〔論　文〕

Cognitive improvement therapy and disease management for depression: A case report

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Abstract

In this study, we conducted a program combining cognitive improvement therapy and disease management to one patient with depression. As a result, the patient exhibited improvement in cognitive functions and recovery in social functioning. Increasing the number of cases is an issue for the future.

Introduction

Depression not only brings about depressed mood and decreased energy but it also affects an individual's cognitive functions including loss of attention and concentration (World Health Organization, 1992). Many cognitive functions such as attention, verbal memory, working memory, and executive functioning are impaired in depression (Degl'Innocenti et al., 1998; Gohier et al., 2009). One study reports that these deterioration in functions remained even during remission (Nakano et al., 2008).

Recent study has shown that cognitive rehabilitation is as efficacious as medication in treating depression (Siegle et al., 2014). A meta-analysis of cognitive rehabilitation showed improvement in attention and working memory, severity of symptoms, and everyday functioning (Motter et al., 2016). It is suggested that cognitive rehabilitation can reduce obsessive compulsive thinking (Siegle et al., 2014) and improve depressive mood (Calkins et al., 2015).

In this article, we aim to examine the effects and effectiveness of psychosocial intervention by reporting a case of one patient with depression to whom we have implemented an intervention combining Frontal/Executive Program (FEP) designed to improve cognitive functions (Wykes T, 2005) with Illness Management Recovery (IMR), a tool designed to help patients to recover by managing their own illnesses (Ikebuchi, E. Uchino, T. Hirayasu, 2009).

Method

1. Participant

A patient diagnosed with depression according to ICD-10 classification was enrolled in the study. Upon recruitment of a participant for the program, we explained the FEP to a primary physician of the first patient who expressed his interest in the program and obtained consent for the implementation.

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After an introduction from the physician, the first author of this article, who will be conducting the sessions, showed the research instructions and explained to the patient, both in words and in writing, and obtained a signed informed consent. The explanation included that the FEP is a type of cognitive rehabilitation, and that fatigue may be accumulated as an adverse event. We also explained that there will be a recess as appropriate and that a session may be interrupted. This study was conducted with the approval of Ethics Committee of Hokujinkai Asahiyama Hospital (31227) and Research Ethics Committee of the Graduate School of Health Sciences, Hokkaido University (18-80-1).

2. General Description of the Program

The program consists of two different treatment programs.

First is the FEP which aims to improve the patient's cognitive functions. The FEP is one of the cognitive rehabilitation programs developed by Delahunty et al. designed primarily for patients with chronic schizophrenia (Wykes T, 2005). It consists of a total of 44 sessions performed in 22 weeks. Each one-on-one session takes an hour and is performed twice a week. The program mostly uses paper and pencil but also involves working with building blocks called tokens and requires hand movements (Wykes T, 2005). The program consists of three modules: cognitive flexibility, working memory, and planning. Each module contains tasks focusing on eye movements and perception, organization of information, fine motor movements, etc. It is designed so that the tasks become more complex as sessions proceed. The FEP is also suggested to be therapeutically effective in improving not only verbal memory and verbal fluency but social functioning as well (Omiya et al., 2016, Miyajima et al., 2016). The features of the FEP are shown in Table 1.

Table 1.　Features of FEP

- ・FEP training is positioned as one of the Cognitive Remediation Therapy (CRT).
- ・The purpose of FEP is to directly improve cognitive dysfunction represented by attention, memory, and executive function.
- ・Training is conducted twice a week, once for 1 hour, for a total of 44 sessions.
- ・The sessions are one-on-one with the therapist and the main medium is paper-and-pencil.
- ・Training consists of three modules: "cognitive flexibility," "working memory," and "planning."
- ・Training includes eye movements, perception, information organization, and elaborate movements.
- ・Scaffolding and strategy learning have been incorporated as effective techniques.
- ・It is necessary to find the most effective solution when solving a problem.
- ・Patients are required to perform a given task as "slowly and accurately" as possible.
- ・When solving a problem, it is required to verbalize the content of the problem and the method of solving the problem.
- ・Specific examples of tasks include infinity symbol line drawing, character erasure, category creation, and continuous finger tapping.

