

# Management of Behavioral Problems In Dementia

Robert Kohn, MD, MPhil, and G. Mustafa Surti, MD

**Behavioral problems are common in dementia:** up to 80% to 90% of patients develop at least one distressing symptom during the course of their illness.<sup>1</sup> A common descriptor to describe many of these symptoms is “agitation” (inappropriate verbal, vocal, or motor activity that is not judged by an outside observer to result directly from the needs or confusion of the individual).<sup>2</sup> Cohen-Mansfield has described four types of agitated behavior 1) verbally non-aggressive, e.g., complaining, negativism, repetitive sentences or questions, constant unwarranted requests for help; 2) verbally aggressive, e.g., screaming, verbal sexual advances or remarks, making strange noises, cursing; 3) physically non-aggressive, e.g., performing repetitive mannerisms, inappropriate dressing and disrobing, eating inappropriate substances, handling things inappropriately, trying to get to a different place, pacing, aimless wandering, moving furniture and things around, intentional falling, general restlessness, hoarding things, hiding things; and 4) physically aggressive, e.g., sexual advances, hurting self and others, throwing things, scratching, grabbing, pushing, kicking, biting hitting.<sup>2</sup>

## EXPLANATORY MODELS OF BEHAVIORAL PROBLEMS IN DEMENTIA

Why do individuals with dementia develop behavioral problems?<sup>3</sup> The organic deterioration and the pathophysiological changes that ensue in dementia may directly result in behavioral changes. This is the Direct Impact Model.

Three other alternative explanatory models have been posited in addition to the Direct Impact Model. The Unmet Needs Model suggests that dementia results in a decreased ability to meet one's needs due to a decreased ability to communicate. These may include the patient's physical, emotional, environmental and social needs. The needs may include pain or other physical discomfort; mental discomfort such as depression and anxiety, lack of social contacts,

an uncomfortable environment, or too little, too much or inappropriate stimulation. These needs may predate or develop following the onset of dementia. The Behavioral Model is based on the premise that its antecedents and consequences control problem behaviors. Patients learn problem behaviors through reinforcement by staff members or caregivers when a behavior is displayed. For example, reinforcement occurs when staff give an agitated patient increased attention. The final model is the Environmental Vulnerability Model. Dementia results in greater vulnerability to the environment; there is a lower threshold at which stimuli affects behavior. This Model suggests that a stimulus that may be appropriate for a cognitively intact person might result in an overreaction in a cognitively impaired person.

## INSTRUMENTS TO EVALUATE BEHAVIORAL DISTURBANCE IN DEMENTIA

A number of scales examine behavioral disturbances in dementia. The most widely used scale is the Cohen-Mansfield Agitation Inventory, a 29-item scale that examines a range of physically aggressive, physically non-aggressive, and verbally agitated behavior from never to several times per hour on a seven-point scale.<sup>4</sup> In a shorter version, the Brief Agitation Rating Scale,<sup>5</sup> 10 items account for 90% of the variance of the Cohen-Mansfield Agitation Inventory and may be an adequate screening tool in nursing home settings. The Pittsburgh Agitation Scale is also a brief screening instrument; however, unlike the Cohen-Mansfield Agitation Inventory and the Brief Agitation Rating Scale it measure the severity and not the frequency of agitation.<sup>6</sup> The Pittsburgh Agitation Scale examines four groups of behaviors: aberrant vocalization, motor agitation, aggressiveness, and resisting care. The 25-item **Behavioral Pathology in Alzheimer's Disease rating scale (BEHAVE-AD)**, based on a four-point scale, explores the presence of paranoid and delusional ideations;

hallucinations; activity disturbances; aggressivity; diurnal rhythm disturbance; affective disturbances; anxiety and phobias; and global rating of distress and dangerousness.<sup>7</sup> In psychopharmacological studies, the most widely used instrument is the Neuropsychiatric Inventory, which measures the frequency, the severity, and distress created around behavioral disturbances.<sup>8</sup> A nursing home version of the Neuropsychiatric Inventory taps domains that include delusions, hallucinations, agitation and aggression, dysphoria, anxiety, euphoria, apathy, disinhibition, irritability and lability, aberrant motor behavior, nighttime behavior, and appetite changes. Other useful scales include: Overt Aggression Scale,<sup>9</sup> Overt Agitation Scale,<sup>10</sup> CERAD Behavior Rating Scale for Dementia,<sup>11</sup> and Caretaker Obstreperous-Behavior Rating Assessment.<sup>12</sup>

