

interruption and symptom appearance suggests a caffeine-related disorder rather than another diagnosis, such as a brief psychotic disorder.

It is rare for schizophrenia-like symptoms to occur during caffeine withdrawal, and the exact mechanisms by which they do occur are unknown. Caffeine is a competitive antagonist of the adenosine receptor and is not directly involved in dopamine release in the nucleus accumbens, which plays a critical role in drug dependence; thus, symptoms of withdrawal from caffeine are generally considered mild and transient. However, results of a study in rats suggested that high doses (10 mg/kg) of caffeine may have the potential to activate the nucleus accumbens and prefrontal cortex⁴; therefore, psychiatric symptoms might occur when high caffeine intake is abruptly discontinued. If caffeine is a psychostimulant, psychotic symptoms may develop in the withdrawal phase because of a reverse tolerance phenomenon or flashback.⁵ In these cases, however, schizophrenia should also be considered part of the differential diagnosis.

Many young people stay up late to study or play video games and then become sleep deprived. To stay awake, they may form a habit of consuming large quantities of caffeinated drinks.⁶ According to the US Department of Health and Human Services, the number of emergency 911 calls related to energy drink overdose doubled between 2007 and 2011.⁷ Energy drinks are readily available and are used inappropriately as 'study drugs'; thus, dependency on caffeine is possible. Because of recent increases in the consumption of energy drinks, the inappropriate use of highly caffeinated beverages should be investigated closely.

Signed releases from the patient and legal guardian authorizing publication have been obtained.

Acknowledgments




The authors thank Enago (www.enago.jp) for the English-language review.

Disclosure statement

The authors declare no conflict of interest.

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Received 3 November 2020; revised 24 December 2020;

accepted 12 January 2021.

Current status of the certification of long-term care insurance among individuals with dementia in a Japanese community: The Hisayama Study

doi:10.1111/pcn.13204

It is important to understand the actual situation of subjects with dementia and their long-term care and activities of daily living in communities for considering appropriate local health policies. This study aimed to investigate the latest findings on the certification for long-term care insurance and the degree of independence in daily living among subjects with dementia in a Japanese community.

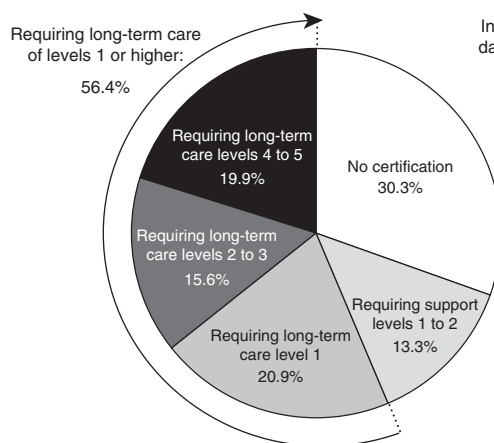
In the Hisayama Study, which is a population-based epidemiological study in Hisayama town, a full-community survey for dementia has been repeated every 5 or 7 years since 1985.^{1,2} Among 2,340 residents aged ≥65 years in this town, a total of 2,202 residents (1,270 women and 932 men) (participation rate: 94.1%) participated in a screening examination for cognitive impairment and health status in 2017–2018. Among them, 346 subjects (crude prevalence: 15.7%) who were diagnosed as having dementia were included in this study.

We collected information on the certification for long-term care insurance from the Division of Health and Welfare of Hisayama town with consent from each participant. We divided the subjects into five categories: no certification, requiring support levels 1 to 2, requiring long-term care level 1, requiring long-term care levels 2 to 3, and requiring long-term care levels 4 to 5.³ Regarding the degree of independence in daily living,³ there were no dementia subjects certified as M. The detailed definitions for each category are shown in Tables S1-1 and S1-2.^{3,4} Appendix S1 provides detailed information on the diagnosis of dementia, long-term care insurance, sociodemographic factors and health status, statistical analysis, and ethical statement.

Among the 346 subjects with dementia, 69.7% obtained a certification for long-term care insurance and 56.4% were certified as requiring long-term care of level 1 or higher (Fig. 1a). In addition, 51.5% of subjects were classified as having a degree of independence in daily living of IIa or more (Fig. 1b). Table S2 and S3 show the clinical characteristics of dementia subjects according to the categories of support or long-term care and the grades of independence in daily living, respectively. The frequencies of living at health care facilities and hospitalization increased with greater support required or long-term care levels (Fig. S1). Similar trends were observed for the grades of independence in daily living (Fig. S2). In the age- and sex-adjusted analyses, subjects with lower cognitive function, disability, history of stroke, no regular exercise, lower body mass index, or lower muscle mass and strength were significantly more likely to be certified as requiring long-term care of level 1 or higher and to have a degree of independence in daily living of IIa or more than those without any of these factors (Table S4 and S5).