Second is the IMR designed for management and recovery of patients' illnesses. The IMR is an evidence-based practice tool which uses psychoeducation in principle. It is a recovery oriented psychosocial support integrating therapeutic strategies that help manage drug administration and prevent relapse. It has been shown that the IMR is therapeutically effective in improving symptoms of mental illnesses and contributing to improvement in social functions (McGuire et al., 2014, Tan et al., 2017). The IMR consists of a total of 40 sessions based on 9 modules including recovery strategies,

Table 2. Illness Management and Recovery（IMR）

Contents of Session	Number of Sessions
Recovery strategies	4
Stress-Vulnerability Model and treatment strategies	4
Coping with stress	3
Practical facts on mental illness	7
Using medication effectively	4
Reducing relapses	4
Coping with problems and persistent symptoms	5
Building social support	6
Getting your needs met in the mental health system	3

coping with stress, and preventing relapse. Each session is approximately 60 minutes and is held once or twice a week for the period of three to six months. Details to the IMR sessions are shown in Table 2.

3. Assessment

The patient's cognitive functions, condition of recovery, social functioning and mood were assessed as follows within two weeks before and after the intervention.

1）Cognitive Function Assessment

We conducted the Brief Assessment of Cognition in Schizophrenia – Japanese Version（BACS-J）. The BACS-J is an instrument to assess cognitive functions that was developed by Keefe et al.（Keefe et al., 2004）and translated to Japanese by Kaneda et al.（KANEDA et al., 2007）

2）Recovery Assessment

The Recovery Assessment Scale（RAS）（Chiba et al., 2010）and the WHO Quality of Life – BREF 26（QOL 26）（Jahanlou et al., 2011）were conducted to assess recovery. Higher RAS scores indicate more recovery. Higher QOL scores denote higher quality of life.

3）Social Function Assessment

The Social Adaptation Self-Evaluation Scale（SASS）（Ueda et al., 2011）, the General Self-Efficacy Scale（GSES）（Sakano & Tohjoh, 1986）, and the Global Assessment of Functioning Scale（GAF）（American Psychiatric Association, 2000）were conducted to assess social functioning. To maintain objectivity of the assessment, the GAF was conducted by the patient's primary physician.

Higher SASS scores indicate better social adjustment. Higher GSES scores indicate higher feeling of self-efficacy.

4）Mood Assessment

The Profile of Mood States（POMS）（Yokoyama et al., 1990）and the Quick Inventory of Depressive Symptomatology（QIDS-J）（Fujisawa et al., 2010）were conducted for the assessment of mood. Lower POMS scores indicate better mood states. Lower scores with QIDS-J denote improvement in depression.

Case

Presented below are the patient details. We have partially modified the personal information in the case description to secure privacy of the patient.

<Case> Sixties, Male, Depression

Family: He was born the second of the two siblings. He had two children with his wife and currently lives with the wife.

Life history/current medical history: He was educated for 9 years and is suffering from depression for 10 years. He says he was bullied when he was in elementary school. After graduating from junior high school, he found a job through a government led rural-urban labor migration program（"Shudan Shushoku"）. He was married when he was 20 years old. His wife suddenly asked for divorce 8 years ago, which caused him to attempt suicide. He seeked medical advice in his late fifties complaining of depressive mood, decreased motivation, irritability, and taste disorder. He was diagnosed with depression and was hospitalized. After admission, he talked of his deterioration in cognitive functions mentioning that he was "lacking concentration and being forgetful." His primary physician suggested to him to participate in the program and thus he was enrolled.

Onset of the program

IQ（WAIS-III）: FIQ 69（VIQ 76, PIQ 67）

Dosage: Duloxetine hydrochloride 60 mg, Levomepromazine maleate 5 mg, Escitalopram oxalate 10 mg, Lorazepam 1.5 mg, Zolpidem tartrate 10 mg, Ramelteon 8 mg, Flunitrazepam 2 mg, Brotizolam 0.25 mg There were no changes in the dosage of the above medications before and after the intervention.

State during the program

Helpful instructions from the primary physician and ward staff led him to work enthusiastically from the onset of the program. He played a key role in the group and there were moments when other members relied on him. Although he slowed down as the tasks became more challenging, encouragements from other members enabled him to complete the program. He reported before the end of the program that he "consciously thinks about the schedule of each day before doing things."

