (Table 2), based on work of Ben-Shahar.¹³ The ABC model instructs caregivers to identify antecedents (triggers) of a specific behavior as well as to clearly define the behavior's consequences (reactions). The ABC model is often used for education of dementia caregivers.¹⁴ By assessing and changing common antecedents and consequences, caregivers are often able to promote comfort and function for patients with dementia. For example, behavior may be "yelling." Consequence may then be the caregiver labeling the patient as "just acting up" and the patient's removal from the group activity. This may further exacerbate the patient's "yelling" and start a vicious cycle. The antecedent may be decreased hearing due to need for replacement of batteries in a hearing aide. By correctly identifying and addressing the antecedents (eg, replacing the batteries in the hearing aide) and changing the consequences (ie, since the agitated patient is trying to communicate an unmet need, the caregiver then finds out possible reasons for his agitation), the behavioral problem of "yelling" would be reduced and the patient would participate in group activities. Specific and teachable behavioral management strategies and communication techniques may be used to improve effectiveness of the ABC approach.¹⁵

PSYCHOLOGICAL INTERVENTIONS

Patients with dementia syndromes are not outside the scope of effective psychological services to address the cognitive and psychological/emotional consequences of their conditions as well as the overall quality of their lives and that of their caregivers.¹⁶ Preliminary findings from small studies indicate

that psychological interventions may be effective in treating people with dementia and should be offered to patients and their caregivers. Outcomes of psychological interventions can be optimized by carrying out an interdisciplinary, individualized, and holistic care plan that may include exercise (physical and cognitive), nutrition, anti-dementia drugs, specialized programs offered by the Alzheimer's Association, and treatment of medical comorbidities.¹⁷ The authors of this article have grouped the psychological interventions for people with mild-to-moderate dementia into three areas: promoting resilience, providing education, and psychotherapy. The outcomes of psychological interventions have not been systemically studied.

Promoting Resilience

Resilience is the ability to bounce back and overcome negative influences that block achievement. Some patients diagnosed with dementia, after initial shock of diagnosis, continue to live meaningful lives.¹⁸ Clinicians can promote resilience in patients with dementia by adopting the resilience framework described by Harris.¹⁹ This framework has two components, namely, helping a patient with dementia utilize resources in an adaptive manner and addressing vulnerabilities of a person with dementia. Resources and vulnerabilities are listed in Table 3. Approximately 30%

TABLE 2
TO BE HAPPIER EVERY DAY, ALL YOU NEED IS "PSALMS"!

P: Engaging in activities that generate **Pleasure** on a regular basis. Even a small amount can have a dramatic effect! So make a list of activities that are pleasurable and include at least a few in your daily schedule.

S: Activities that exercise your **Strengths** also generate feelings of happiness. So make a list of your strengths and what you are good at, and gradually increase time spent engaging in these activities on a daily basis.

A: Appreciation of what we have; all the little moments and encounters are important in order to improve the depth of happiness. So consider spending time listing and sharing things one is grateful for.

L: Cultivating our capacity to **Laugh** at our problems and imperfections and not take life too seriously is important if one wants to be happier. So lighten up.

M: Engaging in activities that bring **Meaning** to our life (eg, spending time with family and friends, helping others, engaging in creative activities, being with nature, reminiscing) is another necessary element to becoming happier. So ask yourself, what brings meaning to your life? What are you passionate about? What gives purpose to your life? Start actively increasing engagement in the meaningful activities identified.

S: Scheduling activities that are pleasurable and meaningful and that exercise our strengths on a daily basis is very important, as otherwise life has a way of taking us away from what makes us genuinely happy. So write a daily schedule of happiness activities and happiness "boosters" and stick to the schedule.

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of people with dementia live by themselves. Sabat,^{20,21} in his treatise on the lived experience of Alzheimer's disease, illustrated the capabilities of people with dementia, even into the later stages of the disease when a caring social-psychological environment is provided. This research supports Kitwood's²² concept of personhood and the vision of a "new culture" of dementia where language, culture, positive environment, and human values create a more positive experience of life lived with dementia. There are also people with dementia who have joined together to advocate for their rights and needs in a joint exercise of power, such as Dementia Advocacy Support Network International²³ as well as outspoken individuals with dementia.²⁴

Education

Education traditionally involves educating the person with dementia, their family members, and professional caregivers in long-term care settings.

