—Case Reports—

Cognitive Behavioral Therapy for Improving Mood in an Older Adult with Mild Cognitive Impairment: A Case Report

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This study investigated the feasibility of a cognitive behavioral therapy (CBT) program for improving mood and quality of life in an older woman with mild cognitive impairment (MCI), depression, and anxiety. The program comprised eight 30-minute weekly sessions; interventions included behavioral activation, relaxation, and cognitive reconstruction, in which the patient's caregiver also participated. The patient's condition was assessed before and immediately after the intervention. After 3 and 12 months, the caregiver reported the patient's behavioral and psychological symptoms by using self-reported psychological scales for depression, anxiety, and quality of life. Although CBT helped to improve mood and quality of life in the short term (3 months), the results were not sustained over the long term (12 months). Even though improvement in psychological symptoms did not persist and only one patient with MCI was evaluated, these results suggest that CBT is a feasible nonpharmacological treatment option and provide preliminary support for wider use of CBT in Japan. CBT programs should be tailored to the needs of patients with MCI and dementia, and regular follow-up sessions should be used to evaluate program feasibility and improvement in patient mental health.
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Key words: anxiety, cognitive behavioral therapy, dementia, depression, mild cognitive impairment

Introduction

The prevalence of dementia has increased along with the elderly population in Japan. In 2012, approximately 4.62 million Japanese adults aged 65 years or older had dementia; when mild cognitive impairment (MCI), a dementia prodrome, is included, the number was greater than 8 million[1]. Psychological symptoms such as depression and anxiety are frequently comorbid with dementia and MCI and increase the burden on caregivers[2]. Therefore, identifying effective treatments is imperative in improving patients' lives and alleviating burdens on caregivers.

Previous studies reported that older adults had a higher risk of serious adverse effects when taking psychotropic drugs for depression and anxiety. Depression is frequently comorbid with physical disorders in older adults, thus increasing polypharmacy risk. Therefore, antidepressants may increase the risk of adverse effects[3]. Nonpharmacological treatments are thus essential for elders. Cognitive behavioral therapy (CBT) was recently shown to be effective in reducing negative moods in dementia patients[4], especially when cognitive deficits were carefully considered[5]. The present report examines the feasibility of CBT for an elderly Japanese woman with MCI.

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Table 1 Framework of the cognitive behavioral therapy for dementia program

Session		Content	Homework
1	Introduction to the cognitive behavioral model	Psychoeducation: discussing stress, mood, and maintaining or improving mood and well-being by using the model when stressed.	Mood monitoring
2	Conducting activities	Reviewing the previous homework. Identifying and planning pleasant activities to enjoy and improve mood.	Activity plan
3	Finding barriers	Reviewing the activity plan and discussing successes and difficulties when performing activities. Finding barriers that hinder one's activities.	Activity plan and determining barriers
4	Relaxation 1	Reviewing previous homework and maintaining the activity plan. Abdominal breathing is introduced and practiced a few times.	Breathing practice
5	Relaxation 2	Reviewing the breathing practice. The next relaxation technique, progressive muscle relaxation, is introduced and practiced a few times.	Muscle relaxation
6	Identifying automatic thoughts	Reviewing homework, and then introducing the concept of automatic thoughts and the relationships between mood and thought. Practicing identifying negative thoughts.	ABC sheet[a]
7	Finding favorite phrases	Reviewing the sheet, and then finding favorite phrases for quick mood soothing.	Finding phrases
8	Review	Reviewing all previous sessions, and then discussing and identifying ways to prevent future relapses.	Encouraging continued practice

[a]ABC sheet: The sheet has three columns, labeled "activating event," "belief/thought," and "emotional and behavioral consequences", respectively. This sheet is often used in general cognitive behavioral therapy as a useful way to detect relationships among the three categories.

Case Presentation

Methods

Referring to previous studies[4,5], we developed a CBT program for elders with decreased cognitive function (CBT for dementia, or CBT-D). It consists of eight 30-minute sessions conducted weekly (**Table 1**) and includes behavioral activation, relaxation, and cognitive reconstruction—activities frequently used in general CBT sessions. The relaxation activity includes deep breathing and progressive muscle relaxation, the methods of which were described by Mckay and Dufrene[6].

The Ethical Committee of Nippon Medical School Musashi Kosugi Hospital approved this study (approval number: 264-26-09). Before the intervention, the participant provided written informed consent for participation and publication of this report. Procedures were performed in accordance with the ethical standards of the Declaration of Helsinki (as revised in Brazil, 2013).