Results

1. Change in cognitive functions
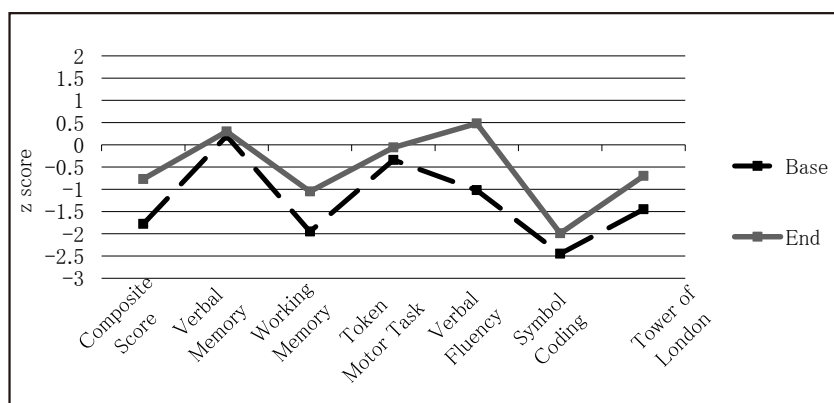
Results are shown in Figure 1.

Figure 1. BACS-J (Z-score)
BACS-J; Brief Assessment of Cognition in Schizophrenia-Japanese version

BACS-J result showed that information processing was severely impaired before the intervention. His composite score and verbal memory were also below average. All aspects recovered after the intervention, especially in verbal fluency, working memory, and executive functioning where the improvement was remarkable.

2. Changes in condition of recovery, social function, and mood status

See Table 3 for results.

Table 3. Psychological Assessment

	Base	End
POMS	73	48
QIDS-J	21	18
RAS	51	71
QOL	2.63	3.38
GSES	31	31
GAF	60	65
SASS	16	23

POMS; Profile of Mood States
QIDS-J; Quick Inventory of Depressive Symptomatology
RAS; Recovery Assessment Scale
QOL; Quality Of Life
GSES; General Self-Efficacy Scale
GAF; Global Assessment of Functioning Scale
SASS; Social Adaptation Self-evaluation Scale

All aspects recovered except for self-efficacy. Not only was there an improvement in QOL scores that measures recovery, scores in anger, confusion, depression, and fatigue scales of the POMS, measurement for mood status, showed improvement. Overall functioning levels measured with the GAF which was assessed by the primary physician also showed recovery.

Discussion

1. Improvements in each assessment tools before and after the intervention

As seen in the results, there were improvements in multiple BACS-J aspects. Verbal memory result corresponded with Wykes et al. (Wykes et al., 2011) and verbal fluency corresponded with the result of Wykes et al. (Wykes et al., 1999). Factor to the improvement of these scores may be that the effects of verbalization in the FEP program coupled with its tasks that require clear and precise problem-solving strategies activated the thinking process and may have resulted in these changes.

It is suggested that the patient's condition of recovery, social functioning and mood status improved as he personally felt that his recovery was boosted, and his depressive mood was getting better. The functional improvement assessed by the physician also implies therapeutic effect of the program from an objective perspective.

2. Features of the program

The program we used may have given a positive impact as it was a highly designed package of two programs. Therapeutic effects of both programs have been confirmed in previous studies, and it is presumable that there was a synergistic effect. Proportion of number of participants and staff was appropriate as a structure of a psychosocial treatment, and it may also have given a considerable influence. Furthermore, operation in a closed group atmosphere may have caused increased group cohesiveness, hence setting direction to improving functional recovery not only as an individual but also as one group. The patient also reported that he felt he "is more willing to do things and more motivated than before taking part in the program."

3. Research limitations and challenges for the future

Limitation in this research result can be attributed to the fact that it is a case report. Although therapeutic effects were identified in changes in each index, we cannot give a conclusion from this case. It is also worth considering that we have performed a group intervention instead of on one-on-one level. It is a future issue to clarify how interpersonal interaction between group members has influence on therapeutic effects. Additionally, a care should be noted in sampling as it is undeniable that enthusiasm of a patient toward program participation may be a factor to those changes.

Since approximately 2-hour long session is performed 4 times each week, the efforts of both patient and therapist must be considered in implementing the program.

It is necessary to conduct outcomes research with a greater number of cases and control groups in the future. It is also a challenge for the future to consider the duration of patients' illnesses, course of treatment, and when to introduce to the program.

Acknowledgement

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