The Effects of Group Exercise Program on the Depression in the Elders with Dementia

The purpose of this study is to investigate the effects of group exercise program on depression in the elders with dementia. Subjects of this research were selected from the patients of Hyoja hospital (Yongin, Korea). They were elders with dementia having minor to moderate degrees of cognitive function. Twenty-four subjects were randomly assigned into two groups, each with 12 people: exercise group and the control group. The control group only performed general physiotherapy, while the exercise group performed exercise program and general physiotherapy for 8 weeks. Depression of the exercise group and the control group were measured at baseline before the study, at 4 weeks, and at 8 weeks after the study. Depression was measured by Geriatric Depression Scale Short Form Korea Version (GDSSF-K).

Firstly, when comparing the levels of depression within the same group, depression was significantly lower in the exercise group, after the group exercise program. However, depression of the control group did not show significant changes before or after the study. Secondly, when comparing the levels of depression of the control group and the exercise group, differences between the levels measured before the study and 8 weeks after the study, was a statistically significant decrease of depression. Thirdly, effects of group exercise program according to the applied period were analyzed showing 8 weeks of group exercise to be more beneficial than 4 weeks. People who performed continuous group exercise program showed decrease in depression compared to the absence of group exercise program. This can infer beneficial effects of group exercise program. Group exercise program had desirable influence on decreasing the level of depression.

Key words: Cognition, Dementia, Depression, Group exercise

INTRODUCTION

Dementia is a relatively common condition, affecting roughly 5 per cent of people aged 65 years and beyond(1). Dementia afflicts millions of Americans, and the economic and emotional costs of care for individuals with the disorder are astronomical(2). There are about more than 50 modality causative diseases to cause dementia such as degenerative disorder, cerebrovascular disease, metabolic disease(3). It has owned different clinical time by a cause and classified for progressive, degenerative, irreversible dementia, and curable dementia by clinical course(4).

Vascular dementia and Alzheimer’s disease are representative causes of dementia. Vascular dementia is one clinical configuration concerned of ischemic and hemorrhagic cerebrovascular disease.

Depression is common among people with dementia, and it significantly affects their quality of life, behavioral symptoms, psychological symptoms, and ADL (activities of daily living) disorder. The level of the ADL is crucial functional standard for the dementia patient, and the level is lower in the patient who has severe dementia degree(5,6). Patients with major depression had an increased risk of development of dementia(7). Especially, if the patient...
has depression, the level of ADL is lower than the patient without depression(8).

Pharmacotherapy and non-pharmacological treatment are demanded from a treatment of dementia at the same time. There are group exercise treatment, group art therapy, group music therapy, group reminiscence therapy, and reality therapy by non-pharmacological treatment methods of dementia. In addition, home exercise program for old people with dementia and a hospitalization rehabilitation program, are tried variously in the geriatric hospitals(9).

As such, study for non-pharmacological treatment methods for a dementia old person is necessary. Activities are an essential part of the therapeutic care of people with dementia(2). The relationship between physical activities including exercise and mental health has been widely studied. Regular exercise is associated with a delay in onset of dementia and Alzheimer’s disease(10). Regular exercise have an effect on cognitive function, activities of daily living and exercise capacity in patient with senile dementia. Also, regular exercise program reduce the incidence of heart disease and behavioral complications, as well as improve the symptoms caused by decreased levels of total cholesterol, triglyceride, and low density lipoprotein cholesterol and increased level of high-density lipoprotein-cholesterol(11). Light exercise and vigorous exercise were not significantly associated with decreased risk of mild cognitive impairment(MCI), however, moderate exercise performed in midlife or late life was associated with a reduced odds of having MCI(12). Laurin et al, reported that physical exercise was associated with decreased risk for subsidence in cognitive function, Alzheimer disease, and any dementia(13), whereas Broc et al, showed no association between physical exercise and dementia(14). Therefore, the aim of this study is to investigate the effects of group exercise program on the depression in the elders with dementia.

**METHOD**

**Subjects**

Subjects of this research were selected from the patients of Hyoja hospital (Yong-in, Korea). Subjects were chosen to be elders with dementia having minor to moderate degree of cognitive function and 1 to 2 degree of clinical dementia rating. Study was started out by randomly dividing the 24 subjects into two groups, each with 12 people: exercise group and the control group.

**Measurement scale**

Depression was measured by using the Geriatric Depression Scale Short Form Korea Version(GDSSF-K). The GDSSF-K scores ranged from 0 to 15, with higher scores representing more depressive symptoms. Kee simplified Geriatric Depression Scale to save time and it seemed to be measured usefully(15). Reliability and validity were inspected, and the Cronbach α coefficient appeared .88 because there was the above-mentioned name value(15).

**Procedure**

The exercise group performed 8 weeks of group exercise program and general physiotherapy, while the control group only performed general physical therapy. Depression of the exercise group and the control group was measured before the study and 4 weeks and 8 weeks after the study. Group exercise program involved in the period of 8 weeks for around 35 minutes a day, three times per week.

The group exercise program was carried out in the state that sat down on a chair to prevent a certain accident in progress. The group exercise program was composed in warm-up, aerobic exercise, and cool-down exercise. It was carried out for total of 35 minutes (warm-up 15 minutes, aerobic exercise 15 minutes, cool-down exercise 5 minutes).

Warm-up exercise program was composed of stretching, gymnastics, and sensory stimulation. Sensory stimulation was provided by rubbing or tapping with hands. The group exercises were composed by the exercise program that could be imitated easily. Aerobic exercise has been executed to enjoy themselves. Aerobic exercise used ball and stick with music. Aerobic exercise program was composed of kinking a ball, throwing the ball and catching it again, passing over the ball next to someone, doing gymnastics with the bar, and moving and rubbing the body with holding a small ball. Cool-down exercise was composed of stretching, breathing exercise, and clapping hands.

**Data analysis**

Collected data were statically analyzed by SPSS PC Win 13.0 program. To evaluate the change by application period of group exercise program in group, we used Wilcoxon matched pairs test. To evaluate the change by application period of group exercise program