Patient

Mrs. A was a 70-year-old woman who routinely visited the neurology division of our hospital. She lived with her husband in their own house, and their daughter lived nearby. Mrs. A had started to become forgetful and feel depressed and nervous during the previous year. She and her daughter recognized this, although Mrs. A had always been a nervous person. Mrs. A visited the hospital at her daughter's suggestion and was greatly worried about worsening of symptoms ("Will it progress to dementia?"). She complained of unexplained pins-and-needles sensations in her legs and stomach. Furthermore, she exhibited more frequent repetitive asking and checking behaviors than before she started feeling depressed. Her daughter was not overly worried about her mother because she thought her mother regarded everything too seriously. Mrs. A's doctor diagnosed MCI, in accordance with the diagnostic criteria of the National Institute on Aging-Alzheimer's Association[7] and based on neuroimaging findings and neuropsychological examinations (self- and informant-reported memory complaints, objective memory impairment, preserved independence in functional abilities, and absence of dementia). Mrs. A's doctor referred her to a clinical psychologist, but she was hesitant to see a psychiatrist or take medication. The clinical psychologist therefore assessed her condition with a structured interview—the Mini-International Neuropsychiatric Interview[8]—and the results showed no current signs of mental disorder. Mrs. A had no history of psychiatric or physical disease. She voluntarily participated in the program. Mrs. A was chosen because she was the first person to show interest in this trial and complete all sessions. Her gender was not considered in the selection process.

Lastly, to protect the privacy of the patient, some data are not reported in this article. She expressed concern

Table 2 Outcome scores before and immediately after the intervention and at 3- and 12-month follow-up assessments

Outcome	Pre	Post	3 months	12 months
MMSE	28	28	29	28
GDS-15	10	5	8	8
HAD-A	9	6	5	7
QOL-AD1	22	32	29	26
QOL-AD2[a]	28	30	26	28
SF8-PCS	46.05	50.01	49.39	48.39
SF8-MCS	33.02	48.09	46.38	43.25
NPI-Q[a]	8	0	7	0

MMSE: Mini Mental State Examination; GDS-15: Geriatric Depression Scale-15 item version; HAD-A: Anxiety subscale of the Hospital Anxiety and Depression Scale; QOL-AD1: Quality of Life for Alzheimer's Disease (patient's self-reported QOL); QOL-AD2: Quality of Life for Alzheimer's Disease (patient's QOL as evaluated by the family caregiver); SF8: Short Form 8-Physical Component Summary (PCS) and Mental Component Summary (MCS); NPI-Q: brief version of the Neuropsychiatric Inventory Questionnaire.

[a]Outcomes evaluated by the patient's caregiver; all other outcomes were self-reported by the patient

Table 3 K6 scores for each session, immediately before and after the intervention, and at 3- and 12-month follow-up assessments

	Session Number										
	Pre	1	2	3	4	5	6	7	8	Post	3 months	12 months
K6	-	17	14	2	5	4	3	8	3	3	4	14

K6: Kessler Psychological Distress scale; self-reported by the patient.

about her marriage; the couple hardly communicated with each other for extended periods and she had not been assertive with her husband. However, this information was unknown until halfway through the program and was not reported by Mrs. A before the program started.

Assessment

Mrs. A was assessed four times: before and immediately after CBT-D and at 3 and 12 months after the intervention. The scales used for the assessment are shown in **Table 2, 3**.

Results

Course of Treatment

The first session introduced the cognitive behavioral model. The therapist emphasized the importance of homework and encouraged Mrs. A to take responsibility for making changes. Mrs. A complained of depression and expressed anxiety about eventually becoming forgetful. She had given up her hobbies because of daily negative moods. The therapist asked about treatment goals and she stated the following: "I want to be the person I used to be. I will try to restart my hobbies and not be lazy. I don't want to suffer from my negative feelings."

Sessions 2 and 3 addressed how activities affect mood and the need to engage in activities. Mrs. A was asked to remember that she used to participate in enjoyable activities. Upon reviewing her "mood monitoring" homework, she realized that she did not experience a negative mood and anxiety every day. Spending time with family and going out made her feel calmer. With help from her daughter during the session, she generated ideas for activities, such as walking, cleaning the house, visiting the gym, eating out, and calling friends. She decided to contact her friends and read books before the next session. The therapist suggested that her daughter remind her if she forgot to do her homework. In session 3, Mrs. A reported success with her homework. She noticed mood improvement when she completed her planned activities, which motivated her to continue pursuing these activities. However, the therapist noted two barriers to completing her activities. One was practical and included her

physical condition and the weather; the other was psychological and included reluctance, laziness, and procrastination. The next homework assignment was to continue her activity plan (playing the piano and going to the cinema) and to record her barriers.