Educating the Person with Dementia and His or Her Family

Education about resources that are available in the community (eg, services of the Alzheimer's Association, adult day programs); education of ways to improve medication compliance (eg, use of hi-tech pill boxes that provide reminders and record medication use); and sharing research on impact of exercise, healthy nutrition, and cognitive stimulation on brain health are an essential part of routine treatment of people with dementia. Education may also include helping patients with mild dementia use memory books and other memory aids to help them remember tasks (eg, paying bills) and events (eg, doctor's appointments). Use of verbal instructions presented via technology may also be a useful strategy for helping people with mild-to-moderate dementia but may require emotional support and problem-solving interventions by clinicians to maximize its utilization.²⁵ Table 4 lists recommended topics for educating people with dementia and their family members.

Long-term Care Staff Education and Training

Staff training programs and environmental modifications appear to be the most effective strategies in managing aggressive behavior and improving quality of life of people living in long-term care facilities.²⁶ Interactive training has been demonstrated to be an effective approach to shaping more appropriate staff reactions to aggressive resident behavior. Led by providers with geriatric expertise, this training can effectively be delivered on the Internet.²⁷ Training and education helps caregivers find meaning in severely demented residents' communication. Caregivers need to train themselves to not personalize any unkind statements voiced by the resident, not argue with the resident, not misinterpret the resident's agitated behavior as purposefully provocative, and avoid respond-

ing with anger. Person-centered care and intensive training also may reduce staff turnover and increase staff satisfaction with their jobs. Staff training should include the understanding that although there is a significant neurochemical basis for many behavioral disturbances, this does not mean that there is no experience behind the behavior or that the behavior cannot be affected by human interaction.

TABLE 3
POTENTIAL RESOURCES AND VULNERABILITIES OF PEOPLE WITH DEMENTIA

Resources

Human capital (resources within the person and belonging to the person)

- Problem solving skills
- Positive attitude
- Willingness to accept help
- Strong self-concept
- Financial assets

Social capital

- Supportive and knowledgeable friends and family members
- Accessibility of friends and family members
- Human capital of the individual members of the support system
- Financial assets of the family

Community resources

- Availability and accessibility of clinicians trained in caring for people with dementia and their family members
- Adult day programs tailored to the needs of people with dementia
- Community exercise programs
- Local chapter of the Alzheimer's Association and other non-profit organizations whose services are tailored to the needs of people with dementia and their family members
- Financial assets of the community

Vulnerabilities

Medical vulnerabilities

- Hearing and/or vision impairment
- Pain
- Frailty

Social vulnerabilities

- Poor family caregiver's health
- Social stigma
- Family members living at long distances

Psychological vulnerabilities

- Anxiety disorder
- Depressive disorder

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Psychotherapy

Psychotherapeutic interventions for people with mild to moderate dementia experiencing depressive and anxiety symptoms includes individual psychotherapy, group psychotherapy, and couples/family therapy. People with dementia appreciate psychotherapeutic interventions, and such interventions may also have positive effects on their family caregivers.²⁸ The focus of therapeutic work for patients with dementia is coping, adjustment, and the use of compensatory strategies and residual abilities, thus cultivating positive emotions and engagement in the “ordinary” moments of daily life.²⁹

Individual Psychotherapy

The role of individual psychotherapy for treatment of anxiety and depression in patients with mild dementia has not been rigorously studied. Preliminary data suggest that some patients in early stages of dementia may benefit from cognitive-behavioral interventions to relieve depression.³⁰ Focus on problem solving and coping (eg, how to overcome transportation problems if the person with dementia is recommended to stop driving) along with normalizing of symptoms (eg, depression and anxiety are appropriate and understandable reaction to stress caused by dementia) may benefit some patients. Psychotherapy may be based on an

TABLE 4
RECOMMENDED LIST OF TOPICS FOR EDUCATING PERSON WITH DEMENTIA AND THEIR FAMILY MEMBERS

What the term “dementia” means and the basis for the diagnosis
Type of dementia (eg, Alzheimer’s disease) and the basis for the diagnosis
Potential benefits and risks of anti-dementia drugs and expectations about their benefits
Importance of advance care planning and completing advance care directives
Safety concerns involving driving, fire arms, living alone, medication compliance, and falls
Importance of regular exercise and balanced diet
Importance of social engagement and cognitive stimulation based on the person’s strengths and capacities
Benefits of services of the local chapter of the Alzheimer’s Association (eg, safe return program, support groups, educational materials, and pamphlet)
Importance of daily schedule and sleep hygiene
Impact of caregiving on caregiver’s physical and emotional health and strategies to prevent stress and burnout
Long-term planning involving potential benefits of adult day programs and future need for long-term care placement
Strategies to prevent future behavioral disturbances and treat existing behavioral and psychological problems

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interacting form of therapy, ie, a contingency management in the natural environments of the person suffering from dementia.³¹ The primary caregiver, often acting as a mediator, may take over the main therapeutic tasks.

