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Original article

Evaluation of postural control and quality of life in elderly women with knee osteoarthritis

Júlia Guimarães Reis[a,*], *Matheus Machado Gomes*[a], *Thamires Máximo Neves*[a], *Marina Petrella*[a], *Renê Donizeti Ribeiro de Oliveira*[b], *Daniela Cristina Carvalho de Abreu*[a]

[a]*Department of Biomechanics, Faculdade de Medicina de Ribeirão Preto, Universidade de São Paulo, Ribeirão Preto, SP, Brazil*
[b]*Department of Clinical Medicine, Faculdade de Medicina de Ribeirão Preto, Universidade de São Paulo, Ribeirão Preto, SP, Brazil*

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ABSTRACT

Objective: To assess the balance in dynamic tasks and in the quality of life in elderly women with and without knee osteoarthritis.
Methods: Elderly women were divided into Group 1 (n = 12), consisting of participants with bilateral knee osteoarthritis (Kellgreen-Lawrence grade 1 and 2), and Group 2 (n = 12), consisting of controls. A force plate (EMG System do Brazil) was used to assess postural sway in dynamic tasks, whereas the quality of life was assessed by using the WHOQOL-Bref questionnaire.
Results: Student's t-test showed no statistical difference during sitting down and standing up from the chair ($p > 0.05$). However, stair ascent revealed difference in displacement speed ($p < 0.05$), whereas stair descent showed differences in both displacement speed and amplitude ($p < 0.05$). In the questionnaire, Group 1 showed values lower than those in the control group regarding physical domain ($p < 0.05$).
Conclusion: Elderly women with knee osteoarthritis seemed to have more difficulty on stair descent task and had perception of worst physical domain. These findings were observed in OA group, even in the early stages of the disease, which shows the importance of even earlier interventions.

* *Corresponding author.*
E-mail: juliagreis@yahoo.com.br (J.G. Reis).

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Avaliação do controle postural e da qualidade de vida em idosas com osteoartrite de joelho

Palavras-chave:
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Joelho
Idosos
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RESUMO

Objetivo: Avaliar o equilíbrio em tarefas dinâmicas e a qualidade de vida em idosas com e sem osteoartrite no joelho.

Métodos: As idosas foram divididas em: Grupo 1 (n = 12), consistindo de idosas com osteoartrite bilateral no joelho (Grau Kellgreen-Lawrence 1 e 2); e Grupo 2 (n = 12), consistindo de controles. Foi empregada uma plataforma de força (EMG System do Brasil) para avaliar a oscilação postural em tarefas dinâmicas; já a qualidade de vida foi avaliada mediante a aplicação do questionário WHOQOL-Bref.

Resultados: O teste t de Student não demonstrou diferença estatística durante as ações de ficar de pé e sentar em uma cadeira ($p > 0,05$). Contudo, a tarefa de subir escadas revelou diferença na velocidade de deslocamento ($p < 0,05$), enquanto a tarefa de descer escadas demonstrou diferenças tanto na velocidade como na amplitude do deslocamento ($p < 0,05$). No questionário, o Grupo 1 demonstrou valores mais baixos do que os obtidos no Grupo de controle, no que diz respeito ao domínio físico ($p < 0,05$).

Conclusão: Aparentemente, idosas com osteoartrite no joelho tiveram mais dificuldade na tarefa de descer escadas e pior percepção de domínio físico. Esses achados foram observados no grupo com OA, mesmo nos estágios iniciais da doença, o que demonstra a importância de intervenções ainda mais precoces.

Introduction

The aging process causes changes in several organ systems, which may result in alterations in people's lifestyle and in their quality of life as well. Together with these alterations, some chronic-degenerative joint diseases like osteoarthritis (OA) can manifest themselves in elderly individuals.1 OA is one of the most common musculoskeletal complaints worldwide.2 According to the World Health Organisation (WHO), this is the fourth leading cause of disability among women.[3]

Individuals with OA are more likely to have pain, decrease in range of movement (ROM), decline in muscle function[4] and balance, thus resulting in functional limitation and decreased capacity to perform activities of daily living.[5-7]

About 18% of elderly have difficulty performing one or more activities of daily living, mainly those requiring muscle force, mobility and balance such as standing up and sitting down from a chair, stair ascent and descent.[7,8] Limitations in these tasks can lead to both loss of functional capacity and reduction in quality of life.[4,9]

Based on the muscle-joint dysfunctions individuals with knee OA have, one can question whether the early stages of this disease interferes with postural control during performance activities of daily living and people's quality of life, since there are very few studies on this theme.[10-12]

Therefore, the objectives of the present study were to evaluate the balance in dynamic tasks as well as the quality of life regarding physical, social, psychological, environmental and global domains in elderly individuals with and without knee OA.

Methods

The subjects, all female, taking part in the study were divided into two groups: Group 1 (n = 12), consisting of elderly individuals with bilateral knee OA and mean ± SD age of 67.25 ± 4.65 years, mean weight of 72.09 ± 10.13kg and mean height of 1.54 ± 0.06m; and Group 2 (n = 12), consisting of elderly individuals without OA (controls) whose mean age, mean weight, and mean height were, respectively, 65.58 ± 4.23years, 64.51 ± 8.59kg, and 1.55 ± 0.05m.

Group 1 had knee OA Kellgreen-Lawrence (K/L) grade 1 and 2[13] diagnosed by a rheumatologist in accordance with the American College of Rheumatology criteria.[14] X-ray radiographs involved antero-posterior and lateral aspects. The Western Ontario and MacMaster Universities Osteoarthritis Index (WOMAC) was used to measure pain, with Group 1 having mean score of 0.77 (value ranging from 0 to 1, that is, no pain to little pain).[15]

Group 2 was not submitted to X-ray examination for ethical reasons, with the controls exhibiting no symptom in lower limbs that could characterize OA. Those individuals, in both groups, having neurological diseases, vestibulopathies, neuropathies, history of fracture and lesions in lower limbs in the last 6 months or other complications that could affect their balance were excluded from study.

The volunteers were recruited from the Outpatient Rheumatology Center of the Ribeirão Preto School of Medicine (CSE-FMRP-USP) as well as from the community. The study was approved by the ethics research committee (protocol number 291), with all the volunteers signing a free informed consent before participating in the study.