

LETTERS

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Dementia with Lewy bodies with and without hallucinations: a clue to different entities?

Patients who have Dementia with Lewy Bodies (DLB) commonly experience psychotic symptoms, most notably visual hallucinations, but different estimates of their frequency exist and their pathophysiology is still debated (Hirono and Cummings, 1999). A cholinergic mechanism has been proposed, implicating the loss of either cortical choline acetyltransferase activity or cortical nicotinic receptors. Some authors report a striking association between visual hallucinations and the distributions of Lewy bodies in the temporal lobe (Harding *et al.*, 2002). Retinal involvement in DLB hallucination-related symptoms has been proposed, with claims for a more widespread synucleopathy (Maurage *et al.*, 2003). When the associated clinical features of hallucinations in DLB have been investigated, a lack of correlation with the severity of motor impairment has been reported (Aarsland *et al.*, 2001).

These data describe a complex scenario, and no study evaluating the co-occurrence of other behavioral symptoms in DLB with hallucinations is yet available. We aimed to examine whether DLB-associated hallucinations may underscore a distinct clinical entity. To this end, a large representative sample of DLB patients was considered, and the demographic, neuropsychological and behavioral features in DLB with and without hallucinations were analyzed.

Eighty-seven DLB patients were recruited from the Center of Movement Disorder and the Center for Aging Brain and Neurodegenerative Disorders, University of Brescia, Italy.

Patients fulfilled international consensus criteria for probable DLB (McKeith *et al.*, 2005). Further, DLB patients were grouped according to the presence ($n=47$, 54%, H+) or the absence ($n=40$, 46%, H-) of hallucinations. Visual hallucinations were required to be present, at least intermittently, for one month or longer, and severe enough to cause some disruption in patients' and/or others' functioning. Each patient underwent a neurological and neuropsychological evaluation and routine laboratory examinations as well as a structural neuroimaging study (Brain Computed Tomography or/and Magnetic Resonance Imaging). Caregivers were interviewed and comorbidities were carefully recorded. All patients were followed for at least one year after enrollment, and the diagnosis of probable DLB confirmed.

Motor impairment was evaluated by motor subscale of Unified Parkinson Disease Rating Scale (UPDRS III) and Hoehn-Yahr Scale. Global cognitive

function assessment was carried out according to a standardized battery, including Mini-mental State Examination (MMSE), Instrumental Activities of Daily Living (IADL) and Basic Activities of Daily Living (BADL). The Neuropsychiatry Inventory (NPI), a structured informant interview with questions read verbatim, was performed as well.

The demographic characteristics of the two groups (H– vs H+) (see Table S1, published as supplementary material online attached to the electronic version of this letter at www.journals.cambridge/jid_IPG) did not show significant differences in age (mean \pm standard deviation, 73.5 ± 6.1 vs 74.1 ± 8.1), age at onset (72.1 ± 6.0 vs 71.7 ± 7.8), sex (female %, 40 vs 47), or presence of positive family history (20.0% vs 19.1%). No significant differences were detected between the two groups in associated comorbidities including hypertension (47.0% vs 42.5%), diabetes (0% vs 6.3%), cardiomyopathy (15.0% vs 31.9%) or hypercholesterolaemia (20.0% vs 21.2%). DLB without or with hallucinations did not show any difference for global cognitive deficit measured by the MMSE (H– vs H+, 23.5 ± 4.6 vs 23.1 ± 5.5) or for motor impairment assessed with the UPDRS-III (17.9 ± 14.0 vs 23.8 ± 18.7). The pattern of neuropsychiatric disturbances measured by the NPI differed significantly between the two subgroups (see Table S2, published as supplementary material online attached to the electronic version of this letter at www.journals.cambridge.org/jid_IPG). DLB patients without hallucinations, compared to those with hallucinations, had more severe delusion scores (H– vs H+, 0.6 ± 1.8 vs 2.0 ± 3.1 , $p < 0.02$, Mann-Whitney test), agitation (1.3 ± 2.3 vs 2.7 ± 2.9 , $p < 0.03$), anxiety (1.6 ± 2.0 vs 3.5 ± 3.6 , $p < 0.005$), and sleep disorders (1.5 ± 2.8 vs 3.2 ± 3.4 , $p < 0.03$).

These results argue for a distinct pattern underscored by the presence of hallucinations in DLB, suggesting a cluster of behavioral symptoms related to the hallucination core-feature. On the other hand, no demographic characteristic or presence of associated comorbidity was related to hallucinations in our sample. We acknowledge that a longer follow-up of these patients, as well as neuropathological confirmation of diagnoses would be desirable.

Our results suggest that associated neurobehavioral symptoms should be taken into account in defining either the neuropathology or the neurobiology of hallucinations in DLB, evaluating the neural networks likely underscoring these clusters of symptoms. Indeed, although there are clear-cut core features, there is the clue to consider DLB as not a unique entity.

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Measuring QOL in dementia

We were pleased to see the quality-of-life (QOL) review by Ettema *et al.* (2005). We agree with their attempt to establish an overall conceptualization of QOL in dementia and wish them well in their projected design of a dementia-specific QOL measure. However, it is unlikely that a scale can be designed that will be valid for the entire course of dementing illness. It is clear, for example, that early in dementing illness, patients with self-awareness may report low quality of life as they find themselves unable to perform activities they value highly, such as driving an automobile. Later, as self-awareness, language, and overall function fade, they often appear quite content to observers and seem to be experiencing relatively high QOL. Thus, items such as participation in activities such as reading or going for walks that may have been important to persons with early dementia, are no longer relevant in late-stage dementia.

