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Observer-rated depression in long-term care: Frequency and risk factors

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ABSTRACT

The objectives of this study were: (1) to describe the prevalence and 6-month incidence of observer-rated depression in residents age 65 and over of long-term care (LTC) facilities; (2) to describe risk factors for depression, at baseline and over time. A multisite, prospective observational study was conducted in residents aged 65 and over of 7 LTC facilities. The Cornell Scale for Depression in Dementia (CSDD) was completed by nurses monthly for 6 months. We measured demographic, medical, and functional factors at baseline and monthly intervals, using data from research assessments, nurse interviews, and chart reviews.

274 residents were recruited and completed baseline depression assessments. The prevalence of depression (CSDD score of 6+) was 19.0%. The incidence of depression among those without prevalent depression was 73.3 per 100 person-years. A delirium diagnosis, pain, and diabetes were independently associated with prevalent depression. CSDD score at baseline and development of severe cognitive impairment at follow-up were independent risk factors for incident depression. A diagnosis of delirium and uncorrected visual impairment at follow-up occurred concurrently with incident depression. The results of this study have implications for the detection and prevention of depression in LTC. Delirium diagnosis, pain and diabetes at baseline were associated with prevalent depression; depression symptoms at baseline and development of severe cognitive impairment at follow-up were risk factors for incident depression.

1. Introduction

Depression is an important problem in long-term care (LTC); up to half of LTC residents have been reported to have clinically significant depression (Jongenelis et al., 2004; Seitz, Purandare, & Conn, 2010; Snowdon & Fleming, 2008; Teresi, Abrams, Holmes, Ramirez, & Eimicke, 2001; van Asch et al., 2013). The frequency of incident depression in LTC settings has been estimated between 6.0 and 21.6% per year (Boorsma et al., 2012; Hoover et al., 2010; Payne et al., 2002; Smalbrugge et al., 2006). Few studies have investigated the risk factors for depression in LTC; most of those have reported on patient characteristics associated with prevalent depression (Jones, Marcantonio, & Rabinowitz, 2003; Jongenelis et al., 2004; Kaup et al., 2007). Risk factors for incident depression are those factors that predict the future development of depression using prospective study designs, and include: dementia diagnosis and younger age (Boorsma et al., 2012; Hoover et al., 2010); less severe cognitive impairment, physical comorbidity, and hearing impairment (Boorsma et al., 2012); depressive symptoms at baseline, pain, and antidepressants (Hoover et al., 2010); and change in the level of functional impairment (Parmelee, Katz, & Lawton, 1992). These studies have used different measures of depression, including observer-rated and self-reported measures.

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A disadvantage of self-reported measures is that they may not be valid among residents with severe cognitive impairment who comprise a significant proportion of LTC residents (McGivney, Mulvihill, & Taylor, 1994).

There has been limited prior research on the relationship between delirium and depression but this research suggests that delirium may increase the risk of subsequent depression in acute care settings (Davydow, 2009; Slor et al., 2013). There has been no prior research on delirium as a risk factor for depression in LTC.

In this study, we used an observer-rated measure, the Cornell Scale for Depression in Dementia (CSDD) (Alexopoulos, Abrams, Young, & Shamoian, 1988a,b), to investigate the frequency and risk factors for prevalent and incident depression over 6 months of follow-up in an older LTC population, including both baseline risk factors and changes over time in resident physical and cognitive function. More particularly, we investigated the relationships over time between potential risk factors (delirium, cognitive and functional impairment, pain, visual and hearing impairment, and new medical problems) and the development of incident depression. We explored the time sequence between these relationships, distinguishing between those in which the risk factor preceded the development of depression (a criterion for causality) and concurrent or cross-sectional relationships in which the direction of causality cannot be inferred.

2. Methods

This study was a secondary analysis of data from a 6-months prospective, observational, multi-site study whose original objectives were to investigate the occurrence of and risk factors for delirium (McCusker et al., 2011). The methods of recruitment and follow-up of the study sample have been described previously (McCusker et al., 2011). We recruited both newly admitted and longer term residents consecutively from lists of residents aged 65 or over, admitted for LTC, with stratification by Mini-Mental State Exam (MMSE) into sub-groups with and without severe cognitive impairment (defined as an MMSE score of less than 10) (Folstein, Folstein, & McHugh, 1975). Competence to consent to the study was based on the clinical impression of the primary nurse. Competent residents were invited to participate in the study by a research assistant. Among incompetent residents, a letter describing the study was sent to the legal guardian if available, or (because many LTC residents are not legally declared incompetent) to the responsible family member. The legal guardian/family member informed the nurse if they were willing to meet the research assistant. The study protocol was approved by the research ethics boards of McGill University and those sites with a research ethics committee.

