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Occupational therapy for vascular dementia: A case report

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Occupational therapist is a member of a multidisciplinary team for treatment of patients with dementia in both rehabilitation and modified treatment activities, in order to enhance the patients' ability and to sustain their daily living which also includes the improvement of cognition and intellectual function. According to the study, the patient was diagnosed with vascular dementia who took part in occupational therapy program around 8 weeks. It was found that the treatment could increase the capability level in various activities such as activity of daily living and cognitive function that consequently made the patient and their family satisfied with the result of this treatment.

Keywords: *Occupational therapy, vascular dementia, cognitive impairment.*

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หัตถยา จงประสิทธิ์กุล, อติสรณ์ สันติมนิรัตน์, ศราวุฒิ สมณา. กรณีศึกษากิจกรรมบำบัดในผู้ป่วยสมองเสื่อมจากโรคหลอดเลือดสมอง. จุฬาลงกรณ์เวชสาร 2557 พ.ศ. – ม.ย.; 58(3): 255 – 65

นักกิจกรรมบำบัดเป็นหนึ่งในทีมสหสาขาวิชาชีพทางเวชปฏิบัติของผู้ที่มีภาวะสมองเสื่อม โดยมีบทบาททั้งในการฟื้นฟูและปรับประยุกต์กิจกรรมเพื่อส่งเสริมความสามารถในการทำกิจวัตรประจำวัน และเพิ่มความสามารถด้านการรู้คิดและสติปัญญา กรณีศึกษาได้รับการวินิจฉัยว่ามีภาวะสมองเสื่อมเนื่องจากโรคหลอดเลือดสมอง และได้รับการบำบัดทางกิจกรรมบำบัดเป็นเวลา 8 สัปดาห์ พบว่าสามารถเพิ่มระดับความสามารถในการประกอบกิจกรรมต่าง ๆ เช่น กิจวัตรประจำวันพื้นฐาน และระดับความสามารถด้านการรู้คิดและสติปัญญา ส่งผลให้ผู้ป่วยและญาติมีความพึงพอใจเพิ่มขึ้น

คำสำคัญ: กิจกรรมบำบัด, สมองเสื่อมจากโรคหลอดเลือดสมอง, การบ่มพร่องด้านการรู้คิดและสติปัญญา.

Dementia commonly occurs in the elderly. It can be found in approximately 5% of aging population older than 65. ^(1 - 3) There are two main types of dementia, namely: Alzheimer's disease and vascular dementia. ^(2 - 4) Vascular dementias are the second most common cause of dementia, after Alzheimer's disease ⁽⁵⁾; both conditions are preceded by a stage of cognitive impairment ⁽⁶⁾ which affects the short and long-term memories, language, problem solving, attention and also personal behavior. ^(7 - 9) The major problems are losses in independence, initiative, and participation in social activities, decrease in the quality of life of patients and pressurizing both family relationships and friendships. ^(10 - 13)

Occupational therapist is a member of a multidisciplinary healthcare team for treatment of patients with dementia and participates in various countries ^(14 - 18) as they have efficiency in analysis, assessment, evaluating the problem toward various disorder of ADL such as self-care, movement, social participation, leisure and exercise ^(14 - 18, 19) or relevant evaluation that are necessary for the treatment in order to improve/enhance the cognitive function and ability of the patients to promote their independence and also reduce the caregiver burden. ⁽²⁰⁾

According to literature review, occupational therapy (OT) implements persons who suffered with moderate to severe dementia. The result is effective. OT applies in a targeted manner activities as therapeutic measure. The aim is to achieve a high quality of life in everyday life - without drugs. Mental capacity and independence in daily routine shall be maintained as long as possible. OT can be more cost-advantage than medical treatment because it reduces the health care expenses ⁽²¹⁾ which is consistent to with

study of Kim SY *et al.* that performed the OT sensory stimulation technique in dementia patients and could clearly improve their behaviors. ⁽²²⁾ In the case study of Baldelli MV *et al.* an OT program was implemented in patients with vascular dementia and Alzheimer patients for 40 days and the evaluation of ability of daily living by Ronchi brief evaluation battery indicated that the result improved in each item. ⁽²⁾ The primary objective of this report was to explore the effects of an OT intervention on the performance of daily activities of a patient with dementia which decreases her need for assistance and improves the ability to adapt to the social environment especially the family also had improved quality of life.

Case Report

The patient was a single 55-year-old woman who was primarily, admitted for a clipping surgery due to a rupture of anterior communication artery aneurysm on January 2nd, 2006. Postoperatively, there was no complication. An antispasticity drug was prescribed, but the patient could not perform any ADL by herself. Aggressive behavior was developed during the observation, disorientation and short-term memory loss which was later diagnosed as vascular dementia. After the psychological admit, the patient received symptomatic treatment of Alzheimer's disease and dementia. The positive result can be found, it is shown that the patient improved her emotion management and the aggressiveness was also reduced. In the following year, the patient developed hydrocephalus and got infection in the VP shunt. Then it was fixed by externalization. After that, the patient stayed with family and was still treated with psychological drugs continuously. In two following

years, the patients had foot drop. Her physician indicated that dystonia occurred in this patient; then anti-Parkinson drugs were used and consulted with the department of rehabilitation medicine in order to received therapeutic treatment by OT and PT programs.