Sessions 4 and 5 focused on relationships between the body and emotions. Two brief relaxation techniques were introduced: deep breathing and progressive muscle relaxation. At the outset, Mrs. A reported psychological barriers to performing activities (beliefs including "I don't think I can play the piano as easily as before"); however, she overcame them and completed the homework. These successes slowly increased her confidence. Later, the therapist explained the relationships between the body and emotions. Unidentified somatic complaints bothered Mrs. A chronically. The therapist explained that the symptoms might be due to autonomic changes and that relaxation might be effective in relaxing the body and reducing symptoms. During session 5, Mrs. A reported feeling refreshed after practicing breathing more than three times a day. The therapist also practiced muscle relaxation with Mrs. A and her daughter. However, Mrs. A complained of pins-and-needles sensations in her legs during the practice. The therapist explained selective attention and reaction, which might be worsening her anxiety and symptoms; Mrs. A understood that the more attention she paid to her symptoms, the worse they became.

Sessions 6 and 7 focused on relationships between cognition and emotions and identifying unhelpful thoughts. Initially, Mrs. A enthusiastically reported that her last homework had decreased her unpleasant symptoms and that she understood the importance of distracting herself. In session 6, the therapist suggested that Mrs. A record her thoughts during stressful situations, to identify and change unhelpful thoughts. In the next session, Mrs. A reported that when her husband was merely clearing his throat she previously thought, "Is he unhappy with me?" and tried to replace her thought with a new one: "That was just him clearing his throat; it's OK, I don't have to worry about it." In session 7, the therapist asked Mrs. A to identify her favorite self-soothing phrases when she is stressed. The homework was to list such phrases and state whether they helped. At this point, her somatic symptoms were much less painful.

The final session reviewed previous sessions. In this session, Mrs. A reported her favorite phrases for self-soothing and encouragement, such as "I'll be all right and never fear" and "I think too much, nothing will come of it." Both Mrs. A and the therapist noted how adeptly she applied the skills. Mrs. A said that pleasant activities and relaxation were particularly effective in improving her mood. Her daughter reported that her mother was better, had fewer symptom-related complaints, and smiled more often.

At the 3-month follow-up, Mrs. A maintained her physical and mental health, continued her social activities, was more relaxed, and used her favorite phrases. She no longer experienced somatic symptoms. However, at the 12-month follow-up, her depression and anxiety had returned. After the 3-month follow-up, Mrs. A was transferred to a regional medical center because she had improved and lived far from the hospital. However, she did not have a good rapport with the new doctor and eventually stopped visiting him. Mrs. A reunited with the therapist, was reminded of her previously learned skills, and resumed practicing those skills.

Changes in Outcome Scores

Almost all scores improved post-intervention (**Table 2**). At the 3-month follow-up, Mrs. A's self-reported Geriatric Depression Scale and Neuropsychiatric Inventory Questionnaire scores were slightly worse. At the 12-month follow-up, her self-reported mood and quality of life (QOL) scores were worse than those immediately after the intervention. In contrast, her QOL and behavioral and psychological symptoms, as evaluated by her daughter, did not worsen. Although the 12-month follow-up scores had worsened, they were much better than the pre-intervention scores.

Discussion

CBT might be effective for short-term improvement in mood and QOL in elderly Japanese with MCI. During the course of treatment, Mrs. A exhibited good early behavioral activation, which improved her mood. Moreover, unexplained somatic symptoms were notably reduced, and this reduction continued until the 12-month follow-up. Thus, CBT could prove useful for older adults with cognitive decline, although the extent of cognitive decline should be considered.

Unfortunately, Mrs. A's mood had deteriorated at the 12-month follow-up. Dementia and MCI are progressive conditions, and this causes many patients to worry constantly. Even if patients acquire CBT skills and improve their condition, frequent health-related anxiety is understandable. To alleviate this anxiety, patients with MCI or dementia may need more frequent follow-up sessions, such as once every few months. Regular follow-up ses-

sions might help therapists assess a patient's current mental health and help the patient relearn the CBT skills for coping with persistent anxiety. Although Mrs. A's scores at the 12-month follow-up were lower than those immediately after the intervention and at the 3-month follow-up, they were significantly higher than the pre-intervention scores, indicating that the CBT program had a considerable effect on this patient and could provide similar benefits to others.

A limitation of this report is that it is based on results from a single patient. A well-designed clinical trial of CBT-D is required in order to investigate its effectiveness more comprehensively. Normally, CBT includes a number of skill sessions that address behavioral activation, cognitive reconstruction, and relaxation, and therapists sometimes combine different components to resolve a particular patient's problem or alleviate symptoms. However, it is not easy to determine whether the present treatment effects were attributable to the entire CBT program or to a particular component of the program. For example, single relaxation sessions for stress management might be beneficial. Therefore, a thorough study that examines the effects of CBT by evaluating the effectiveness of certain sessions is needed in order to determine whether benefits are attributable to all or part of the CBT program.

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