CLINIC VISITS AND PRESCRIBING PATTERNS AMONG VETERANS AFFAIRS MARYLAND HEALTH CARE SYSTEM DEMENTIA PATIENTS

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Abstract: Objective: Our objective was to determine how patient demographics and outpatient referrals to specialized dementia (DEM) or mental health (MH) clinics influence receipt of anti-dementia (AD), antidepressant (ADEP), antipsychotic (APSY) and sedative-hypnotic (SEDH) medications among veterans with dementia. Design: Retrospective, cross-sectional observational study. Setting: Veterans Affairs Maryland Health Care System (VAMHCS). Participants: Veterans aged ≥ 60 years with Alzheimer’s or related dementia diagnosis after 1999 with minimum of one-year follow-up or death were included. Measurements: Retrospective analysis of VAMHCS electronic medical records were used to determine predictors of AD, ADEP, APSY, and SEDH prescribing using logistic regression models that examined visits to DEM or MH clinics, patient age, follow-up time, race/ethnicity and marital status. Results: Among 1209 veterans with average follow-up of 3.2 (SD 1.9) years, 36% percent had MH visits, 38% had DEM visits and 19% visited both clinics. DEM visits were associated with AD and ADEP but not APSY medication receipt (OR(AD:DEM) = 1.47, 95% CI = (1.052, 2.051); OR(ADEP:DEM) = 1.66, 95% CI = (1.193, 2.302); OR(APSY:DEM) = 1.35, 95% CI = (0.941, 1.929)). MH visit was associated with ADEP and APSY medication receipt (OR(AD:MH) = 1.16, 95% CI = (0.821, 1.631); OR(ADEP:MH) = 2.83, 95% CI = (2.005, 4.005); OR (APSY:MH) = 4.41, 95% CI = (3.109, 6.255)). Conclusion: In the VAMHCS dementia population, visits to DEM or MH specialty clinics increase the odds of receiving AD, ADEP, and APSY medications.

Key words: Alzheimer’s disease, dementia, Veterans Affairs Health Care System, Electronic Medical Record.

Introduction

Background/Rationale

Alzheimer’s disease and related dementias (ADRD) are neurodegenerative diseases that predominantly affect older adults and are increasingly disabling with disease progression and ultimately fatal (1-5). With the aging of the US population, the number of patients affected by ADRD is growing, with 2007 Alzheimer’s Disease estimates of five million people (6, 7). Moreover, the overall prevalence in adults over the age of 65 years is estimated at 5.7% and increases sharply with age (7). ADRD may also disproportionately impact veterans. Resource utilization, including hospitalizations and acute care (8), and costs of care for patients with Alzheimer’s disease are higher than in similar patients without Alzheimer’s disease (6, 9, 10). Disease progression affects both cognitive and psychosocial behaviors. For cognitive symptoms patients typically receive prescriptions for acetylcholinesterase inhibitors (i.e. tacrine, donepezil, rivastigmine, galantamine) and/or an N-methyl-D-aspartate receptor antagonist (memantine), which aim to slow cognitive decline and may prolong time to major changes in functional endpoints (11-15). Behavioral management often requires additional pharmaceuticals and is often a precipitant to nursing home admissions. Depending on the target symptoms such as psychosis, apathy, and sleep disturbances, various psychopharmacological medications may be utilized (14, 16, 17).

Adequate cognitive and behavioral symptomatic treatment is important because delaying further cognitive decline and changes in functional endpoints can allow patients to function more normally for a longer period of time (1, 2, 4, 11, 12, 14). Pharmacotherapy often is underutilized because symptoms can go unrecognized or be misdiagnosed (18-22). We hypothesized that symptoms would be better recognized and treated pharmacologically in subspecialty clinics compared to general medical clinics. To begin to test this hypothesis, we performed an observational study of prescribing practices in a patient population where access to care and costs should play little role in pharmacotherapy, namely patients receiving medical care from the Veterans Affairs Maryland Health Care System (VAMHCS). In particular, we tested the hypothesis that ADRD patients seen in dementia or mental health clinics would be prescribed more medications aimed at cognitive or behavioral symptoms than ADRD patients not seen in these specialty clinics. The VAMHCS care setting provides an environment in which to explore questions in this area because of the data capture within VA institutions and the lifetime membership of their patient population. Specifically, patient information is captured in the VAMHCS electronic medical record (EMR) system and includes both visit and prescription records. Cost is not a barrier to accessing medications in VAHCS systems once eligibility is established. Given this, it would be useful to explore the relationship between types of outpatient clinic visits and prescribing patterns for psychopharmacological and neurological medications.
OBJECTIVES

Our objectives were to: (1) describe patient demographic factors, location of care and key psychopharmacological and neurological medication prescribing patterns in VAMHCS ADRD patients; and (2) determine the associations among these factors. ADRD patients often require anti-dementia medications for cognitive symptoms, and antidepressants/antipsychotics for behavioral symptoms (1, 2, 4, 11). We aimed to identify patient demographic factors and institutional characteristics within the VAMHCS that are associated with the likelihood of receiving these medications. Specifically, we analyzed whether patient demographics or outpatient referrals to specialized dementia or mental health clinics influence the likelihood of receiving anti-dementia (acetylcholinesterase inhibitors/N-methyl-D-aspartate receptor antagonist), antidepressant, antipsychotics or sedative-hypnotic medications in VAMHCS dementia patients.

