European Geriatric Medicine 6 (2015) 257–261

Available online at
ScienceDirect
www.sciencedirect.com

Elsevier Masson France
EM|consulte
www.em-consulte.com/en

Research paper

Psychotic symptoms of dementia, their relationship with delirium and prognostic value

E.H. Hölttä [a,b,*], M.-L. Laakkonen [b,c], J.V. Laurila [b,d], T.E. Strandberg [d,e], R.S. Tilvis [d], K.H. Pitkälä [b]

[a] Department of Social Services and Health Care, Geriatric Psychiatric Clinic, P.O. Box 6600, 00099 City of Helsinki, Finland
[b] University of Helsinki, Department of General Practice and Helsinki University Central Hospital, Unit of Primary Health Care, University of Helsinki, P.O. Box 20, 00014, Finland
[c] Department of Social Services and Health Care, Laakso Hospital, Geriatric Clinic, P.O. Box 6600, 00099 City of Helsinki, Finland
[d] University of Helsinki, Department of General Internal Medicine and Geriatrics, and Helsinki University Central Hospital, Clinics of General Internal Medicine and Geriatrics, P.O. Box 340, 00029 HUS, Finland
[e] Institute of Health Sciences/Geriatrics, University of Oulu, and Oulu University Hospital, Unit of General Practice, Oulu, Finland

ARTICLE INFO

Article history:
Received 21 September 2014
Accepted 16 December 2014
Available online 14 January 2015

Keywords:
Psychotic symptoms
Dementia
Delirium
Mortality
Prognosis

ABSTRACT

Background: The prevalence and overlap of psychotic symptoms among patients with dementia compared to those with delirium superimposed to dementia have received little attention. The aim of our study was to investigate the overlapping and distinguishing capability of psychotic symptoms among patients with dementia or with delirium superimposed to dementia, and to clarify their prognostic value.
Methods: We assessed 255 residents with dementia in nursing homes and acute geriatric wards for psychotic symptoms and delirium. The residents were divided into three groups: those with delirium (Group 1; $n = 66$), those with psychotic symptoms without delirium (Group 2; $n = 74$), and without psychotic symptoms or delirium (Group 3; $n = 115$).
Results: Of the participants, 30.9% suffered from delusions, 22.1% from visual hallucinations and 14.2% from auditory hallucinations. Delusions occurred more often in Group 2 than in Group 1. Of the subjects in Group 3, 6.5% suffered from misidentifications, whereas the respective figures in Groups 1 and 2 were 17.5% and 20.8%, respectively. Of those suffering from psychotic symptoms ($n = 109$), one in three ($n = 35$) suffered delirium, and two in three ($n = 74$), psychotic symptoms without delirium. In the adjusted Cox proportional hazard model with Group 2 as the referent, we found no difference between the groups in mortality rates (Group 1: HR 0.98, 95% CI: 0.64–1.52 and Group 3: HR 1.49, 95% CI: 0.92–2.42).
Conclusions: Psychotic symptoms cannot be used to distinguish patients with dementia from those with delirium superimposed to dementia.

1. Introduction

Psychotic symptoms are common among older people since many old age syndromes such as dementias, Parkinson's disease and delirium may manifest as psychosis [1–3]. The prevalence of psychotic disorders in the elderly in community-based samples range widely from 0.2% to 4.8%, and in nursing home populations are as high as 10 to 63% [3].

The neuropsychiatric inventory (NPI) classifies delusions and hallucinations as key neuropsychiatric symptoms of dementia [4]. Delusions have been defined as unshakable false beliefs that are out of context with a person's social and cultural background, whereas hallucinations are false sensory perceptions that are more than distortions or misinterpretations [1]. The frequency of psychotic symptoms in Alzheimer disease (AD) has varied between 30% and 50% [5], whereas in vascular dementia, 54% suffered from psychotic symptoms [6]. In Lewy body disease (LBD), 78% experienced hallucinations and 25% delusions [7].

Psychotic symptoms in AD have been associated with greater caregiver distress, more severe cognitive impairment, functional decline and institutionalisation [2,8–12]. Obtaining information on

* Corresponding author. Department of Social Services and Health Care, Geriatric Psychiatric Clinic, P.O. Box 6600, 00099 City of Helsinki, Finland.
Tel.: +35850 5355806; fax: +358 931049934.
E-mail address: eeva.holtta@saunalahti.fi (E.H. Hölttä).

http://dx.doi.org/10.1016/j.eurger.2014.12.002
1878-7649/

a patient's neuropsychiatric profile is important in the management of patients with dementias [13].

Few studies have explored misidentifications separately from psychotic symptoms in neurodegenerative diseases [1]. Misidentifications have been described as a failure to recognise familiar people or one's own home, beliefs that characters on the television are real [14], or manifestations of agnosia [1]. Misidentifications are characteristics of AD and LBD, occurring in 16% of cases with AD and 17% to 56% in LBD [7,15].

Delirium is characterised by a disturbance in attention and a change in cognition which develop over a short period of time [16,17]. In addition, the DSM-IV/DSM-5 includes perceptual disturbances or visual hallucinations as a criterion in diagnosing delirium [16–19]. By definition, delirium has a causative factor, often somatic illness, which should be identified and managed. In addition, delirium indicates a poor prognosis [20]. Neuropsychiatric symptoms (NPS) in dementia and symptoms of delirium are known to overlap [21,22], and researchers have hypothesised that psychotic symptoms in dementia may result from unrecognised superimposed delirium [23].

