Delusions and Hallucinations in Alzheimer's Disease: Review of the Brain Decade

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The authors reviewed studies published from 1990 to 2001 that address the epidemiology, phenomenology, course, etiology, assessment, and treatment of delusions and hallucinations in Alzheimer's disease. The prevalence of delusions in Alzheimer's disease patients ranged from 16% to 70% (median = 36.5%) in the reviewed reports, and the prevalence of hallucinations ranged from 4% to 76% (median = 23%). Delusions and hallucinations tended to persist over time, tended to recur often during the course of Alzheimer's disease, and were associated with sociodemographic and clinical correlates that differed from one study to another and with substantial consequences such as functional impairment and aggression. Psychosocial methods and both typical and atypical antipsychotics are effective in the treatment of delusions and hallucinations in Alzheimer's disease. (Psychosomatics 2003; 44:388–401)

Delusions and hallucinations are among the most common noncognitive neuropsychiatric symptoms seen in patients with dementia and have been reported to occur in a large proportion of patients with Alzheimer's disease. Delusions and hallucinations strongly contribute to early institutionalization,[1] reduce patients' well-being, and increase the burden of the caregiver in managing the patient.[2] Furthermore, these disturbances are associated with more rapid progression of the dementia syndrome.[3] Recent advances in the treatment of Alzheimer's disease, and of its associated neuropsychiatric symptoms, include both pharmacologic and nonpharmacologic interventions. Thus, the topic of delusions and hallucinations in Alzheimer's disease is timely for several reasons. These symptoms are an important public health problem and are associated with additional disability in patients with Alzheimer's disease. Effective treatments have been developed and are increasingly widely applied. Finally, study of the relationship between delusions or hallucinations and Alzheimer's disease is likely to lead to improvements in our understanding of brain-behavior relationships. With these issues in mind, we review findings published from 1990 to 2001 regarding delusions and hallucinations in the context of Alzheimer's disease with the aim of clarifying current knowledge in this area. Although earlier literature in this area did not differentiate the occurrence of delusions or hallucinations by type of dementia, it is now believed that such differentiation is important since the etiopathogenesis of the different types of dementia may be relevant in the etiopathogenesis of these phenomena as well. Thus, this review is focused as much as possible on Alzheimer's disease.

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METHOD

A computerized MEDLINE search was performed for English-language articles published between 1990 and the end of 2001 on delusions and/or hallucinations in Alzheimer's disease. Other papers were identified from the bib-

liographies of these articles. More than 100 articles were reviewed. The review focused on studies investigating delusions and hallucinations separately in the context of Alzheimer's disease. In some cases, especially where the data were limited or inconsistent, studies investigating psychosis or dementia in general were also included. Studies of the epidemiology and phenomenology of psychosis in Alzheimer's disease that were published before 1990 have been reviewed by Wragg and Jeste.[4]

STANDARDIZED ASSESSMENT

The assessment of delusions and hallucinations in the context of dementia can be accomplished with good reliability and validity. Several standardized measures for this purpose have been published and are widely used.[5–13] Table 1 provides a list of measures with acceptable psychometric properties that have been developed since 1990. Although we include here only those instruments that were developed since 1990, many others were developed earlier, generally for the assessment of psychosis in the elderly. Burns et al.[14] have provided more information about earlier measures. Further discussion of these measures is beyond the scope of this review. They are mentioned here to highlight the fact that assessment of delusions and hallucinations in Alzheimer's disease can be accomplished with good reliability and validity.

NOSOLOGIC ISSUES

The study of delusions and hallucinations in the context of Alzheimer's disease is conducted in the face of a significant methodological issue: whether to study delusions and hallucinations separately or to construe these phenomena as part of a broader category of "psychosis." Current psychiatric nosology offers little guidance. DSM-IV[15] recommends additional coding if delusions are a predominant feature of dementia, but it provides no criteria for this subcategory. In addition, if hallucinations are present and believed to be caused by Alzheimer's disease, DSM-IV specifies that they be classified as "hallucinations due to Alzheimer's disease" by using a different group of codes.

The earlier literature tended to group the study of delusions and hallucinations within the broader category of psychosis. In addition, an effort that grew out of a consensus conference of experts[16] led to a proposed set of diagnostic criteria for "psychosis of Alzheimer's disease,"[17] in which either delusions or hallucinations would be considered a basis for the presence of a psychotic syndrome.

In contrast, it has been proposed that delusions and

TABLE 1. Instruments for Assessment of Delusions and Hallucinations in Alzheimer's Disease

Instrument	Time to Administer (minutes)	Rater	Disease Assessed	Number of Items	Measurement Properties
Dementia Behavior Disturbance Scale (5)	10–15	Caregiver	Dementia	28	Test-retest reliability: 0.71; internal consistency: 0.84
Columbia University Scale of Psychopathology in Alzheimer's Disease (6)	10–15	Lay interviewer or caregiver	Alzheimer's disease	29	Interrater reliability: 0.80–1.00 in conjoint interviews and 0.30–0.73 in independent interviews
Caretaker Obstreperous Behavior Rating Assessment Scale (7)	20	Observer	Dementia	30	Interrater reliability: 0.73–0.99 for eight items and 0.30–0.63 for four items
Present Behavioral Examination (8)	60	Trained observer	Dementia	187	Interrater reliability: 0.65–1.00; test-retest reliability: 0.16–0.74
Behavioral and Emotional Activities Manifested in Dementia (9)	20	Trained rater	Dementia	16	Interrater reliability: 0.70–1.00; kappa: 0.56–1.00
Neurobehavioral Rating Scale (10)	30–40	Observer	Dementia	28	Assesses both cognitive and noncognitive symptoms; includes most items from the Brief Psychiatric Rating Scale
Neuropsychiatric Inventory (11)	10	Clinician-caregiver	Dementia	12	Internal consistency: 0.88; test-retest reliability: highly significant
Behavioral Rating Scale for Dementia of the Consortium to Establish a Registry for Alzheimer's Disease (12)	20–30	Trained examiner or caregiver	Alzheimer's disease	46	Interrater reliability: 91%–100%; kappa: 0.77–1.00
Manchester and Oxford Universities Scale for Psychopathological Assessment of Dementia (13)	15–30	Clinician-caregiver	Dementia	59	Test-retest reliability (kappa): 0.40–0.93; interrater reliability: 0.56–1.0; validity: 0.43–0.67