THE EFFECT OF RESISTANCE EXERCISE ON THE COGNITIVE FUNCTION, DEPRESSION AND INSTRUMENTAL ACTIVITIES OF DAILY LIVING IN PEOPLE WITH MILD DEMENTIA

Vasileios Papatsimpas [1], MSc, PhD(c); Marianna Papadopoulou [1], MD, PhD; George Papathanasiou [1], MSc, PhD; Christina Bouzineki [2], MSc; Daphne Bakalidou [1], MSc, PhD.

[1] University of West Attica, Department of Physiotherapy, LANECASM Research Lab, Egaleo, Greece

[2] Physiotherapist, Day Care Center, Athens Alzheimer Association, Greece.

Introduction

Dementia is a clinical syndrome characterized by impaired cognition functions, neuropsychiatric symptoms and gradual deterioration of physical function. In recent years, there is an increasing interest in the role of physical exercise as a treatment strategy for managing people with dementia [1-2].

The aim was to evaluate the effect of resistance exercise on the cognitive function, depression and activities of daily living in people with mild dementia.

Methods and Materials

This is intervention study. Thirty participants from a day care center with mild Alzheimer's disease (Athens Alzheimer Association) were randomly allocated to two groups: one group resistance exercise intervention (n=15) and one control group (n=15).

Inclusion criteria: a) age ≥ 65 years old b) diagnosis of mild Alzheimer's dementia, as determined by the treating physician c) Mini-Mental State Examination (MMSE): 20-24 /30 d) ability to move to the intervention place e) existence of a caregiver f) sufficient hearing and vision g) medical consent to participate in the exercise h) absence of any other exercise program i) without medication change for at least 2 months j) ability of consent k) have already been considered as capable for consent from the treating physician and the treatment team.

Exclusion criteria: a) other dementia type b) neurological disease with severe motor and cognitive problems c) serious diseases where is inappropriate participation in exercise, in consultation with the treating physician such as severe psychiatric illnesses, uncontrolled blood pressure severe cardiorespiratory problems, severe musculoskeletal problems d) malignancy e) recent surgery (<12 months) f) severe vision / hearing problems g) alcoholism h) drug use.

The intervention took place three times/week about for 40 minutes, for 12 weeks. Exercise included main muscle groups and was performed with ankle and wrist weights at moderate intensity and with a gradual increase of the load. The control group carried on their usual daily activities (no exercise). Cognitive function (Mini Mental State Examination - MMSE), depression (Geriatric Depression Scale-GDS-15) and activities of daily living (Instrumental Activities of Daily Living Scale-IADL) were evaluated, before and immediately after intervention Repeated measures with post hoc analysis, was performed with SPSS 22.0.

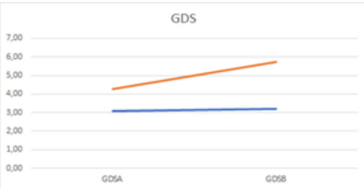

Chart 3.

Results

The intervention group scored significantly higher than controls at second time point on MMSE score (p<0.001) (Chart 1). IADL score significantly deteriorated at the second time point in controls (p<0.001) (Chart 2). GDS-15 score was significantly increased in controls (p<0.05) (Chart 3). MMSE score before intervention was significantly correlated to MMSE score after intervention (r=0.762, p=0.001). IADL score at second time point was positively and significantly related to MMSE (r=0.686, p<0.001).

Chart 1.

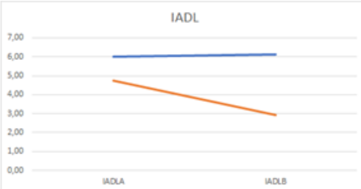

Chart 2.

Discussion

In addition to global cognitive impairment, neuropsychiatric disturbances can lead to a reduction in functionality and difficulty in the performance of activities of daily living, which decrease autonomy of patients with AD [3-4]

Exercise may help maintain or improve cognitive function and functionality in patients with dementia [5].

Aerobic exercise and mixed interventions have been studied more, while resistance interventions have been less studied [5-6].

Managing neuropsychiatric symptoms (NPS) in patients with dementia is a major challenge [6].

With the strength training an increase in the cognitive profile and an improvement in fitness are observed (p = 0.001) [7].

Additional study is needed to clarify optimal intervention and establish guidelines [5].

Conclusions

MMSE score were significantly improved within the intervention group, while GDS-15 and IADL were indicative of better performance in the intervention group. Intervention may have a significant positive influence on mental and daily living activities.

Contact Vasileios Papatsimpas
University of West Attica, Department of Physiotherapy
Email: vapapatsimpas@uniwa.gr
Website: https://lanecasm.uniwa.gr
Phone:

References