Group Psychotherapy

Group therapy has not been rigorously studied in people with dementia, but preliminary findings indicate that for some patients with mild-to-moderate dementia, group psychotherapy may have a role to play in reducing levels of depression and anxiety.^{32,33} Goals of group therapy may include creation of an emotional climate of acceptance and warmth that helps patients learn to accept themselves and their feelings, frequent intervention by the group facilitator/therapist to help facilitate social interaction for patients whose communication ability is impaired, opportunity for patients to experience the feelings of belonging or being part of a group, opportunity for patients to ventilate feelings and rediscover mutual kinds of experience, opportunity for patients to reminisce about past accomplishments and give new meaning to their current lives, and creation of a platform for patients to achieve a sense of self by expressing personal opinions in an environment of respect and acceptance. Other group interventions such as group memory notebook intervention for individuals with mild dementia with spouses or other family members serving as coaches may also be beneficial.³⁴ Group psychotherapy may also promote “coming out” with dementia.³⁵ The coming out may mean that the fear about the future (eg, “What am I going to be like in another 5 years?”) is often replaced by the knowledge that the person with dementia is not alone and there are steps one can take to slow down one’s cognitive and functional decline.

COUPLES AND FAMILY THERAPY

Deteriorating interpersonal relationships often lead to depression, anxiety, and behavioral problems in people with dementia as well as depression in family caregivers.³⁶ Relationship quality may be a factor in predicting functional decline.³⁷ Systematic research regarding couples and family therapy for people with dementia that could guide clinical approach is lacking. In the authors’ clinical experience, relationship counseling is beneficial for some patients with mild dementia. Techniques that may be utilized in relationship counseling include (but are not limited to) focusing on one issue at a time (eg, accepting limitations due to dementia), seeing the patient and their family (eg, spouse, children) separately and together, utilizing relationship as a resource, role playing, balanced focus on strengths and deficits, and collaborative stance. Utilizing relationship as resource involves conducting relationship life review, highlighting the shared experiences, finding the strengths,

and exploring the source of commitment. Role playing is a very useful technique to help the person with dementia and his or her family reduce negative statements (eg, criticism, hostility, excessive “advice giving”) and replace it with supportive statements that indicate kindness and compassion.

SOCIAL AND RECREATIONAL INTERVENTIONS IN DEMENTIA

Several of the interventions mentioned have shown promising results in decreasing anxiety and agitation and in improving mood and fostering a general sense of well being. One or more of the following can be used in combination based on the need of the person or based on the models of behavior such as the unmet needs model or stress reduction model.⁸

Meditation

Meditation practices have various health benefits including the possibility of preserving cognition and preventing dementia. While the mechanisms remain investigational, studies show that meditation may affect multiple pathways that could play a role in brain aging and mental fitness. For example, meditation may reduce stress-induced cortisol secretion and this could have neuroprotective effects potentially via elevating levels of brain-derived neurotrophic factor. Meditation may also potentially have beneficial effects on lipid profiles and lower oxidative stress, both of which could in turn reduce the risk for cerebrovascular disease and age-related neurodegeneration. Further, meditation may potentially strengthen neuronal circuits and enhance cognitive reserve capacity. These are the theoretical bases for how meditation might enhance longevity and optimal health. Evidence to support a neuroprotective effect comes from cognitive, electroencephalogram, and structural neuroimaging studies.³⁸

Validation Therapy

Validation therapy was developed by Feil³⁹ in 1963. The therapy is based on the general principle of validation by not emphasizing the accuracy of facts and accepting the underlying emotional meaning of behavior and speech.⁴⁰ The caregiver then can use strategies to express empathy and find a meaningful point of connection. Preliminary data suggest that validation therapy may reduce severity and frequency of behavioral disturbances in nursing home residents.³⁹ Validation therapy is controversial but has some use in reducing emotional distress that is not due to underlying correctable medical conditions or medications.