This cross-sectional study in a general older Japanese population demonstrated that the crude prevalence of dementia in 2017–2018 was 15.7%, and 69.7% of dementia subjects obtained certification for long-term care insurance. The GERAS-J Study, a hospital-based prospective study in Japan, reported that 70.9% of participants with Alzheimer's disease obtained long-term care insurance,⁵ which is consistent with our findings. Notably, about one-third of dementia subjects were not certified for long-term care insurance in this study. Although these subjects tended to be younger and to have higher cognitive and physical function than the certified subjects (Table S2), our findings highlight the importance of

(a) Categories of support or long-term care requirements



(b) Grades of independence of daily living

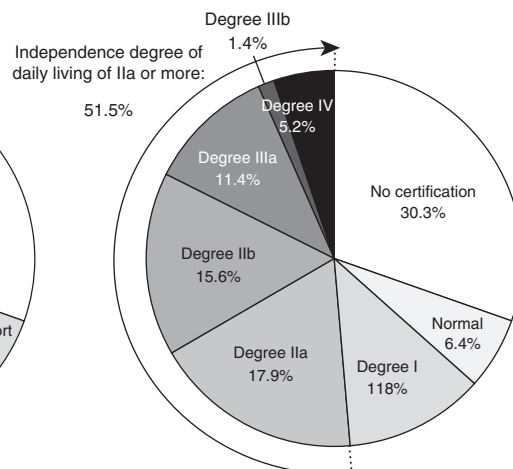


Fig. 1 Proportion of subjects certified to receive support or long-term care (a) and proportion of subjects in each category of independence in daily living (b) among subjects with dementia, 2017–2018. One participant without available data for the grade of independence in daily living was excluded from the analysis.

establishing a dementia-friendly community where dementia subjects are understood, respected, and supported so that even individuals without certification for long-term care insurance can remain healthy and active in their communities as long as possible.⁶ In addition, our results underscore the importance of conducting detailed surveys in each municipality to identify dementia subjects and to assess their care and support needs.⁷ Furthermore, 6.4% of dementia subjects with lower Barthel index⁸ scores (Table S3) were classified as having a normal grade of independence of daily living. We have no clear explanations for this gap, but this finding may suggest that there are some misclassifications in the evaluation of independence of daily living in this certification system.

Several limitations of this study should be addressed. First, the generalizability of our findings to other regions of Japan and other countries with different lifestyles and social systems is limited. Second, there might be a selection bias caused by the exclusion of residents who did not participate in the initial survey (5.9% of total population). Third, the certification in this town might have been somewhat facilitated by our sharing of the information of subjects without detectable dementia with the family physician and local government members. Further epidemiological surveys will be needed to verify the present findings.

Acknowledgments

The authors thank the older residents of the town of Hisayama for their participation in the present examination. We are also grateful to the staff members of the Division of Health and Welfare of Hisayama for their cooperation with the present work. We conducted statistical analyses using the computer resources provided under the category of General Projects by the Research Institute for Information Technology, Kyushu University.

Disclosure statement

This study was supported in part by a Health and Labour Sciences Research Grant of the Ministry of Health, Labour and Welfare of Japan (20FA1002); by Grants-in-Aid for Scientific Research (A) (JP16H02692), (B) (JP19H03863, JP18H02737, and JP17H04126), and (C) (JP20K10503, JP20K11020, JP19K07890, JP18K09412, and JP18K07565), a Grant-in-Aid for Early-Career Scientists (JP18K17925), and a Grant-in-Aid for Research Activity Start-up (JP19K23971) from the Ministry of Education, Culture, Sports, Science and Technology of Japan; and by grants from the Japan Agency for Medical Research and Development (JP20dk0207025, JP20km0405202, and JP20fk0108075). None of the study sponsors had any role in the study design, interpretation of the data, data collection, or drafting of the manuscript. The authors have no conflicts of interest to declare.

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Supporting information

Additional Supporting Information may be found in the online version of this article at the publisher’s web-site:

Figure S1. Proportion of the places of residence according to the categories of support or long-term care among subjects with dementia, 2017–2018.

Figure S2. Proportion of the places of residence according to the grades of independence in daily living among subjects with dementia, 2017–2018. One participant without available data for the grade of independence in daily living was excluded from the analysis.

Table S1-1. Definition of the certified classification of requiring support or long-term care in the long-term care insurance system of Japan.

Table S1-2. Definition of the certified classification of grades of independence of daily living for subjects with dementia in the long-term care insurance system of Japan.

Table S2. Characteristics of the subjects with dementia according to the categories of requiring support or long-term care level.

Table S3. Characteristics of the subjects with dementia according to the grades of independence in daily living.

Table S4. Age- and sex-adjusted odds ratios of each factor on the likelihood of being classified as requiring long-term care of level 1 or higher among subjects with dementia.

Table S5. Age- and sex-adjusted odds ratios of each factor on the likelihood of being classified into a grade of daily living of IIa or more among subjects with dementia.

Appendix S1. Supplemental methods.

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Received 20 November 2020; revised 5 January 2021; accepted 20 January 2021.

