Behavioral and Psychological Symptoms of Dementia: A Current Focus for Clinicians, Researchers, and Caregivers

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Behavioral and psychological symptoms of dementia are an important aspect of dementing illness. They represent a growing burden to caregivers and health care institutions and an increasing financial burden as the proportion of elderly patients, and consequently those with dementia, increases throughout the world. Behavioral and psychological symptoms of dementia can be recognized and assessed using a number of rating scales. Management of the symptoms is then possible for the benefit of patients, family members, caregivers, and the health care system.

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The term *behavioral and psychological symptoms of dementia* (BPSD) is used to describe "a heterogeneous range of psychological reactions, psychiatric symptoms, and behaviors resulting from the presence of dementia."[1] BPSD are important because they

- increase rates of institutionalization[2–5]
- exacerbate suffering for patients, family members, and caregivers[6–8]
- increase financial costs substantially[9]
- cause excess disability.[10]

BPSD are growing increasingly important as the population of the world ages. Between 1975 and 2000, the number of people in the world aged over 80 years has increased by 65%.[11] This number is increasing even more rapidly in developing countries, where the rate of increase has been 138%.[11] In the next 30 years, an even more rapid growth of the very old population is predicted, and with it, an increasing frequency of dementing illnesses. Reports of the prevalence of dementia have been as high as 47% for those over the age of 85 years.[12]

Clearly, the increasing number of older people and those with dementing illness has profound implications for patients, families, and health care policy worldwide. With increasing rates of dementia, more people will suffer from behavioral and psychological symptoms, and this will create a tremendous burden for caregivers.

In recent years, governments and drug regulatory agencies have become increasingly attuned to BPSD. In March 2000, the U.S. Food and Drug Administration conducted a special hearing on BPSD. The likely outcome of this is a specific definition for the labeling of psychotic symptoms and further direction for agitation and other behavioral and psychological symptoms.

This article reviews the different types of dementia, the rating scales used to assess the symptoms and signs associated with dementia, and the specific behavioral and psychological symptoms themselves.

FORMS OF DEMENTIA

Behavioral and psychological symptoms of dementia are not a new phenomenon. Esquirol[13] described them in 1838, and Alois Alzheimer,[14] in his important case description written almost a century ago, noted behavioral and psychological symptoms of dementia as prominent manifestations of the illness. The patient in Alzheimer's case description demonstrated hallucinations, paranoia, delusions of sexual infidelity, physical aggression, and screaming.

Other forms of dementing illness include the following: vascular dementia, which is characterized by similar symptomatology to Alzheimer's disease, but with higher rates of depressive symptoms; Lewy body dementia, characterized by higher rates of visual hallucinations; and fronto–temporal lobe dementia, characterized by apathy and/or aggression. Dementia can also be associated with other conditions, including Parkinson's disease, progressive supranuclear palsy (Steele-Richardson-Olszewski syndrome), and multiple sclerosis.

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It is important to note that Alzheimer's disease and most other dementing illnesses result in increasing cognitive symptoms in a linear manner over time. On the other hand, BPSD may often occur in a nonlinear fashion, with some symptoms occurring earlier with greater frequency and then diminishing or disappearing and other symptoms emerging later in the illness.

SCALES FOR ASSESSING BPSD

The *Diagnostic and Statistical Manual of Mental Disorders*, Fourth Edition (DSM-IV) of the American Psychiatric Association delineates subtypes of BPSD depending on the presence of depression or hallucinations.[15] Many commonly used rating scales have also incorporated the symptomatology of BPSD.

It is now standard practice for the presence of BPSD to be evaluated as part of the routine evaluation of patients with dementia. Two of the more commonly used scales, both clinically and in experimental drug trials, are the Behavior Pathology in Alzheimer's Disease rating scale (BEHAVE-AD)[16] and the Cohen-Mansfield Agitation Inventory (CMAI).[17] The BEHAVE-AD focuses on behaviors as well as psychological constructs such as depression, delusions, and hallucinations. The CMAI, in contrast, focuses exclusively on behaviors, including physically aggressive behaviors (pushing, hitting, biting, etc.), nonaggressive physical agitation (pacing, restlessness), and verbal agitation (shouting, cursing/swearing).

