

Featured Articles

Differences in rate of functional decline across three dementia types

Dawn P. Gill^{a,b,c,*}, Rebecca A. Hubbard^{d,e}, Thomas D. Koepsell^{b,c,f}, Michael J. Borrie^{a,g},
Robert J. Petrella^{a,h}, David S. Knopmanⁱ, Walter A. Kukull^{b,c}

^a*Aging, Rehabilitation & Geriatric Care Research Centre, Lawson Health Research Institute, London, Ontario, Canada*

^b*National Alzheimer's Coordinating Center, University of Washington, Seattle, WA, USA*

^c*Department of Epidemiology, University of Washington, Seattle, WA, USA*

^d*Group Health Research Institute, Seattle, WA, USA*

^e*Department of Biostatistics, University of Washington, Seattle, WA, USA*

^f*Department of Health Services, University of Washington, Seattle, WA, USA*

^g*Division of Geriatric Medicine, Western University, London, Ontario, Canada*

^h*Departments of Family Medicine, Cardiology, and Kinesiology, Western University, London, Ontario, Canada*

ⁱ*Department of Neurology, Mayo Clinic, Rochester, MN, USA*

Abstract

Background: The purpose of this study was to estimate differences in rates of functional decline in Alzheimer's disease (AD), dementia with Lewy bodies (DLB), and vascular dementia (VaD) and whether differences vary by age or sex.

Methods: Data came from 32 U.S. Alzheimer's Disease Centers. The cohort of participants ($n = 5848$) were ≥ 60 years of age and had clinical dementia with a primary etiologic diagnosis of probable AD, DLB, or probable VaD; a Clinical Dementia Rating-Sum of Boxes score < 16 ; and a duration of symptoms ≤ 10 years. Dementia diagnoses were assigned using standard criteria. Annual mean rate of change of the Functional Activities Questionnaire (FAQ) score was modeled using multiple linear regression with generalized estimating equations adjusted for demographics, comorbidities, years since onset, and cognitive status (mean follow-up = 2.0 years).

Results: FAQ declined more slowly over time in those with VaD compared with AD (difference in mean annual rate of change: -0.91 ; 95% confidence interval [CI]: $-1.68, -0.14$). VaD participants also declined at a slower rate than DLB participants, but this difference was not statistically significant (-0.61 ; 95% CI: $-1.45, 0.24$). There was no significant difference between DLB and AD. Within each group, rate of decline was more rapid for the youngest participants.

Conclusions: In this sample, findings suggested that VaD patients declined in their functional abilities at a slower rate compared with AD patients and that there were no significant differences in rate of functional decline between patients with DLB compared with those with either AD or VaD. These results may provide guidance to clinicians about average expected rates of functional decline in three common dementia types.

© 2013 The Alzheimer's Association. All rights reserved.

Keywords:

Alzheimer's disease; Dementia with Lewy bodies; Vascular dementia; Disease progression; Instrumental activities of daily living; Functional decline

1. Introduction

Progression of impaired functioning can lead to decreased quality of life for patients with dementia and

increased burden on families, caregivers, and the health-care system [1–3]. Patterns of impairment in instrumental activities of daily living (IADLs) may vary across types of dementia. Although vascular dementia (VaD) and dementia with Lewy bodies (DLB) are among the most common forms of dementia in older adults [4,5], after Alzheimer's disease (AD), little research has examined functional decline in these dementia types and whether differences exist among them.

The authors have no conflicts of interest to report.

*Corresponding author. Tel.: 519-685-4292 Ext. 42629; Fax: 519-685-4071.

E-mail address: Dawn.Gill@sjhc.london.on.ca

Of existing studies, low power or methodological limitations, such as cross-sectional designs or adjustment for intermediate variables specific to a particular diagnosis, may have contributed to conflicting conclusions [6–10]. In addition, no published studies have examined whether any differences in the rate of functional decline among dementia types may vary by either age or sex, despite evidence suggesting that these may be important factors to examine [11–14]. Additional research in large, well-characterized populations with longitudinal follow-up is needed to better understand functional decline trajectories in these common dementia types.

