Brief Report

Symptom Burden Predicts Nursing Home Admissions Among Older Adults

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Abstract

Context. Symptom burden has been associated with functional decline in community-dwelling older adults and may be responsive to interventions. Known predictors of nursing home (NH) admission are often nonmodifiable.

Objectives. To determine if symptom burden independently predicted NH admission among community-dwelling older adults over an eight and a half-year follow-up period.

Methods. A random sample of community-dwelling Medicare beneficiaries in Alabama, stratified by race, gender, and rural/urban residence had baseline in-home assessments of sociodemographic measurements, Charlson comorbidity count, and symptoms. Symptom burden was derived from a count of 10 patient-reported symptoms. Nursing home admissions were determined from telephone interviews conducted every six months over the eight and a half years of study. Cox proportional hazard modeling was used to examine the significance of symptom burden as a predictor for NH admission after adjusting for other variables.

Results. The mean ± SD age of the sample ($N = 999$) was 75.3 ± 6.7 years, and the sample was 51% rural, 50% African American, and 50% male. Thirty-eight percent ($n = 380$) had symptom burden scores ≥2. Seventy-five participants (7.5%) had confirmed dates for NH admission during the eight and a half years of follow-up. Using Cox proportional hazard modeling, symptom burden remained an independent predictor of time to NH placement (hazard ratio = 1.11; $P = 0.02$), even after adjustment for comorbidity count, race, sex, and age.

Conclusion. Symptom burden is an independent risk factor for NH admission. Aggressive management of symptoms in older adults may reduce or delay NH admission. J Pain Symptom Manage 2013;46:591−597.

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Key Words
Symptom burden, nursing home admission, risk factor

Introduction

A growing number of older adults are living with multiple chronic conditions. From 1998 to 2008, the proportion of older adults reporting one or more chronic diseases increased from 86.9% to 92.2%.[1] People with co-occurring diseases, also known as multimorbidity, often experience an array of symptoms that may go unrelieved. Symptoms are defined as the subjective evidence of disease or physical disturbance experienced by a patient.[2] Disease-specific symptom burden has been described as the sum of the severity and impact of symptoms reported by a significant proportion of patients with a given disease or treatment.[3] Symptom burden has been studied in cancer populations and other chronically ill populations defined by specific diseases, such as AIDS and congestive heart failure;[4–6] however, there is minimal research examining the impact of symptom burden among community-dwelling older adults.

Previous studies of older adults with heart failure, chronic obstructive pulmonary disease, or cancer have shown the association between symptoms and poor health care outcomes, such as lower self-rated health, quality of life, and functional disability.[7] No studies to date have looked at the role of symptom burden in nursing home (NH) admission.

The commonly recognized risk factors for NH admission include advanced age, activities of daily living dependency, cognitive impairment, and prior NH residency.[8–11] In a 2009 meta-analysis, the strongest predictors of NH admission were the presence of three or more activities of daily living dependencies, cognitive impairment, and prior NH residency.[10] Most studies that evaluate risk factors do so to identify targets to reduce or delay NH admission. However, many of the previously identified risk factors for NH admission are not modifiable.[11] Symptom burden is potentially modifiable and could be a novel target for intervention, particularly to improve outcomes related to quality of life. Therefore, the objective of this study was to assess whether symptom burden independently predicted NH admission in community-dwelling older adults over an eight and a half-year period of follow-up.

Methods

Setting and Participants

The University of Alabama at Birmingham (UAB) Study of Aging was designed to understand participant-specific factors predisposing older adults to mobility decline and racial differences in mobility changes associated with aging. The UAB Study of Aging is a prospective, observational study of 1000 participants recruited from community-dwelling Medicare beneficiaries aged 65 years or older, living in central Alabama. The sample was stratified by race, sex, and county, with recruitment set to achieve a balanced sample in terms of race, sex, and rural/urban residence.[12] Counties were classified as urban or rural based on the population at the time of baseline interviews.[13] After obtaining informed consent, trained interviewers conducted baseline in-home interviews between November 1999 and February 2001. Telephone follow-up interviews to assess NH admission and vital status were conducted at six-month intervals. During the follow-up interviews, information related to the outcome was provided by proxy response if the participant was unable to speak with the interviewer or was unavailable. Potential participants for the present study included all participants in the UAB Study of Aging who completed the baseline assessment and at least one follow-up interview during the eight and a half years of study. The UAB Institutional Review Board approved the study protocol.

Study Variables

NH Admissions. Data from the telephone follow-up interviews that were completed every six months for up to eight and a half years of follow-up were used for this analysis. NH admission was defined by the confirmed admission date of an NH admission during the follow-up period of study. During each follow-up telephone interview, participants or a contact