Over the past 5 years, additional scales have been created with the specific intent of evaluating medications in clinical trials. These include the Neuropsychiatric Inventory[18] and the Behavior Rating Scale for Dementia of the Consortium to Establish a Registry in Alzheimer's Disease.[19]

SPECIFIC BEHAVIORAL AND PSYCHOLOGICAL SYMPTOMS

Delusions

Delusions are extremely common in patients with Alzheimer's disease, with as many as 73% of patients developing them over the course of the illness. According to Reisberg et al.,[20] the most common delusion is that people are stealing things. This may result from simply misplacing an item, but the effect that goes with this delusion can be quite severe. It can result in cursing and even physical aggression based on the belief that one's personal property has been stolen.

Two other delusions (sometimes described as "misidentifications") are expressed as, "This is not my home" and "I want to go home."[21] The patient may no longer recognize his or her home, and so may pack a suitcase in an attempt to leave the house and go home. This may also contribute to wandering. Another common delusion/misidentification is the accusation that the spouse or another caregiver is an impostor. This is often accompanied by anger and even violence toward the perceived impostor.

Delusions of abandonment and sexual infidelity can also occur and may be quite stressful. All delusions can be extremely upsetting to the spouse or caregiver, as well as to the patient, and commonly contribute to institutionalization. Delusions are often associated with physical aggression. Deutsch et al.[22] found that almost half of the patients with Alzheimer's disease in their sample experienced delusions and that the delusions represented a significant predictor of physical aggression. Gilley et al.[23] have also reported the association between delusions and physical aggression. They noted that 80% of patients demonstrating physical aggression had concomitant delusions.

Hallucinations

Hallucinations occur less commonly than delusions, but still have a frequency range of 12% to 49%.[24] Visual hallucinations are much more common than any other type of hallucination and are particularly prevalent in patients with Lewy body dementia, among whom their frequency may be as high as 80%.[25] These visual hallucinations are not necessarily upsetting to the patient and can be more upsetting to the caregiver than to the patient. For example, a common hallucination is expressed as, "Look at all the children in the room—see them?" When the patient is upset, however, the hallucinations require treatment. Interventions can include altering the environment to enhance illumination and visual contrast. A substantial number of people with visual hallucinations also have visual abnormalities, as well as visual agnosias.

Misidentification

Misidentifications (in addition to those listed above) include hyperidentification, in which patients become convinced that people are dressing up as others in order to affect or influence them (Fregoli syndrome). There is also the phenomenon of intermetamorphosis, in which the physical appearance of a person is perceived to correspond to the appearance of someone else. It is critical to educate caregivers about misidentifications so that they do not take them personally and so that they employ techniques such as reassurance and diversion to cope with them. Taking them literally and responding to the demented patient angrily increases the risk of physical aggression.

Depression

Symptoms of depression are common in patients with Alzheimer's disease, ranging from 10% to 50% in various samples.[26] Common manifestations include tearfulness, self-deprecating comments, and anhedonia. Anxiety is also common, manifesting itself in worries about the future, finances, health, and daily events and activities that would not ordinarily be stressful.[27] A manifestation called "Godot syndrome" has also been described, in which the patient

Table 1. Comparison of Psychosis in Alzheimer's Disease Patients and Schizophrenia in Elderly Patients[a]

Point of Comparison	Psychosis in Alzheimer's Disease	Schizophrenia in the Elderly
Incidence	30%–50%	Less than 1%
Bizarre or complex delusions	Rare	Frequent
Misidentifications of caregivers	Frequent	Rare
Common forms of hallucinations	Visual	Auditory
Schneiderian first-rank symptoms	Rare	Frequent
Active suicidal ideation	Rare	Frequent
Past history of psychosis	Rare	Very common
Eventual remission of psychosis	Frequent	Uncommon
Need for many years of maintenance therapy with antipsychotics	Uncommon	Very common
Average optimal daily dose of an antipsychotic drug	15%–25% of that in a young adult with schizophrenia	40%–60% of that in a young adult with schizophrenia

[a]Adapted from Jeste and Finkel.[31]

Table 2. Diagnostic Criteria for Psychosis in Alzheimer's Disease[a]