Thus, psychotic symptoms and even misidentifications are common both in dementia and delirium. Because of the causative factors and poor prognosis of delirium, it is important to distinguish among patients with dementia whether their psychotic symptoms are due to dementia or whether they actually reflect underlying acute delirium. Furthermore, cholinesterase inhibitors are beneficial in managing misidentifications and psychotic symptoms in dementia whereas they may be harmful in patients with acute delirium [14,24,25]. We hypothesize that these symptoms overlap in patients with dementia but psychotic symptoms in delirium superimposed to dementia are by far more common than in dementia without delirium. We wanted to explore whether these symptoms might serve as diagnostic markers of delirium. Delirium is known to be underdetected and, therefore, poorly managed [21]. Thus, we need better tools to identify delirium especially in patients with dementia with unspecific symptoms. The aims of this study are to investigate:

- the prevalence of psychotic symptoms and misidentifications among patients with dementia and patients with delirium superimposed on dementia;
- how these symptoms overlap among dementia patients with and without delirium;
- whether these symptoms could serve to distinguish patients with dementia from those with delirium superimposed to dementia;
- the prognostic value of these symptoms among patients with dementia.

2. Patients and methods

2.1. Patients

This study consists of observations, interviews, and tests of cognitive functioning and attention of 425 residents in seven nursing homes ($n = 195$) and consecutive patients in acute geriatric wards ($n = 230$) in two city hospitals in Helsinki, Finland. All residents in nursing homes and all available patients in acute geriatric wards during the study period (1999–2000) were screened and assessed for dementia, delirium and various neuropsychiatric and behavioural symptoms. The only exclusion criteria were age under 70 years and a state of coma (not responding to touch/pain). The study, approved by local ethics committees [21], originally aimed to explore the diagnostic criteria and symptoms of delirium.

In this report, we have included only those patients with dementia ($n = 255$). Three geriatricians (JVL, KHP, TES) reached consensus on the global judgement of the dementia diagnoses (definite or highly probable) of patients in nursing homes ($n = 160$) and in acute geriatric wards ($n = 95$).

2.2. Methods

The consensus diagnoses were based on prior diagnoses of dementia and their adequacy, findings of the brain CT/MRI scans, EEG, previous MMSEs [26], interviews with caregivers and nurses about patient's previous cognitive performance and physical functioning, and the Clinical Dementia Rating scale (CDR) [27]. All of this information, along with the DSM-IV-based criteria of dementia supported the diagnoses of dementia [16]. The diagnoses of delirium were based on the fully operationalized criteria of the DSM-IV [16,21].

The nurses most familiar with each patient interviewed the nursing home patients. One of the two experienced geriatricians (JVL, KHP) used a structured questionnaire to thoroughly interview consecutive patients in geriatric wards. The two geriatricians (JVL, KHP) together used blinded testing to confirm the validity and reliability of the questionnaire [28,29] and also interviewed nurses and patients' caregivers about the patients' earlier cognition, as well as behavioural and neuropsychiatric symptoms. We recorded each patient's symptoms over a two-week period, and obtained important information on these symptoms from cognitive performance and medical records.

We used operationalized yes/no questions to assess delusions, as well as visual and auditory hallucinations. Delusions were assessed with two questions: "Does the patient experience delusions (e.g. misconceptions about reality)?" (yes/no) and "Does the patient think paranoid thoughts (e.g. about something evil happening to her/him or the threat of being robbed)? (yes/no). We combined the yes responses to these questions and considered those who responded yes to either question to have delusions. We enquired about visual hallucinations with "Does the patient see something (objects, people or animals) that do not exist?" (yes/no) and about auditory hallucinations with "Does the patient hear speaking or other sounds (excluding tinnitus) that do not exist?" (yes/no). Misidentifications were assessed with two questions: "Does the patient recognise objects incorrectly?" (yes/no) and "Does the patient experience delusional misinterpretations (e.g. believes that the nurse is his spouse)?" (yes/no). We combined the yes responses to these questions that were considered those combined and those who responded yes to either questions to have misidentifications. We then divided the participants into three groups: those with delirium (Group 1), those with psychotic symptoms but no delirium (Group 2), and those with neither psychotic symptoms nor delirium (Group 3).

The geriatricians (JVL, KHP) completed all questionnaires about the diagnoses and assessed comorbidity with the Charlson comorbidity index, a weighted index that takes into account the number and severity of patients' diagnoses [30]. We used the CDR class "Personal care" to assess dependence in activities of daily living (ADL), and considered a person dependent if the CDR class was 1 or higher (requiring at least prompting or assistance in dressing, hygiene, managing personal effects, or requiring help with personal care, often involving incontinence) [27].

Each patient or his/her closest proxy provided written informed consent. The study was approved by local ethics committee.

The participants' vital status and death dates were retrieved from the central registers for up to two years' follow-up.

2.3. Statistical analyses

We grouped the patients according to their status of delirium and psychotic symptom. Group 1 comprised those suffering from