Occupational Therapy Intervention: The patient was firstly admitted for treatment at the OT Unit on January 24th, 2013, as an outpatient department (OPD) case. The program required 24 visits of 90 minutes each, throughout a period of 8 weeks. Only one occupational therapist was responsible for this program. The patient was living in an extended family with her two sisters who were acting as her caregivers. The education level of each member was post-secondary school level and they had relatively good income.

On initial evaluation: 1) Modified Bathel ADL Index (MBAI) was used to evaluate 10 activities. The Bathel ADL index, this is now probably the most widely used and best standard measure of ADL⁽²³⁾ the items included feeding (2 scores), grooming (1 score), transfer (3 scores), toilet use (2 scores), mobility (3 scores), dressing (2scores), stair (2 scores), bathing (1 score), bowel (2 scores), bladder (2 scores), totally 20 scores.⁽²⁴⁾

2) The Canadian Occupational Performance Measure (COPM) was used to assess the self-perception in occupational performance and satisfaction with this

performance of the client and the primary caregiver. The reliability of the COPM in older individuals with cognitive impairments is good. Patient or family member was scored for managing the problem of activities such as self-care, productivity and leisure: then rated the importance, patient's performance and satisfaction by the patient herself or family members.⁽²⁵⁾

3) Mini-Mental State Examination: Thai Version (MMSE-Thai 2002) was used for assessment of brain performance such as orientation for time (5 scores), orientation for place (5 scores), registration (3 scores), attention/calculation (5 scores), recall (3 scores), naming (2 scores), repetition (1 score), verbal command (3 scores), written command (1 score), writing (1 score) and visuoconstruction (1 score) in which the cut-off point is covered 22 and lower has possibility of dementia.⁽²⁶⁾

4) Brief-cognitive rating scale (BCRS) the level of cognitive impairments was assessed by the BCRS consists of 18 questions designed to assess cognitive function that affects everyday activities. Each question is coded with one of four levels, ranging from no impairment to severe impairment, as follows: concentration (7 scores), recent memory (7 scores), past memory (7 scores), orientation (7 scores), functioning and self-care (7 scores). The cut-off score is ranged between 9 - 24 shown as mild dementia, and 25 - 40 as moderate dementia.^(3 - 4, 27 - 33)

Problem and treatments:

Table 1. Illustrates individual therapy that was weekly evaluated.

Problem	OT Treatment
1. Concentration and intention to learn new things.	<ul style="list-style-type: none"> ● Explaining daily activities that have to be done slowly and respectively. ● The ambient has to be adjusted gradually as low level in the initial stages and then increased to higher levels. ● Providing the range of time and review when the session ends.
2. Memorizing daily event, time and appointment. passed by.	<ul style="list-style-type: none"> ● Teaching how to take a note. ● Participating in a game and let the patient review the recent event that ● Adjusting the furniture to the same place. ● Organizing the daily time simply in the correct way as well as writing down the events and situations of specific time. ● Training how to create questions and answers related to time and place. ● Marking reviews from schedules and suggestions using digital watch. ● Teaching games as a media in order to improve the skill such as "What's this?"
3. Interaction skills of social and environment	<ul style="list-style-type: none"> ● Therapist provides the information related to patients; for example, the old picture is taken into accounts during the conversation. ● Propagating the patient to join a short conversation with familiar persons, and then induce him/her to try on their own. ● Increasing the level of difficulty and period of conversation and specific event from easy to hard. ● Offering leisure activity in which patients are interested while the therapist gives information and induce the patient to think about related persons or places.
4. Preparing clothes, taking pills and bowel management	<ul style="list-style-type: none"> ● Hanging clothes in appropriate places that can be reached safely and easily (conveniently). ● Packing pills in a timely order and the pill box must also be labeled. Moreover, the alarm will be alerted when the patients have to take pills.
5. Ambulation in their own home safely	<ul style="list-style-type: none"> ● Bowel time must be recorded every 2 hours; to reduce the amount of water taken and also suggest the patient to go to the toilet before going to bed. ● Setting safety for home environment: suggesting caregivers to provide supportive equipment appropriate for making a handling rail: setting ● the level of floor and fixing the heel support in patients' shoes which facilitates easier walking.

Follow-up testing: The patient was fully admitted for 8 weeks, evaluated the basic ADL by MBAI which showed the increased score of bathing, dressing, toilet use and transfer as shown in Table 2. COPM also increased in both performance and satisfaction of cognition, memorizing the familiar persons, controlling the daily activities, using toilet, dressing and ambulation in their own home safely, as shown in Table 3. Regarding the evaluation of brain

performance by MMSE-Thai 2002, the score has been increased in orientation for time, orientation for place, attention/calculation, recall, repetition and verbal command, shown in Table 4. The assessment of performance level in self-cognition was carried out using BCRS: the performance score of which was run up in concentration, recent memory, past memory, orientation and functioning and self-care as illustrated in Table 5.