## DIFFERENTIAL DIAGNOSIS OF BEHAVIORAL DISTURBANCE IN DEMENTIA

The differential diagnosis includes ruling out delirium. Common causes of delirium include urinary tract infections; electrolyte imbalance; dehydration; hypoglycemia; hypoxia; and drug toxicity. Laboratory studies including an urinalysis may be indicated. Some of the more common drugs that can lead to delirium in patients with dementia include anticholinergics, sedative hypnotics, narcotics, and steroids. Of note, anticholinergics also may lead to progression of dementia. A careful medication review should be conducted.

The presence of depression, anxiety and psychosis also need to be evaluated. Delusions are seen in 10% – 73% of individuals with dementia, primarily characterized by delusions of theft, suspiciousness, and threats of bodily harm.<sup>13</sup> Delusions of misidentification have been reported in about 25% of individuals with dementia. Hallucinations are estimated to occur from 21% to 49% in individuals with dementia;

visual are more common than auditory ones.

Other syndromes that need to be considered in the differential diagnosis include sundowning, caused by darkness. This is not delirium. It is hypothesized that it is due to alterations of the circadian rhythms and sensory inputs. The Catastrophic Reaction is brought on by environmental or psychological stress, often related to caregiver's behavior, such as being impatient, frequently changing the environment, blaming the individual with dementia, and giving complicated orders.

In trying to evaluate the etiology of the behavioral disturbance and to determine the treatment, the clinician should ask thirteen key questions:

What is the behavior?

- Under what circumstances or environment did the behavior occur?
- How often has the behavior occurred?
- How long did the behavioral problem last?
- How intense was the behavioral problem?
- What preceded the behavioral disturbance?
- Was the behavioral problem associated with daily activities?
- Does the patient have any control over the behavior?
- Does the behavioral problem occur when a specific person is present?
- How many people are present when the behavior occurs?
- What type of interactions is associated with the behavioral disturbance?
- What events predicted the behavioral disturbance?
- What function does the behavioral disturbance serve?

In addition, the clinician should investigate the presence of a premorbid psychiatric history. The behavioral problem may be a reflection of long-standing psychiatric issues and not necessarily an expression of new behaviors due to dementia. Premorbid psychiatric problems may have gone untreated; therefore, it may be useful to know: Was the patient al-

ways nervous? always difficult? Did the patient have a history of domestic violence? Did s/he drink too much or use drugs?

### PHARMACOLOGICAL TREATMENT OF BEHAVIORAL DISTURBANCE IN DEMENTIA

Treatment of behavioral disturbance requires consideration of age and both pharmacological and non-pharmacological approaches. The pharmacological interventions should target as much as possible the etiology of the disturbance. If delirium is present then addressing the cause, such as using antibiotics to treat an underlying infection, may suffice. Depression in dementia is addressed by using antidepressants. **Selective serotonin reuptake inhibitors (SSRI)** are often considered the first line of treatment. Shorter-acting agents that have few drug-drug interactions are preferred, such as citalopram, escitalopram, and sertraline. Second line agents are the **neuradrenergic serotonin reuptake inhibitors (NSRI)**, which include venlafaxine and duloxetine. The former should be monitored for hypertension; the latter should be given with food due to nausea. Anticholinergic agents such as paroxetine and the tricyclics, e.g. amitriptyline and nortriptyline, should be avoided. Bupropion may lower the seizure threshold and may be activating. Some nursing homes psychiatrists have used selegiline transdermal, a monoamine oxidase inhibitor, in patients who won't cooperate with oral agents. Fluoxetine long-acting form given once a week is available. Mirtapine has been useful in depressed patients who have poor appetites or do not sleep well. The Alzheimer's drugs, the acetylcholinesterase inhibitors and memantine, have been shown to reduce depressive symptoms and should be considered an adjunct or even a first line treatment in mild cases. At times individuals with dementia and depression fail to respond to pharmacological interventions. Electroconvulsive therapy may prove beneficial in these situations.<sup>14</sup> A number of case reports have shown benefit in selected individuals whose behavior was characterized as screaming.<sup>15</sup>