METHODS

Study Design and Setting

This is a retrospective analysis of electronic medical records (EMRs) of veterans with ADRD. Identification of ADRD was based on encounters with International Classification of Diseases, 9th Revision, Clinical Modification (ICD-9-CM) codes indicative of ADRD or outpatient prescriptions for acetylcholinesterase inhibitors or an N-methyl-D-aspartate receptor antagonist. The study period was from January 1, 2000 through June 30, 2007. Data review, collection and use were conducted in accordance with procedures approved by Institutional Review Boards (IRB) of the University of Maryland, Baltimore and the Veterans Affairs Maryland Health Care System (VAMHCS).

Participants

VAMHCS patients initially were identified for potential eligibility using encounters with primary or secondary ICD-9-CM codes from the “Alzheimer’s Disease and Related Disorders or Senile Dementia” ICD-9-CM code set from the CMS Chronic Condition Data Warehouse (CCW) (23) as well as outpatient prescription fills for either acetylcholinesterase inhibitors (donepezil, rivastigmine, galantamine, or tacrine) or an N-methyl-D-aspartate receptor antagonist (memantine) during the study period. The ICD-9-CM codes for inclusion were 331.0, 331.1, 331.11, 331.19, 331.2, 290, 290.1, 290.11, 290.12, 290.13, 290.2, 290.21, 290.3, 290.4, 290.41, 290.42, 290.43, 294.1, 294.10, 294.11, 294.12, 294.13, 294.19, 797. ICD-9-CM codes for Lewy body dementia (331.82), drug (292.82) and alcohol (291.2) persistent dementias, cerebral degeneration (331.7), amnestic disorder (294) and other mental disorders (294.8) due to conditions classified elsewhere were excluded.

A patient’s index date was defined as the date of the first encounter or visit between January 1, 2000 and June 30, 2007 with a primary ICD-9-CM code of Alzheimer’s or a related dementia or the first outpatient prescription ordered for an acetylcholinesterase inhibitor or N-methyl-D-aspartate receptor antagonist and documented in the VAMHCS EMR, as detailed above. Patient records were examined to identify VA encounters or outpatient prescriptions related to dementia occurring prior to the index date as defined above. Based on pre-period information, we excluded patients from the sample who had been diagnosed with or who were receiving treatment for dementia prior to the study period.

Patients are usually diagnosed and staged with respect to disease severity according to the National Institute of Neurological and Communicative Disorders and Stroke / Alzheimer’s Disease and Related Disorders Association (NINCDS-ADRDA) or Diagnostic and Statistical Manual of Mental Disorders (DSM-III-R) criteria for Dementia of Alzheimer Type (DAT) (24, 25). Based on a preliminary, manual review of EMRs of potential ADRD patients identified by the presence of the CCW ICD-9-CM dementia code set or an outpatient prescription order for acetylcholinesterase inhibitors or an N-methyl-D-aspartate receptor antagonist and using the above diagnostic criteria, we found that patients with greater than one encounter with a dementia related ICD-9-CM code strictly fit the case definition the majority of the time, while patients with only one ICD-9-CM diagnosis code or just an anti-dementia medication did not strictly fit the case definition. Difficulty differentiating true positives from false positives for dementia based on ICD-9-CM diagnosis codes has been previously documented (26-28).

INCLUSION AND EXCLUSION CRITERIA

Our focus was on Alzheimer’s disease and related dementias (ADRD) associated with aging and older adults and we excluded those patients who potentially had early onset Alzheimer’s disease (5, 29-31). Consequently, VAMHCS patients 60 years of age or older at their index date with: (1) index dates after 1999 and a minimum of one year follow-up or death within a year of index date; and (2) greater than one ICD-9-CM coded encounter relating to ADRD were included in our sample. VAMHCS patients who were in a nursing home at their index date were excluded.

VARIABLES AND DATA SOURCES

Data extraction: All of the data elements required to find and characterize the study population were transferred from the Veterans Integrated Service Technology Architecture (VistA) hierarchical database to a Structured Query Language (SQL) relational database using the Mumps Data Extractor software (Strategic Reporting Systems Inc., Peabody, MA). Subsequent data transformation sequences and database queries were implemented using SQL Server 2000 (Microsoft Corp., Redmond, WA).

VAMHCS EMR data, specifically patient demographic information, outpatient prescriptions and patient encounters, were incorporated into a patient-level cross-sectional data analytic file. Patient demographic variables included patient sex, race/ethnicity, age, marital status and follow-up time. Patient age at index date was calculated from the date of birth.