Evaluation of Physiotherapy Intervention in a Rehabilitation and Empowerment Program for Persons with Dementia

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Introduction
There is growing evidence showing exercise or physical activities may delay onset and progression of dementia in older adults. Increased exercise may also reduce the negative physical sequelae associate with the disease. Rehabilitation and Empowerment of Dementia (RED) Person Program was launched in April 2014. It aimed to serve the growing needs of dementia patients and their caregivers. Physiotherapist, as a key member of the multidisciplinary team, strived to improve patients’ physical function, reduce fall, delay cognitive decline and promote active life style.

Objectives
To evaluate the effect of physiotherapy on physical independence, balance, dual task ability and activity level of patients with different level of cognitive decline.

Methodology
31 patients (65% female), aged 80±5.8, were recruited for the RED Program from April to December 2014. Patients with Functional Assessment Staging Test (FAST) Stage 2-3 (suspected early dementia) were allocated to Group A, whereas patients with FAST Stage 4-5 were allocated to Group B (mild to moderate dementia). They attended the same weekly whole day program for 12 weeks, with one hour of physiotherapy session weekly. The physiotherapy session consisted of aerobic exercise, balance training, dual task training and cognitive-targeted exercise. Exercise goal and home exercise was individualized according to patient's ability. Caregivers were encouraged to participate in the training; education material and log
book were distributed to them for monitoring of home exercise adherence. Assessments were performed before and after the program. Outcome measurements included Berg Balance Scale (BBS) for balance, Timed Up & Go Test (TUG) for functional independence, Dual Task Cost (DTC) for dual task ability and International Physical Activity Questionnaire (IPAQ) for activity level. The test results were analyzed by Pair-t Test.

**Result**
There was no statistical significant difference of the age between the two groups. Patients with mild to moderate dementia (Group B) demonstrated weaker performance on all physical domains. Patients on both interventional groups demonstrated significant improvement on TUG (13.7 & 8.7% improvement for Group A and Group B respectively) and IPAQ (42.7% & 32.7% improvement for Group A and Group B respectively). Whereas, significant improvement in BBS (6.9% increase) could only be found in Group B patients. Although an improving trend in DTC was observed in Group A, it did not reach statistical significance. In general, patients in group A had better improvement than group B, although between group differences were not statistically significant. Physiotherapist-led exercise program may be effective for dementia persons regardless of the different level of cognitive decline. Future study with control group and larger sample size is necessary to verify the program’s clinical efficacy.