Reality Orientation

Reality orientation was first described as a technique to improve the quality of life of confused elderly.⁴¹ It involves the presentation of orientation and memory information relating to time, place, and person. Visual cues (eg, calendars, clocks, memory books) and verbal cues (eg, greeting a person by their name; recalling holidays, birthdays, and important events) provides the person with a greater understanding of the surroundings, possibly resulting in an improved sense of control and self-esteem. Reality orientation can be one to one and continuous 24-hour type, whereby staff involves the patients in reality-based communication in every contact throughout the day or in groups.⁹ In one study,⁴² reality orientation enhanced the effects of donepezil on cognition in Alzheimer’s disease.

Reminiscence Therapy

Reminiscence therapy, similar to reality orientation, involves discussion of past activities, events, and experiences with another person or group of people; it is usually conducted with the aid of tangible prompts such as photographs, household, and other familiar items from the past; music; and archive sound recordings. One form of reminiscence therapy involves life review, in which the person is guided chronologically through life experiences, is encouraged to evaluate them, and may produce a life story book. Although very popular with staff in long-term care (LTC) facilities for residents with dementia, reminiscence therapy has not been rigorously studied in this population. Preliminary evidence indicates that reminiscence therapy may enhance self-esteem, reduce social isolation and depression, and provide comfort to LTC residents.⁴³ Life review can be useful for many with past accomplishments but who are currently experiencing depression and existential problems (eg, “What have I achieved in life?” “What was the purpose of my life?”).

Sensory Interventions

Therapeutic Touch and Massage Therapy

Touch is considered a core aspect of care provision and therapeutic relationships. Therapeutic touch allows healing and forging therapeutic relationships and maintaining channels of communication often lost in dementia as the disease progresses. Most residents respond to a hug, arm on their shoulder, clasp of the hand, back rub, and/or hand massage. At many levels, they still need human touch. Therapeutic touch is a widely used nursing practice. Touch is considered a core aspect of care provision and therapeutic relationships. Therapeutic touch offers a nonpharmacologic, clinically relevant modality that could be used to decrease behavioral symptoms of dementia—specifically restlessness and vocalization, two prevalent behaviors.⁴⁴ Massage therapy (eg, back

and shoulder massage) may reduce anxiety and agitation related to pain. Combining massage and aromatherapy (eg, a lotion with lavender for soothing, citrus for activating) may have an even better effect in calming an agitated resident.

Aromatherapy

Aromatherapy involves the use of essential oils to improve emotional well-being. It may not work for Alzheimer's patients who have poor sense of smell. In general, recreational therapists are skilled in using aromatherapy. Aromatherapy is one of the fastest growing of all the complementary therapies. It has a positive image and its use aids interaction while providing a sensory experience. The two main essential oils used in aromatherapy for dementia are extracted from lavender and melissa balm. They also have the advantage that they have several routes of administration such as inhalation, bathing, massage, and topical application in a cream. Aromatherapy has been found to be safe and a recent controlled study^{45,46} showed some positive results of reducing agitation.

Music Therapy

Music is a way of maintaining connections to the past and other people. For many, music and dancing is part of their culture. Many with dementia are still able to recall and play a musical instrument (eg, piano) and sing or tap to music of familiar tunes by accessing their remote and implicit memory. Group singing activities not only provide fun but are empowering and have a positive impact in maintaining the resident's cognitive functioning. Soft music may help relieve tension and anxiety, while energetic music may help lift a depressed mood. Religious music may elicit active participation from residents who are not responding to conventional music. Slow classical music (eg, Bach, Vivaldi) has also been found to calm agitated residents. Calming music (especially during meal times) may also reduce agitation and improve oral intake. Music intervention can be personalized to preferred music intervention and may reduce disruptive behaviors and improve mood in nursing home residents.⁴⁷

Dance Therapy

Creative therapies in the treatment of dementia offer the advantage of working in a nonverbal way with these patients, whose cognition and verbal communication skills are affected. Dance provides means of expressing themselves.⁴⁸

Light Therapy

Circadian rhythm disturbances have been associated with the behavioral and sleep problems of elderly patients with dementia and may cause complications such as delirium, depression, and behavioral agitation. Caregivers are also affected. Bright light and melatonin can synchronize the circadian rhythm and ameliorate the cognitive and non-cognitive symptoms. Light has a modest benefit in improving some cognitive and noncognitive symptoms of dementia.⁴⁹ Light treatment plus melatonin increases the daytime wake

time and activity levels and strengthens the rest-activity rhythm.⁵⁰ One study⁵¹ showed that bright light exposure at breakfast decreased agitation.

