Agitation in Dementia is Associated with Worse Caregiver Health

The Cache County Dementia Progression Study

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Abstract

Background Providing care to persons with dementia has been associated with increased stress, burden and depression. In a population-based sample of dementia caregiver and care-recipient dyads, we examined the association between severity of dementia symptoms and caregiver health over time.

Methods Three hundred-six persons with dementia (71% Alzheimer's type, 56% female) and their caregivers were visited semiannually for a maximum of 9.5 years. Severity of cognitive, functional and neuropsychiatric symptoms (NPS) was assessed using the Mini-Mental State Exam, Clinical Dementia Rating, and 12-domain Neuropsychiatric Inventory (NPI), respectively. NPS subtype was examined by NPS cluster scores: affective, psychotic, agitation/aggression and apathy. Caregiver health was measured by number of non-psychotropic medications and number of health conditions.

Results At baseline, mean (SD) number of caregiver medications and health conditions were 2.5 (2.4) and 1.6 (1.4), respectively. In multivariable linear mixed effects models controlling for patient and caregiver age and other factors, number of caregiver medications increased over time (β=.19, se=.04), whereas number of health conditions remained relatively stable. Agitation was associated with a higher number of health conditions (β=.03, se=.01) and medications (β=.08, se=.03). in the caregiver, although overtime, higher agitation scores were associated with decreasing number of caregiver medications (β=-.03, se=.01). Cognitive or functional impairment in the person with dementia was not associated with caregiver health outcomes.

Conclusions Agitation in persons with dementia is associated with worse health outcomes among their caregivers. Treatment strategies for this behavior are needed to benefit both care-recipients and their caregivers.

Introduction

- Caregivers rate NPS as being more stressful than level of cognitive and functional abilities; agitation is one of the most common and most distressing NPS[1,2,3].
- Caregiver burden negatively affects the caregiver's health, leading to increased psychiatric distress and diagnosable disorders[1,4].
- Agitation and aggression are significantly associated with caregiver burden, depressive symptoms, and poorer sleep quality[5,6].
- The purpose of this study was to evaluate how NPS affects caregiver's health.

Methods

Participants & Procedures

- Persons enrolled in the Dementia Progression Study[7] (DPS) were initially diagnosed with dementia from The Cache County Study on Memory and Aging[8].
- DPS is a longitudinal, population-based study of the course of dementia, examining factors that affect outcomes in both dementia caregivers and care-recipients[7].
- Participants and their caregivers were visited semi-annually. Participants completed a battery of neuropsychological tests. Caregivers completed an interview about the participants health, medications, functional and neuropsychiatric symptoms and questions about their own health, medications, well-being, and social support.

Measures

Care-recipient Cognitive, Functional, Neuropsychiatric Symptoms

- Mini Mental State Exam[9] (MMSE): 30 point cognitive test used as an estimate of cognitive impairment.
- Clinical Dementia Rating-Sum of Boxes[10] (CDR-sb): rating used to estimate functional status and severity of dementia symptoms (range = 0 – 30).
- General Medical Health Rating[11] (GMHR): 4 level rating of excellent, good, fair, or poor of overall heath status.
- Neuropsychiatric Inventory[12] (NPI): 12 domain rating of NPS (hallucinations, delusions, agitation/aggression, irritability, depression, anxiety, euphoria, disinhibition, aberrant motor behavior, apathy, sleep, and appetite)
  - Cluster scores of affective (depression, anxiety irritability), psychotic (hallucinations, delusions), agitation/aggression, and apathy.

Caregiver Health

- Caregiver health was measured by number of non-psychotropic medications and number of health conditions.

Statistical Modeling

- Multivariable linear mixed effects models were used to examine trajectories of number of caregiver health conditions and number of caregiver non-psychotropic medications.
- Primary predictors were: NPS total score, NPS cluster scores, MMSE, and CDR-sb.
- Covariates tested: dementia duration, age of dementia onset, co-residency, caregiver age, caregiver education, dementia type.

Results

Medical Conditions

- Medical conditions slightly increased over time, but overall remained relatively stable.
- Care recipient Agitation/Aggression significantly predicted number of caregiver medical conditions (p=.051) when controlling for the onset age, co-residency, caregiver age, caregiver education.
- Care recipient Agitation/Aggression was associated with a higher number of caregiver health conditions (β=.03, se=.01).
- Neither care recipient CDR-sb nor MMSE predicted caregiver medical conditions.

Medications

- Number of caregiver medications increased over time (β=.19, se=.04).
- Care recipient Agitation/Aggression significantly predicted number of caregiver medications (p=.009; β=.08, se=.03), and rate of change in number of caregiver medications over time (β=-.03, se=.01). Notably, higher agitation score was associated with *decreasing number* of caregiver medications.
- Model covariates included: dementia duration at baseline, time, onset age, caregiver age, and GMHR.
- Neither care recipient MMSE nor CDR-sb predicted number of caregiver medications.

