Archives of Gerontology and Geriatrics xxx (2015) xxx–xxx

Contents lists available at ScienceDirect

Archives of Gerontology and Geriatrics

journal homepage: www.elsevier.com/locate/archger

Status of treatment for dementia patients who visited hospital as the first visit

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ARTICLE INFO

Article history:
Received 2 January 2013
Received in revised form 16 January 2015
Accepted 26 January 2015
Available online xxx

Keywords:
Dementia
Treatment
Drug

ABSTRACT

We are approaching a period of population ageing in which the number of dementia patients will increase rapidly and become a significant social problem. There are many study guides for treatment of dementia, but there are limited numbers of studies and limited amounts of data available for evaluating the treatment used on dementia patients as related to their hospital for the first time. A study was performed using information gathered from 50 domestic hospitals to ensure that the treatment status data was representative of the actual field of clinical dementia. We observed retrospectively the medical records of 4282 patients who visited the hospital and were finally judged to have dementia from January, 2009 to December, 2010. Among the types of dementia, Alzheimer's disease (AD) had the greatest occurrence at 66.57%, with vascular dementia (VD) at 17.63%, AD with CVD at 10.18%, and Parkinson related dementia at 4.25%. The drug primarily used for initial therapy is the same drug primarily used for patients who have undergone long term dementia treatment, namely donepezil (75.22%). Among all 4282 patients, there was addition or transition of drugs used for 389 of the patients. Ineffectiveness of the initial drug treatment was the reason for the addition of drugs or transition to other drugs in almost all cases. In this study, the clinical characteristics observed for dementia treatment is compared as drugs changing, which will be helpful in the preparation of a treatment guide for dementia in the future.

1. Introduction

Dementia is an acquired brain disease, and is accompanied by physical disabilities such as aphasia, apraxia, agnosia, executive function, as well as amnesia. It also reflects a status which is a significant obstacle for performing social functions, with impaired ability for working (American Psychiatry Association, 1994; Cummings, 2004; Canadian Study of Health and Aging Working Group, 1994).

According to a recent study, the prevalence of dementia currently estimated as 490,000 people in Korea will increase to 2130,000 people by the year 2050, so the increase in people with dementia will become a social issue as the population ages (Seoul National University Study Group, 2008). A standard guide that focuses on early diagnosis and treatment of dementia is needed in order to minimize the economic and social load due to dementia, actually there are many announced guides on clinical care for dementia in U.S., Europe, and Canada (The British Psychological Society and Gaskell, 2007; Waldemar et al., 2007; Scottish Intercollegiate Guideline Network, 2006). With this factors, in 2009, the clinical research center for senile dementia was designated to prepare a guide for clinical care of dementia that fits the actual circumstances of dementia in Korea by the Ministry of Health and Welfare (Clinical Research Center of Dementia of South Korea, 2009; Ku et al., 2011).

The choice of treatment for dementia should be evaluated comprehensively with consideration of factors such as individual characteristics, clinical condition, type of dementia, dementia severity, patient's tolerance for drugs, and convenience of the drugs for patient use. For clinical mitigation of symptoms related to dementia and for extension of progress, the most frequently used drugs for dementia are acetyl-cholinesterase inhibitors (AChE-I) such as donepezil, galantamine, and rivastigmine. Many studies dealing with AChE-I have shown that drug treatment should begin as soon as possible after patient diagnosis confirms dementia before the symptoms worsen, and that AChE-I is effective in improving cognitive function and abnormal behavior (Ku et al., 2011; Small, Erkinjuntti, Kurz, & Lilienfeld, 2003; Doody, Geldmacher, Gordon, Perdomo, & Pratt, 2001).

Guidelines for diagnosis, examination and drug treatment for dementia patients have been developed targeting doctors caring

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http://dx.doi.org/10.1016/j.archger.2015.01.018
0167-4943/

for dementia patients in the clinical field. However systematic studies of the current status of treatment for dementia as correlated with the evaluation of the patient made during the first visit to the hospital are very limited. For this reason, we have performed a retrospective study of clinical characteristics of patients who were diagnosed with dementia on their initial visit to the hospital, and collected information on the drugs prescribed on the initial visit. In this way we have tried to ensure the availability of data of treatment status for dementia in the clinical field, which can thus be used as basic data for scientific study of dementia.

2. Methods and materials

The study was performed in university hospitals, associated general hospitals, and geriatric hospitals where doctors specialize in dementia work. Referencing outpatients who visited clinics for dementia the first time between January 1, 2009 and December 31, 2010, a study was conducted with retrospective observation of written medical records until the date of Jun. 30, 2011. Information was used from patients whose records fit the selection criteria, with no limitation on the type of dementia.