A trained research assistant (RA) conducted monthly resident assessments and primary nurse interviews for up to 6 months.

2.1. Nurse measures

The CSDD was administered in an interview with the primary nurse at baseline and each monthly follow-up. The CSDD is a 19-item clinician-administered scale developed specifically to measure depression symptoms in older adults with and without dementia and based, in large part, on reports of caretakers (Alexopoulos et al., 1988a,b). Each symptom is rated as absent (0), mild or intermittent (1), or severe (2), with a total score ranging from 0 to 38. The reference time frame is the previous week to the previous month, depending on the item. We used a cut-point of 6 or more to indicate clinically significant depressive symptoms (Korner et al., 2006).

The Barthel Index (BI) was also administered in the nurse interview at baseline and monthly (Mahoney & Barthel, 1965); the modified total weighted score (Shah, Vanclay, & Cooper, 1989) ranges from 0 (complete dependence) to 100 (complete independence). Scores were categorized as severe (0–19), moderate (20–59), and mild to no disability (60 and over). We also assessed two nurse characteristics that might affect the reporting of symptoms of depression: the level of training (RN or less) of the nurse and whether the nurse interviewed at each follow-up was the same as the nurse interviewed at baseline.

2.2. Research assistant measures

The RA completed several measures of mental status during the baseline resident assessment. The MMSE (Folstein et al., 1975; Tombaugh & McIntyre, 1992), validated for use in LTCFs (Kafonek et al., 1989), ranges from 0 to 30, a lower score indicating greater cognitive impairment. Level of cognitive impairment was categorized as: <10 (severe); 10–17 (moderate); 18–23 (mild); and minimal (24 or more). The Confusion Assessment Method (CAM) (Inouye et al., 1990) was completed by the RA at weekly assessments, based on standardized observations of the resident that included, at a minimum, administration of MMSE questions 1–5 (assessing orientation and memory) and review of the resident's chart for the previous week. We categorized delirium status at each assessment as: (1) probable delirium (either acute onset or fluctuation, inattention, and either disorganized thinking or altered consciousness); (2) core symptoms of delirium not meeting criteria for delirium (i.e., the presence of at least one of the following: inattention, fluctuation, disorganized thinking, altered level of consciousness); or (3) no core delirium symptoms. The RA assessed pain among residents able to respond using the Present Pain Intensity scale from the McGill Pain Questionnaire (Kaasalainen & Crook, 2003; Melzack, 1975). The RA observed at each assessment whether residents had visual or hearing impairment and, if so, whether the resident was wearing glasses or hearing aids, respectively.

2.3. Data from medical charts

At the end of follow-up, data on sociodemographic variables, medical problems, and medications were abstracted from resident charts, blind to the RA assessments. Sociodemographic measures included age, sex, and duration of residence (less than 1 year, 1 year or more). Medical problems were extracted from medical charts for the period between admission and baseline interview, and used to compute the Charlson Comorbidity Index (CCI) (Charlson, Pompei, Ales, & MacKenzie, 1987), validated for use in LTC (Bravo, Dubois, Hébert, De Wals, & Messier, 2002; Buntinx et al., 2002). The following specific medical problems were also coded from chart data: diagnoses of dementia, heart disease, hypertension, diabetes, and stroke (Bravo et al., 2002). Notations of depression were abstracted from the medical or nursing progress notes during the baseline and follow-up periods. During the follow-up period, new medical problems, hospitalization and emergency department visits were extracted. Antidepressant and analgesic medication prescriptions were extracted from daily medication charts at baseline and during follow-up.

2.4. Statistical methods

Prevalence of depression was estimated as the proportion of residents with depression at the initial (baseline) assessment. We used logistic regression (Hosmer & Lemeshow, 1989) to analyze the associations of the baseline variables with depression prevalence and incidence, respectively. For the prevalence of depression, we fitted univariate and multivariate logistic models with patient baseline variables as potential predictors; the