In their report of scales for QOL in dementia patients, Ettema *et al.* overlooked a widely used instrument. As reported elsewhere (Weiner *et al.*, 2000), we have developed a scale for assessment of QOL in persons with late-stage dementia that is administered to nursing personnel in long-term care facilities. Developed by consensus in a multidisciplinary group, the Quality of Life in Late-stage Dementia Scale (QUALID) includes 11 observable behaviors thought to indicate an individual's QOL. Items are rated on a 5-point scale, with total score ranging from 11 (best QOL) to 55 (worst QOL). The window of observation is one week. The QUALID includes observation of patients' affective state (smiling, sadness, crying, discomfort, irritability and sadness) and behavioral signs of comfort and engagement in activities such as eating and engaging and interacting with others. The instrument has been shown to have validity, good to excellent reliability (test-retest = 0.87; inter-rater 0.826), and internal consistency (Cronbach's $\alpha = 0.769$). There was no significant relationship between QUALID scores

and measures of cognitive or Activities of daily living (ADL) function, and a modest but significant relationship between QUALID scores and a measure of depression (Geriatric Depression Scale, $r = 0.36$) and of behavioral disturbance (Neuropsychiatric Inventory, $r = 0.40$). Additionally, the QUALID has been shown sensitive to the effects of psychotropic drugs; a significant positive association between QUALID score and improvement in behavioral symptoms and a negative association with adverse medication effects (Martin-Cook *et al.*, 2005). The QUALID has been adopted as part of the draft Care Keys toolkit for the quality management of services for older people in Finland, Sweden, Germany, Estonia, and England. As part of this project, Luoma *et al.* (2005) have shown the expected correlation of the QUALID with the Cornell Scale for Depression in Dementia ($r = 0.588$) and a negative correlation with the Attitude subscale of the Philadelphia Geriatric Morale Scale ($r = 0.367$).

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Reply

Although it was not our aim to be fully comprehensive, we regret to have missed the paper by Weiner *et al.* (2000) in which they report on the Quality of Life in Late-stage Dementia Scale (QUALID). They have focused on late-stage dementia as they consider it unlikely that a scale can be valid for the entire course of the dementing illness. This is the main critique of Professor Weiner's letter. We agree that behaviors of interest differ between persons with an early

dementia and those who have lost the ability of speech and are totally dependent on Activities of Daily Living (ADL) care. However, our main argument in the paper is that adaptation is an important indication of quality of life (QOL) and should therefore be incorporated in a definition of QOL. We presented a definition that in our view is suitable for all stages of dementia and can be used to develop a dementia-specific QOL measure.

The continuing work on our project resulted in a new proxy-rated observation scale for QOL in dementia in residential settings: the QUALIDEM, which was presented September 2005 at the Twelfth Congress of the International Psychogeriatric Association in Stockholm (Ettema *et al.*, 2005). The QUALIDEM consists of nine subscales with a total of forty items. For unidimensionality we used a non-parametric model from item-response theory: the Mokken scaling model, and computed the corresponding scalability coefficients, using a theory-driven strategy. A field survey was performed in a sample of 238 people with dementia residing in 10 nursing homes. The scalability of the subscales positive affect, negative affect, restless tense behavior and social relations is strong ($0.50 < H < 0.63$); for care-relationship, positive self-image, feeling at home, and having something to do, scalability was moderate ($0.40 < H < 0.49$), and for social isolation it was weak ($H = 0.34$). The reliability coefficient ρ (under assumption of double monotonicity) varied from 0.60 for social isolation to 0.90 for positive affect (Cronbach's α varied from 0.59 to 0.89). Twenty-one items are suited for people with very severe dementia. This last result clearly indicates that although a number of behaviors are no longer observable in late dementia, other behaviors still are. This means that with approximately half the items, QOL in dementia can be studied across different stages. This would not be possible with a strict focus on late dementia only. We believe that both strategies of research are complementary and provide useful information on the QOL of people with dementia.

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The transatlantic gap

In his review in this journal* of the *Comprehensive Textbook of Geriatric Psychiatry*, 3rd edition, by Sadavoy *et al.*, Carmelo Aquilina makes some favourable comparative comments about our book *Psychiatry in the Elderly*. Although he is not entirely correct about our having no American authors (Roland Atkinson of Portland, Oregon wrote the chapter on substance abuse), he quite rightly points to a very important issue.

From a European perspective, Americans do sometimes seem remarkably insular. I recall a suicide symposium at the IPA meeting in Chicago in 2003, when I cried out in despair to the Americans chairing the meeting that they appeared to consider the States an island beyond which nothing ever happens. The reference lists of many American papers seem to reflect this, too.

As far as our textbook is concerned, we have earnestly desired more American authors, not least to enhance sales in the U.S.A. However, e-mails appear to have disappeared into the ether above the Atlantic Ocean, for answers came there none. We very seriously considered for our next edition (the 4th) taking on an American editor and making the book half American and half European plus, but efforts to find a suitable person foundered and we decided to follow the same line as in the first three editions. I am delighted that Carmelo Aquilina highlighted the fact that we have several non-British authors.

Lest I be considered anti-American (actually, I love the place), I should say that I have heard it argued that American and British psychiatry are too different for a textbook to fit easily in both places at once. By British I should wish at least to include Australia, New Zealand and South Africa, countries where our book sells well. It does not sell so many copies in the States, partly because of the excellent *Comprehensive Textbook of Geriatric Psychiatry* and partly, I think, because their world view is sufficiently different from ours. Bernard Shaw called us two nations divided by a common language. Perhaps this applies to psychiatry, too.

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