Multisensory Stimulation Therapy

The aim of multisensory stimulation therapy is to stimulate a sense of sight, hearing, touch, taste, and smell through the use of multiple modalities such as lighting effects, tactile surfaces, meditative music, and aromatic oils. This provides meaningful activity without the need for intellectual reasoning and results in release of stress and frustration.⁵² The effects do not last long but the concept is being explored.

Social Contact: Real or Simulated

Animal-assisted Therapy

The use of animal-assisted therapy (AAT; also called pet therapy) and companion pet programs has become more common in caregiving. Contact with a pet dog or cat may reduce aggression, agitation, and loneliness, as well as promote social behavior in demented patients. Besides human touch, many residents enjoy the touch of a pet, especially if they have had pets in their earlier life. Seeing a dog or cat walk up to them can elicit a positive response. Potential benefits of AAT strongly correlate with previous pet ownership.⁵³

Simulated Presence Therapy

Simulated presence therapy (SPT) is a personalized approach that uses an audiotape of telephone conversation with a family member. Happy memories and important events are discussed, which may help relieve agitation and loneliness. A person with severe short-term memory loss can hear such calming messages repeatedly. One study⁵⁴ found agitation decreased by 67% with SPT versus 46% with no therapy, but ~50% of patients refused such intervention. Another study⁵⁵ found improvement only in attention and awareness and little improvement in language communication. Some patients may be too agitated and not have the attention span to benefit from the audiotape, and some may not want to participate.⁵⁴ These studies show the importance of individualizing the treatment to the patient.

Exercise

Exercise is well known to be beneficial to overall health and well-being of any individual. Promoting active lifestyles in physically capable men could help late-life cognitive function. In patients with Alzheimer's disease, exercise may slow functional decline, decrease fall risk, and reduce symptoms of depression and agitation. Alzheimer's disease patients who exercised for 1 hour twice a week showed slower decline in activities of daily living scores.⁵⁶ An individualized simple exercise program focusing on walking, strength, balance, and flexibility training is recommended.

One study⁵⁷ showed that exercise training combined with teaching caregivers about the benefits of regular exercise improved implementation and attendance as well as had beneficial effect on physical health and depression in patients with Alzheimer disease.

Art Therapy

Art therapy has been shown to be beneficial to patients with dementia. Art therapy can be conducted with an elderly population experiencing a wide range of cognitive impairments. The evocative nature of art allows older adults with dementia to become expressive and bypass some of their cognitive deficits. It focuses on evaluation, nonverbal communication, sensory exploration, and self-reflective activity.⁵⁸

Montessori-based Activities

Montessori method is based on procedural (implicit) memory, which is activated by repetitive muscle movement. The key aspect of this method is to let people with dementia learn and experience things for themselves while also providing guidance. Montessori-based activities include meaningful “things to do,” such as dish washing, as well as leisure activities, such as flower arrangements or reading together. These activities are all focused on social interaction and cognitive stimulation. Based on Montessori principles, Resident-Assisted Montessori Programming (RAMP) is a novel approach that is now being used in nursing homes. Residents with early- to middle-stage dementia are trained in RAMP to lead a reading activity for patients with more advanced dementia.⁵⁹

CONCLUSION

Management of Alzheimer’s disease and its related behavioral and mood disturbances is challenging. Lifestyle management and psychosocial interventions improve quality of life of Alzheimer’s disease patients and their caregivers. However, these treatments are time consuming, require effort and motivation both from the patient and caregiver, and require extensive education of all concerned. Prospects for success will also depend on the availability of services. Environmental modifications such as improving handicap access or in-home services can pose financial burdens. Medications to control behavioral symptoms in Alzheimer’s disease are not uniformly effective and often carry a high side-effect burden. Given these realities, psychosocial-environmental interventions should be combined with other modalities of treatment options. More controlled trials evaluating the utility of various nonpharmacologic interventions in dementia are needed to move these treatments from the background to forefront of dementia therapies. **PP**

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