Table 2. The performance level of basic activities of daily living by MBAI

MBAI	Feeding	Bathing	Grooming	Dressing	Bowel	Bladder	Toilet use	Transfer	Mobility	Stairs	Total
Score	2	1	1	2	2	2	2	3	3	2	20
Before	2	0	1	1	2	0	1	1	2	0	10
After	2	1	1	2	2	0	2	2	2	0	14

Table 3. The performance of daily activities tested by COPM

CMOP & Satisfaction	Scored	Before			After		
		Imp	Perf	Sat	Imp	Perf	Sat
Cognition and memorizing the familiar person	10	10	2	5	10	4	8
Controlling the daily activities	10	9	0	3	9	2	5
Management bowel	10	8	0	0	8	8	9
Dressing/Preparing clothes for dressing	10	8	6	5	9	10	10
Ambulation in their own home safely	10	7	5	5	7	8	8
Performance average	10	2.06			5.36		
Satisfaction average	10	3.04			6.86		

*Note. Imp = Importance; Perf = Performance; Sat = Satisfaction

Table 4. The evaluation of brain performance by MMSE-Thai 2002

MMSE-Thai 2002	Score	Before	After
Orientation for time	5	0	2
Orientation for place	5	2	4
Registration	3	3	3
Attention/Calculation	5	1	5
Recall	3	0	2
Naming	2	2	2
Repetition	1	0	1
Verbal command	3	2	3
Written command	1	1	1
Writing	1	1	1
Visuoconstruction	1	0	0
Total	30	12	24

Table 5. The assessment of performance level in self-cognition by BCRS

BCRS	Score	Before	After
Concentration	7	7	3
Recent memory	7	6	4
Past memory	7	5	4
Orientation	7	7	5
Functioning and self-care	7	6	4
Total	35	31	20

Discussion

Bathel ADL index is to monitor progress in rehabilitation and measure the capability of patients and level of help. In other word, it is used as a checklist and as a measure of general progress. They cannot give specific details. This patient has the total MBI score increased in bathing, dressing, bowel and transfer which can refer that the patient has improved his actual performance.

The simplified method of client-driven therapy is to use the COPM. The COPM provides an assessment process for developing client-centered goals and for evaluating the success of those goals over time.⁽²⁵⁾ The treatment aims to identify the problem of patients that evaluated from COPM which described as an individual outcome measure.⁽³⁴⁾ The COPM score referred to the mean of these scores for the five self-perceived problems in performing daily activities.

A higher COPM performance score shows that the clients rated their occupational performance at a higher level, and a higher COPM satisfaction score means that the clients were more satisfied with their performance in daily activities. According to the assessment, it has been found that the average performance score was increased from 2.06 to 5.36 and the average satisfaction score also rose from 3.04 to 6.86. The problems were considered important as weighting factors in scoring patients' performance and satisfaction of each activity as mentioned by Donnelly C, Carswell A. "Problem areas being measured are specific for each individual and may be set by either the patient or the health professional."⁽³⁵⁾

Regarding the evaluation of recognition and intelligence by MMSE, the score increased from 12 to 24 that reached the borderline level.⁽³⁶⁾ As for the ability of visuoconstruction, it did not increase in the study period.

The deterioration level of BCRS, the score decreased from 31 to 20 (moderately severe dementia to mild dementia).^(27 - 28) The assessment of BCRS showed comparison of cognitive level that has been improved and related to the ability of function and self-care; BCRS has been applied as an index with others in order to study the relationship in every levels of dementia patients.⁽²⁹⁻³²⁾ If the OT program has been conjugated with BCRS, it also helps plan an appropriate treatment of severity level or the symptom in order to improve the efficiency of OT program. In which, the study of Mokashi SP in stroke patient found that the capability of cognition and intellectual function was related to ADL skill.^(10 - 13)

The therapeutic activity was taken continuously and consistently until the patient had

enough ability to respond and achieve the setting goal. The principles of treatment in each day were carried out upon the discretion of occupational therapist focusing on the individual activity and participation. It can be seen from the trust and effort of personal activity that has been increased during the time. Thus, the OT and cognitive stimulation therapy is crucial and may provide a useful structural framework to build up rehabilitation programmes for this group of patients.^(3, 21, 36 - 37)

The reliability of positive outcome is related to the number of participant and caregiver in which the result quality will increase typically.⁽³⁸⁾ This report, however, covers only one patient who has vascular dementia. More researches should be carried out with longer period of time as well as more subjects recruitment and the programs of occupational therapist designed. All these should begin as a trial stage in sensory stimulation of these patients.

Summary

The aim of occupational therapy is to strengthen dementia persons in the fields of self-care, productivity and leisure/rest. This enables the patients to increase their functional ability in activities of daily living (ADL), their social participation and their quality of life and life satisfaction. The outcome also includes improvement of cognition and intellectual function. According to the study, this patient was diagnosed as vascular dementia and took part in OT program for about 8 weeks. It was found that the treatment increased the capability level of various activities such as activities of daily living and cognitive function with which the patient and family member were satisfied.

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