The treatment of psychosis is controversial. First, there is a black box warn-

ing for antipsychotics as a class regarding their use in individuals with dementia regarding the potential for increased cerebrovascular events and early mortality. Secondly, the CATIE-AD study suggested that there was little benefit in using antipsychotics in dementia psychosis compared to placebo.<sup>16,17</sup> Many antipsychotics can cause weight gain, metabolic syndrome, and drug-induced Parkinsonism. Furthermore, elderly individuals are at increased risk for tardive dyskinesia. This is not to say that antipsychotics should not be used, as they are effective for many individuals. However, they should be used cautiously after the risks and benefits have been carefully weighed, and informed consent obtained. If an antipsychotic is used once the patient is stabilized, the clinician should consider tapering and discontinuing the pharmacological agent after 2 to 8 months of therapy. Response with an antipsychotic may occur with small dosages in patients who are not chronically mentally ill. Unfortunately divalpoex sodium, an alternative to antipsychotics, in placebo-controlled trials for agitation in Alzheimer's disease have been negative. One alternative to antipsychotics, in particular if the symptoms are mild, are acetylcholinesterase inhibitors and memantine.

Prior to using an antipsychotic in dementia the clinician should ask the following questions:

- Is the patient distressed by the psychotic symptoms?
- Whom are we treating the staff, caregiver, or patient?
- Is the behavior disruptive to other residents?
- Will the behavior result in loss of placement?
- Are there non-pharmacological interventions that can be tried?

Bipolar disorder at times also requires the use of antipsychotics; however, the same caution as with psychosis applies. Lithium, lomotragnine, divalpoex sodium, carbamazepine and oxcarbazepine are all appropriate considerations. It has been suggested that lithium may have neuroprotective effects in dementia.<sup>18</sup> Lithium must be closely monitored for

toxicity due to reduced renal function with age.

In managing anxiety in dementia, as in depression and psychosis, consideration should be made for using acetylcholinesterase inhibitors or memantine. SSRIs are anxiolytic. Trazodone also may prove beneficial, and can be administered in small dosages several times during the day. Benzodiazepines, although not a first line choice, may be necessary. If a benzodiazepine is to be used, consider using shorter acting agents, such as lorazepam. Any patient on a benzodiazepine should be closely monitored for fall risk and confusion. Quetiapine has been used increasingly among patients with dementia and behavioral disturbance. In particular, it has been used in divided dosages with small amounts before the behavioral problem usually begins and a larger dose at bedtime. Although it may help some patients, this is not an indicated use; and the risks and cautions are similar to other antipsychotics.

Sleep disturbance is common among behaviorally disturbed patients with dementia. The first step in managing sleep is to treat the underlying problem. Light therapy may be beneficial especially in decreasing sundowning. The choice of medications to induce sleep should take into consideration those that are least likely to cause cognitive disturbance upon waking. Ramelteon, a selective melatonin receptor agonist, appears safe, with little or no psychomotor or cognitive effects in the elderly. Two agents that are not indicated for sleep are frequently used in individuals with dementia: trazodone and mirtazapine. Zaleplon and eszopiclone are considerations if alternatives have failed; however, there is debate as to whether these agents have any advantage over benzodiazepines.