Table 1. Sample Demographic Statistics

Parameter	Value
Care Recipient	
Female Gender (N, %)	172 (56.2%)
Education (M, SD)	13.4 (3.0)
Age of Dementia onset (M, SD)	82.5 (6.0)
Dementia Type (N, %) AD Other	 216 (70.6%) 90 (29.4%)
Dementia Duration (M, SD)	3.6 (1.9)
Baseline Clinical Dementia Rating[1] (M, SD)	1.4 (0.7)
Baseline Mini-Mental State Exam (M, SD)	20.0 (7.1)
Baseline GMHR (N, %) Excellent Good Fair/Poor	 37 (12.1%) 204 (66.7%) 62 (20.3%)
Baseline NPI Total Score (M, SD)	11.9 (11.0)
Baseline NPI "Cluster" Scores (M, SD) Psychosis (max pts = 24) Affective (max pts = 36) Agitation/Aggr (max pts = 12) Apathy (max pts = 12)	 1.5 (3.1) 3.3 (4.1) 0.7 (1.7) 2.2 (3.3)
Caregiver	
Female Gender (N, %)	232 (75.8%)
Education (M, SD)	14.3 (2.4)
Baseline Age (M, SD)	67.5 (14.1)
Co-Reside (N, %)	152 (49.7%)
Medications (M, SD)	2.5 (2.4)
Health Conditions (M, SD)	1.6 (1.4)

Table 2. Results from Linear Mixed Models

Parameter	Estimate	Standard Error	Significance
Medical Conditions			
Intercept	3.89	1.13	0.001
NPI Agitation/Aggression Severity	0.03	0.01	0.051
Onset Age	-0.03	0.01	0.023
Time	0.03	0.02	0.193
Baseline Caregiver Age	0.01	0.01	0.026
Co-Reside	0.16	0.09	0.083
Caregiver Education	-0.07	0.03	0.018
Medications			
Intercept	1.76	2.04	0.389
NPI Agitation/Aggression Severity	0.08	0.03	0.009
Onset Age	-0.04	0.02	0.077
Time	0.19	0.04	0.000
Baseline Caregiver Age	0.06	0.01	0.000
Baseline Duration	-0.11	0.07	0.097
GMHR "Poor/Fair" Rating	0.40	0.17	0.019
GMHR "Good" Rating	0.20	0.14	0.168
Time*NPI Severity	-0.03	0.01	0.020

Supported by NIA grants R01AG21136 & R01AG11380

Figure 1. Co-Reside and Number of Caregiver Medical Conditions

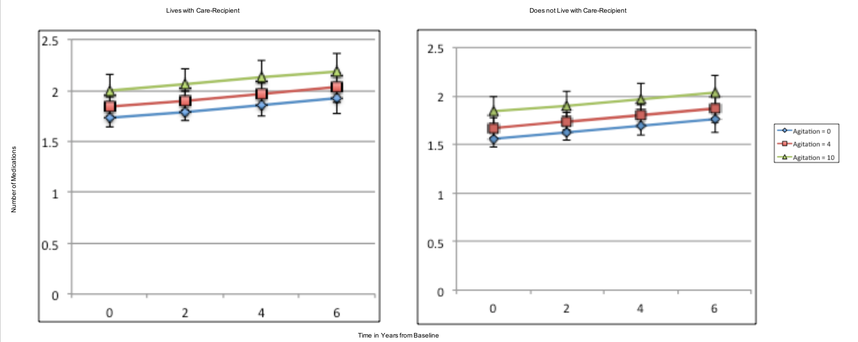
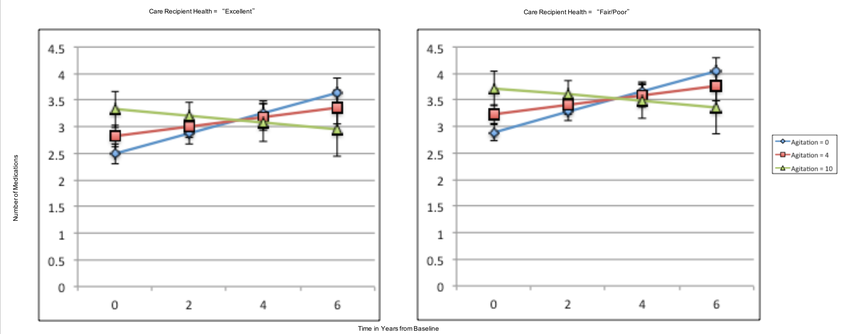


Figure 2. Care-Recipient Health and Number of Caregiver Medications



Conclusions

- Agitation in persons with dementia is associated with worse health outcomes among their caregivers.
- Treatment strategies for agitation and aggressive behaviors are needed to benefit both care-recipients and their caregivers.

Citations

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