Prescription patterns in patients with schizophrenia who discontinued long-acting injectable antipsychotics: A chart-review

doi:10.1111/pcn.13211

Long-acting injectable (LAI) antipsychotics that provide reliable drug delivery to patients whose adherence to oral medication is suboptimal are considered to be a promising treatment option for patients with schizophrenia.¹ While LAI antipsychotics are reportedly superior to, or at least as effective as, oral counterparts in preventing relapse of schizophrenia,²⁻⁴ some patients may eventually need to discontinue LAI antipsychotics. Since these patients who fail to continue LAI antipsychotics represent a more difficult-to-treat population than those who successfully continue them, it is critically important to characterize their demographic and clinical characteristics in order to improve our understanding of the psychopharmacological management of this illness. To this end, we conducted a systematic chart review of patients with schizophrenia who started but later discontinued LAI antipsychotics during the course of treatment.

A systematic chart review was conducted for patients with schizophrenia, according to the 10th revision of the *International Statistical Classification of Diseases and Related Health Problems*, who commenced LAI antipsychotic treatment from January 2005 to December 2014 at Inokashira Hospital in Tokyo, Japan. This retrospective chart review study was approved by the Institutional Review Board of Inokashira Hospital and was exempt from informed consent because the study utilized de-identified data that had been acquired during routine clinical care. The information about this study was posted at the in-hospital bulletin board to provide the opportunity to opt out. Among these patients, those who discontinued LAI antipsychotics at least once during the study period were identified. The collected information included age, sex, duration of illness, duration of treatment, reasons for discontinuation of LAI antipsychotics, the details of prescriptions up until December 2016, and outcomes at the time of final follow-up. When two or more possible reasons were identified, the most relevant reason was chosen based on the descriptions of charts.

Ninety-nine patients were included in the present study (inpatients, $n = 89$ [89.9%]; mean \pm SD age, 47.5 ± 13.5 years; males, $n = 48$ [48.5%]; mean \pm SD duration of illness, 20.9 ± 12.7 years; mean \pm SD duration of treatment, 17.6 ± 13.1 years). Haloperidol decanoate, LAI risperidone, fluphenazine decanoate, paliperidone palmitate, and fluphenazine decanoate plus haloperidol decanoate were used as the first LAI antipsychotics in 37 (37.4%), 31 (31.3%), 29 (29.3%), 1 (1.0%), and 1 (1.0%) patients, respectively. The reasons for discontinuation were as follows: insufficient response ($n = 35$, 35.3%), side-effects ($n = 13$, 13.1%), patient's request ($n = 12$, 12.1%), unstable physical conditions ($n = 8$, 8.1%), loss to follow-up ($n = 6$, 6.1%), symptom improvement ($n = 4$, 4.0%), unknown reasons ($n = 10$, 10.1%), and others ($n = 10$, 10.1%) (Table 1). The most frequent treatment status at the final observation was inpatient treatment ($n = 38$, 38.4%), followed by outpatient treatment ($n = 28$, 28.3%), referral to other hospitals or clinics ($n = 22$, 22.2%), death ($n = 7$, 7.1%), and loss to follow-up ($n = 4$, 4.0%). Twenty-nine patients (29.3%) resumed LAI at least once later during the course of the treatment. At the time of final follow-up, 13 patients (13.1%) were using LAI antipsychotics (LAI risperidone, $n = 5$; paliperidone palmitate, $n = 5$; fluphenazine decanoate, $n = 2$; haloperidol decanoate, $n = 1$) and 51 patients (51.5%) were receiving antipsychotic polypharmacy (mean \pm SD number of antipsychotics, 1.7 ± 0.9). The most frequently used oral antipsychotic was olanzapine ($n = 36$, 36.4%), followed by risperidone ($n = 35$, 35.4%).

The present chart review of patients with schizophrenia who discontinued LAI antipsychotics showed that after discontinuation of their first LAI antipsychotic, approximately one-third of patients resumed LAI, and about half of them were receiving antipsychotic polypharmacy. These facts highlight the difficulties in treating treatment-refractory patients with schizophrenia without LAI antipsychotics even after discontinuation. The results showed that many of the patients were in middle age and had received treatment over a long period of time. As seen from the reasons for discontinuation of LAI antipsychotics, the patients comprised a relatively challenging group. The adherence of patients in such a challenging group tends to be particularly poor. If patients do not show a sufficient response to LAI antipsychotics, clozapine may be considered. In Japan, use of clozapine was not common at the time of this review because of strict rules in place regarding the use of clozapine.⁵ Thus, while only nine patients (4.5%) were able to continue the same LAI antipsychotics during the study period, many patients may have been resorted to reintroduction of LAI antipsychotics or antipsychotic polypharmacy.

Limitations of this study included a small sample size, lack of use of any rating scales, absence of the information on former regimens, and predominance of first-generation LAI antipsychotics.

In conclusion, the real-world data indicate that patients who discontinued LAI antipsychotics eventually needed to resume LAI antipsychotics or receive antipsychotic polypharmacy, which indicates that earlier use of clozapine may be useful.⁶