### **NON-PHARMACOLOGICAL TREATMENT OF BEHAVIORAL DISTURBANCE IN DEMENTIA**

Non-pharmacological interventions are equally, if not even sometimes, more important than pharmacological interventions in managing behavioral disturbances in dementia. Most interventions are based on three of the models that lead

to behavioral problems in dementia: interventions designed to address unmet needs; that are behavior and learning interventions such as caregiver interventions; and environmental interventions to reduce the stress threshold. A recent meta-analysis concluded that non-pharmacological interventions may be beneficial, including bright lights.<sup>19</sup> These conclusions, however, were based on only a few well-designed studies.

---

## **Non-pharmacological interventions should be the first step in behavior system management.**

---

Several simple behavioral interventions can be readily implemented:<sup>1</sup>

- Correct sensory deficits; replace poorly fitting hearing aids, eyeglasses, and dentures
- Keep the environment calm, comfortable, and homelike with familiar possessions
- Provide regular daily activities and structure; refer patient to adult day care programs, if needed
- Attend to patient's sleep and eating patterns
- Install safety measures to prevent accidents
- Ensure that the caregiver has adequate respite
- Educate caregivers about practical aspects of dementia care
- Teach caregivers the skills of caregiving: communication skills, avoiding confrontational behavior management, techniques of ADL support, activities for dementia care
- Simplify bathing and dressing with adaptive clothing and assistive devices
- Provide access to experienced professionals and community resources

- Refer family and patient to local Alzheimer's Association

### **CONCLUSION**

Behavior problems are one of the common causes of dementia requiring a physician's attention and/or hospitalization. The causes are frequently multifactorial; therefore, the management of the problem is also multifaceted.

Non-pharmacological interventions should be the first step in behavior system management. Later pharmacologic intervention should be tried if non-pharmacologic interventions are not sufficient. A multidisciplinary approach should be initiated, as the causes of behavioral problems are a combination of organic, behavior, environmental and psychological causes. Better behavior management is not only beneficial for the patient, but may lead to minimal environmental change and less stress on caregivers. Once a differential diagnosis has been obtained, a history of the behavioral problem elicited, and a work up conducted, both pharmacological and non-pharmacological interventions are important for behavior management, with the latter always being the first step.

### **REFERENCES**

1. Pompei P (ed.) *Geriatrics Review Syllabus: A Core Curriculum in Geriatric Medicine*, Sixth Edition (GRS6). Chapter 31- Behavioral problems in dementia. [http://www.geriatricsreviewsyllabus.org/content/agscontent/behav6\\_m.htm](http://www.geriatricsreviewsyllabus.org/content/agscontent/behav6_m.htm)
2. Cohen-Mansfield J, Billig NJ *Am Geriatr Soc* 1986;34:711-21.
3. Cohen-Mansfield J. Agitation in the elderly: definitional and theoretical conceptualizations. In Hay DP, Klein D, et al. (eds.) *Agitation in Patients with Dementia: A Practical Guide to Diagnosis and Management*. Washington, DC: American Psychiatric Publishing, Inc., 2003.
4. Cohen-Mansfield J, Marx MS, Rosenthal AS. *J Gerontology: Medical Sciences* 1989;44:M77-M84.
5. Finkel SI, Lyons JS, Anderson RL. *J Am Geriatr Soc* 1993;41:50-2.
6. Rosen J, Burgio L, et al. *Am J Geriatr Psychiatry* 1994;2:52-9.
7. Rosenberg B, Borenstein J, et al. BEHAVE-AD. In Altman HJ (ed.) *Alzheimer's Disease*. New York: Plenum, 1987.
8. Cummings JL, Mega M, et al. *Neurol* 1994;44:2308-3214.
9. Silver JM, Yudofsky SC. *J Neuropsychiatry Clin Neurosci* 1991;3(suppl 1):22-9.
10. Yudofsky SC, Kopecky HJ, et al. *J Neuropsychiatry Clin Neurosci* 1997;9:541-8.