This study had three aims: 1) to estimate the rate of functional decline in persons with AD, DLB, and VaD; 2) to determine the extent to which the rate of functional decline differs among these dementia types; and 3) to evaluate whether any differences in the rate of functional decline among these dementia types vary by age or sex. The goal of this research was to provide anticipatory guidance to families, caregivers, and health-care providers, which may be useful in the planning of care strategies.

2. Methods

2.1. Setting

We used data from the National Alzheimer's Coordinating Center (NACC) Uniform Data Set (UDS), submitted by 32 Alzheimer's Disease Centers (ADCs) located across the United States. The UDS began in September 2005 and represents a clinical case series of well-characterized patients assembled at the individual ADCs [15,16]. Under UDS protocol, after an initial visit, patients are to be re-evaluated annually. At each visit, data were collected using standard forms. The Institutional Review Board at the University of Washington approved this study. Informed consent was obtained from all participants and informants at the individual ADCs. Data obtained from NACC were de-identified.

2.2. Study participants

We studied all participants as of June 1, 2011 who had clinical dementia and a primary etiologic diagnosis of probable AD, DLB, or probable VaD at any UDS visit. The first visit at which a participant was given a qualifying diagnosis was defined as the index visit. Visits before the index visit were excluded. We further restricted our sample to those who were ≥ 60 years of age at the index visit. Next, we restricted the sample to those that had a Clinical Dementia Rating-Sum of Boxes (CDR-SB) score < 16 to exclude participants with severe dementia at the initial visit [17]. Lastly, we restricted the sample to those whose clinician-determined age of onset of cognitive decline was known to be ≤ 10 years before the index visit and who had a Functional Activities Questionnaire (FAQ) completed for at least one visit (i.e., at least half of the individual items on the FAQ had to be completed without a not-applicable response).

Participants made between one and six visits, depending on date of enrollment and retention.

2.3. Data

Participants were evaluated using a standard protocol [16]. The outcome measure was the total score on the FAQ at each visit. The FAQ was designed for assessment of functional status in studies of dementia and has been established as reliable and valid [18,19]. It is administered to an informant by a trained health professional and consists of 10 items that measure the patient's ability to perform IADLs in the past 4 weeks (i.e., pay bills/balance checkbook, assemble tax records/business affairs, shop independently, take part in games/hobbies, perform basic kitchen tasks, prepare a balanced meal, comprehend current events, pay attention to/understand a TV program or reading material, remember important things such as appointments, travel out of the neighborhood). Each item is rated on a four-point scale (0 = normal; 1 = has difficulty, but does by self; 2 = requires assistance; 3 = dependent). A total score is calculated by summing the items (range 0–30), in which higher scores indicate greater impairment [19].

Training and written guidelines that accompany UDS forms promote uniform assignment of clinical etiologic diagnoses of dementia across ADCs. Published diagnostic criteria were adopted as part of the UDS, including the National Institute of Neurological and Communicative Disorders and Stroke (NINCDS)-Alzheimer's Disease and Related Disorders Association (ADRDA) criteria for the diagnosis of probable AD [20], criteria set forth in the third report of the DLB consortium for the diagnosis of DLB [21], and the National Institute of Neurological Disorders and Stroke (NINDS)-Association Internationale pour la Recherche et l'Enseignement en Neurosciences (AIREN) criteria for the diagnosis of probable VaD [22]. To decrease the likelihood of exposure misclassification, we excluded participants with a primary diagnosis of possible AD and possible VaD from the AD and VaD groups, respectively. In the current version of the UDS, a diagnosis of DLB refers to either possible or probable DLB. Following UDS protocol, only one condition (i.e., probable AD, DLB, or probable VaD) can be marked as primary. Although groups were formed on the basis of the primary clinical diagnosis, participants may have had other etiologic dementia diagnoses that were believed to be contributing to cognitive impairment. Depending on the ADC, clinical etiologic dementia diagnoses are assigned by either a single clinician or through a consensus process after the visit.

We considered age, sex, race, marital status, years of education, years since symptoms began, comorbidities, and degree of cognitive impairment as potential confounders using values from the index visit. We applied a tailored version of the Charlson approach [23] in deriving a weighted comorbidity index on the basis of health conditions measured in the UDS (cardiac arrest, congestive heart

Download English Version:

<https://daneshyari.com/en/article/5623037>

Download Persian Version:

<https://daneshyari.com/article/5623037>

[Daneshyari.com](https://daneshyari.com)