A. Characteristic symptoms
  Presence of one (or more) of the following symptoms:
    1. Visual or auditory hallucinations
    2. Delusions
B. Primary diagnosis
  All of the criteria for dementia of the Alzheimer type are met[b]
C. Chronology of the onset of symptoms of psychosis vs. onset of symptoms of dementia
  There is evidence from the history that the symptoms in Criterion A have not been present continuously since before the onset of the symptoms of dementia
D. Duration and severity
  The symptom(s) in Criterion A have been present, at least intermittently, for 1 month or longer. Symptoms are severe enough to cause some disruption in patient's and/or others' functioning
E. Exclusion of schizophrenia and related psychotic disorders
  Criteria for schizophrenia, schizoaffective disorder, delusional disorder, or mood disorder with psychotic features have never been met
F. Relationship to delirium
  The disturbance does not occur exclusively during the course of a delirium
G. Exclusion of other causes of psychotic symptoms
  The disturbance is not better accounted for by another general medical condition or direct physiologic effects of a substance (e.g., a drug of abuse or a medication)
  Associated features (specify if associated):
  With agitation: when there is evidence, from history or examination, of prominent agitation with or without physical or verbal aggression
  With negative symptoms: when prominent negative symptoms such as apathy, affective flattening, avolition, or motor retardation are present
  With depression: when prominent depressive symptoms, such as depressed mood, insomnia or hypersomnia, feelings of worthlessness or excessive or inappropriate guilt, or recurrent thoughts of death are present

[a]Reprinted, with permission, from Jeste and Finkel.[31]
[b]For other dementias, such as vascular dementia, Criterion B will need to be modified appropriately.

will repeatedly ask questions about an upcoming event with consistent or growing anxiety. Anxiety is also expressed by fears of being alone and phobias of crowds, darkness, or bathing.

Wandering

Wandering is one of the most common behavioral symptoms and can be particularly troublesome and potentially dangerous. During the winter when the temperature turns quite cold, patients may wander off and be found frozen to death. Wandering itself may take multiple forms including aimless walking, meandering away from the house, trying to leave the home, shadowing the caregiver, and ambulating in an attempt to perform tasks. Prevalence rates can be as high as 53%.[28] Most interventions for this symptom are nonpharmacologic.

Agitation

Agitation is extremely common in dementing illnesses. Agitation has been defined as inappropriate verbal, vocal, or motor activity that is not judged by an outside observer to result directly from the needs or confusion of the patient.[29] Many agitated behaviors indicate discomfort including pain. Agitation is also a risk factor for falling.[30] Interventions may be medical and pharmacologic, but also may be social, behavioral, and environmental.

Rage Reactions

Catastrophic reactions (also called "rage reactions") also occur in patients with dementia. They are characterized by a severe, generally sudden emotional response or physical behavior. Verbal aggression and the threat of carrying out physical aggression occur commonly. Often, it is difficult to predict when these reactions will occur.

Other Common Symptoms of Dementia

Other common symptoms of dementia include sleep disturbances and apathy. It is important to note that delirium may contribute to or be the cause of BPSD, so medical evaluation is often critical in arriving at an appropriate diagnosis that will lead to suitable management.[24]

Recently, there has been increasing interest in the presence of syndromes. Jeste and Finkel[31] have proposed a syndrome of psychosis in patients with Alzheimer's disease. This syndrome is differentiated from schizophrenia by the features described in Table 1. Specific diagnostic criteria are presented in Table 2.[31]

ETIOLOGY

Why do some patients with dementia develop particular symptoms, whereas other equally demented patients do not? This is a fundamental question for which we have no specific answer at present. Some studies have found biochemical,[32] neuroanatomical,[33] and personality traits[34]

to be associated with dementia. Furthermore, genetic factors may also play a role.[35] For example, polymorphisms of neurotransmitter receptors, which may not have clinical manifestations in healthy elderly individuals, may contribute to BPSD in the presence of dementia. Other studies have described the impact of the environment or caregiver responses on symptoms of dementia.[36,37] We can anticipate that in the near future there will be additional insights into the various causes of BPSD.

CONCLUSION

In conclusion, BPSD are an intrinsic component of dementia. Historically, they have been underrecognized and undertreated, but in recent times there has been a greater knowledge and understanding of these symptoms and their impact. BPSD result in diminished quality of life and increased suffering, as well as increased hospitalization, premature institutionalization, and financial loss. Since BPSD are recognizable and understandable, as well as generally treatable, it is critical to assess them thoroughly and provide the necessary treatment and management for the benefit of the patients, family members, other caregivers, and our health care service system.

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