EPOSTER 25

The Effect of Limited Thoracic Mobility on Shoulder Joint Function in Individuals with Frailty and Extrapyramidal Syndrome: A Study Protocol

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Introduction

In recent years, researchers have noticed that frailty has some common features with certain neurodegenerative diseases. Specifically, features of the frailty syndrome such as low walking speed and muscle fatigue are also features of extrapyramidal syndrome (the most common is Parkinson's disease). The similarities between frailty and extrapyramidal syndrome are probably based on common pathophysiological mechanisms. Data on the association between frailty syndrome and Parkinson's disease pathology are limited and come from contemporary patient studies (Ntanasi et al., 2019). These studies have shown that the prevalence of frailty is higher in people with Parkinson's disease or with mild extrapyramidal symptoms, compared to the general population of similar age (Margioti et al., 2019). However, the above results come mainly from clinical and not population studies. It should be mentioned that no research so far has examined if the frailty syndrome is related with the increased impact on extrapyramidal syndrome (Maraki et al., 2019).

Purpose

A test battery was designed to demonstrate whether limited thoracic mobility is a predictor of shoulder joint function in the aforementioned two clinical populations. The aim is to evaluate the proposed tests' battery feasibility and acceptability of the main study, which contributes to the prevention of early onset of musculoskeletal disorders/falls of these clinical populations. The present study has been approved by the Ethics Committee of the University of West Attica with protocol number 56853/16-07-2021.

Methods

A single case experimental design using two female participants 70 and 75 years old with frailty and extrapyramidal syndrome, respectively. The test battery contained: **(a)** the examination of the extrapyramidal system (UPDRS), **(b)** Fried Frailty Phenotype, **(c)** Geriatric Depression Scale, **(d)** ABC questionnaire, **(e)** Measurement of thoracic kyphosis, **(f)** Measurement of trunk active rotation in standing, **(g)** Clinical scapular protocol (ClinScaP), **(h)** Shoulder ROM, **(i)** 4 meters walking test, **(j)** Multi Directional Reach, **(k)** Selective Functional Movement Assessment tests (SFMA) and **(l)** Time up and go test.

Results

A reduced trunk and shoulder ROM was recorded in the participant with extrapyramidal syndrome in comparison to the one with frailty. Also, kyphosis was greater in the participant with extrapyramidal syndrome. Finally, small differences were observed between the two in gait speed and swinging of the upper limbs.

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Discussion

The main difficulties of the study protocol were related to the implementation of SFMA and the Clinical scapular protocol (ClinScaP). It was decided to exclude the SFMA test due to its lack of objectivity and its time-consuming implementation. Measuring the scapular inclination with ClinScaP required two examiners. The feasibility and applicability of the remaining tests were considered satisfactory to be included in the final protocol.

Conclusion

Overall, it seems that our test battery can be successfully adapted for individuals with frailty and with extrapyramidal syndrome. This study will contribute to the development of early prevention interventions for maintaining a good level of posture and balance and preventing the early onset of musculoskeletal disorders and falls.

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