We examined basic information about the dementia patients such as their age, whether or not they were illiterate, and the level of education for the patients that were not illiterate. We also examined whether or not dementia was initially diagnosed, the type of dementia, diagnosis month/year, dementia severity, the doctor's decision based on the clinical characteristics on the patient's first visit to the hospital, accompanying diseases, scores of diagnosis tools used on the patient's first visit and observation period such as MMSE (mini-mental state examination), CDR (clinical dementia rating), GDS (global deterioration scale). In addition, we examined whether or not there had been any addition, change, or interruption of the drugs prescribed, and the reasons for the change in drugs taken if one occurred.

Results were calculated as mean ± standard deviation. Statistical analyses were done using SPSS® Ver.11.5 for Windows. Results were considered to be statistically significant when $p < 0.05$.

3. Results

3.1. Demographical information and brief clinical status of patients

The demographical characteristics of the study patients is presented in Table 1. In this study, the average age of the patients was 74.97 ± 8.82 years, and the number of female patients (66.53%) was greater than the number of male patients (33.47%). The percentage of patients that were illiterate was 38.80%, and the average period of education was 6.96 ± 4.01 years.

On their first visit to the hospital, a brief evaluation of patients' status for treatment purposes was performed using the clinical scales of MMSE, CDR, CDR-SB (clinical dementia rating-sum of box), GDS, NPI (neuropsychiatric inventory), geriatric depression scale, and IADL (instrumental activity of daily living). The change of these scores between the initial availability test and the final availability test after 6 months are presented in Table 2. The changes in the average scores of MMSE, CDR, CDR-SB, GDS, geriatric depression scale, and IADL scores between the initial availability test and the final availability test are statistically significant. However, the NPI value is not statistically significant between the initial availability test and the final availability test ($p = 0.841$).

The change of these scores was separately calculated for patients taking different types of dementia drugs, and the results are presented in Table 3. Table 3 only contains the scores of patients who used only one kind of dementia drug without addition or transition to another drug. The change in average MMSE and CDR scores is statistically significant for treatment with donepezil, donepezil generic, galantamine, and memantine. Although treatment with rivastigmine gives a different result, the values are not significant ($p = 0.67$, $p = 0.46$, respectively). For

Table 1
Demographic characteristics of the subjects.

Characteristics	Number (%)
Age	
Mean ± SD (year)	74.97 ± 8.82
≥59	211 (4.92)
60–69	765 (17.85)
70–79	1985 (46.32)
80–89	1218 (28.42)
90≤	106 (2.47)
Gender	
Male	1433 (33.47)
Female	2849 (66.53)
Education years (mean ± SD)	6.96 ± 4.01
BMI (kg/m^2)	22.61 ± 3.19
Types of dementia	
Alzheimer's disease (AD)	2808 (65.57)
Vascular dementia	755 (17.63)
AD with cerebrovascular disease	436 (10.18)
Parkinson related dementia	182 (4.25)
Others	101 (2.36)
Severity by the K-MMSE	
Mild (20–26)	1681 (39.26)
Moderate (10–19)	1998 (46.66)
Severe (<10)	603 (14.08)
Accompanied diseases	
Hypertension	2017 (71.10)
Diabetes mellitus	765 (26.97)
Hyperlipidemia	405 (14.28)
Heart disease	264 (9.31)
Others	563 (19.84)

SD, standard deviation; BMI, body mass index; K-MMSE, Korean version of mini-mental status examination.

Table 2
The general cognitive profiles of dementia patients.

	Initial (mean ± SD)	Median (minimum–maximum)	Final (mean ± SD)	Median (minimum–maximum)	*P* value
K-MMSE	16.09 ± 5.60	16.0 (0.0–30.0)	15.45 ± 6.03	16.0 (0.0–30.0)	<0.001
CDR	1.43 ± 0.78	1.0 (0.5–5.0)	1.54 ± 0.83	1.0 (0.0–5.0)	<0.001
CDR-SB	5.37 ± 3.79	4.5 (0.5–24.0)	6.60 ± 4.57	5.0 (0.5–29.0)	<0.001
GDS	4.20 ± 1.03	4.0 (1.0–7.0)	4.40 ± 1.10	4.0 (1.0–7.0)	<0.001
NPI	12.76 ± 9.52	12.0 (0.0–49.0)	12.41 ± 10.36	9.0 (2.0–49.0)	0.841
Geriatric depression scale	14.42 ± 7.99	14.0 (1.0–30.0)	11.98 ± 8.45	12.0 (0.0–30.0)	<0.001
IADL	4.11 ± 5.92	1.5 (0.0–29.0)	4.77 ± 6.98	2.18 (0.0–32.0)	0.029

The statistical analysis was done by the Wilcoxon signed ranks test.
K-MMSE, Korean-version of mini-mental status examination; CDR, Clinical dementia rating; GDS, global deterioration scale.NPI, neuropsychiatric inventory; IADL, instrumental activity of daily living.

Please cite this article in press as: Chang, H., et al., Status of treatment for dementia patients who visited hospital as the first visit. Arch. Gerontol. Geriatr. (2015), http://dx.doi.org/10.1016/j.archger.2015.01.018