11. Mack JL, Patterson MB. *Manual: CERAD Behavior Rating Scale for Dementia*. Cleveland: Consortium to Establish a Registry for Alzheimer's Disease, 1996.
12. Drachman DA, Swearer JM, et al. *J Am Geriatr Soc* 1992;40:463-80.
13. Webster J, Grossberg GT. Differential diagnosis of agitation in dementia. In Hay DP, Klein D, et al. (eds.) *Agitation in Patients with Dementia: A Practical Guide to Diagnosis and Management*. Washington, DC: American Psychiatric Publishing, Inc., 2003.
14. Roa V, Lyketsos CG. *Int J Geriatr Psychiatry* 2000;15:729-35.
15. Raccaforte WH, Wengel SP, Burke WJ. *Am J Geriatr Psychiatry* 2000;8:177.
16. Schneider LS, Tariot PN, et al. *NEJM* 2006;355:1525-38.
17. Daiello LA. *Med Health RI*. 2007;90:191-4.
18. Zhong J, Lee WH. *Expert Opin Drug Saf* 2007;6:375-383.
19. Ayalon L, Gum AM, et al. *Arch Intern Med* 2006;166:2182-8.

*Robert Kohn, MD, MPhil, is Associate Professor of Psychiatry and Human Behavior, the Warren Alpert Medical School of Brown University; and Training Director of the Brown University Geriatric Psychiatry Fellowship Training Program.*

*G. Mustafa Surti, MD, is Clinical Assistant Professor of Psychiatry and Human Behavior, the Warren Alpert Medical School of Brown University.*

**Disclosure of Financial Interests**

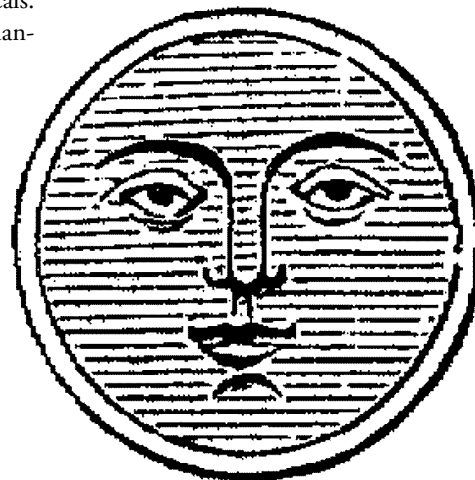
Robert Kohn, MD. Speaker bureaus: Pfizer and Forest pharmaceuticals.

G. Mustafa Surti, MD has no financial interests to declare.

**Discussion of off-label use of medications:** All medication discussions are off-label; none are indicated for dementia.

**CORRESPONDENCE:**

Robert Kohn, MD, MPhil  
Butler Hospital  
345 Blackstone Blvd.  
Providence, RI 02906  
Phone: (401) 455-6277  
e-mail: Robert\_Kohn@brown.edu



## Is Your Patient's Heart Worth 1 Minute?



### INTRODUCING ADVANCED CARDIAC CT IMAGING

*"The most promising use of these technologies is calcium scoring for risk assessment of the asymptomatic individual..."* American Heart Association... Oct, 2006

### STATE OF THE ART CALCIUM SCORING

- Most appropriate for intermediate risk patients
- 50-75 % reduction in radiation dose from 2007 protocols
- Same day interpretation and result notification
- Our Nominal Fee of \$100 for those without insurance

**Intermediate Risk Factors**  
Family history of heart disease  
Total cholesterol greater than 200 mg/dl  
Hypertension  
Tobacco abuse  
Diabetes mellitus  
Physically inactive  
Obesity

Visit [www.heartri.com](http://www.heartri.com) or call (401) 273-2460 and learn about the 1-minute test that could save your patient's life.



COMPLETE AND CONVENIENT HEART AND VASCULAR CARE...  
PROVIDENCE, WARWICK, MIDDLETOWN, LINCOLN