



REVISTA BRASILEIRA DE REUMATOLOGIA

www.reumatologia.com.br



Original article

Poor muscle strength and function in physically inactive childhood-onset systemic lupus erythematosus despite very mild disease

Ana Jéssica Pinto^a, Fabiana Braga Benatti^b, Hamilton Roschel^{a,b},
Ana Lúcia de Sá Pinto^b, Clovis Artur Silva^c, Adriana Maluf Elias Sallum^c,
Bruno Gualano^{a,b,*}

^a Applied Physiology and Nutrition Research Group, University of Sao Paulo, Sao Paulo, Brazil

^b Rheumatology Division, School of Medicine University of Sao Paulo, Sao Paulo, Brazil

^c Pediatric Rheumatology Unit, Children's Institute, School of Medicine, University of Sao Paulo, Sao Paulo, Brazil

ARTICLE INFO

Article history:

Received 22 January 2016

Accepted 12 April 2016

Available online xxx

Keywords:

Strength

Muscle function

Rheumatic disease

Physical activity level

ABSTRACT

Objective: To compare muscle strength (i.e. lower- and upper-body strength) and function between physically inactive childhood-onset systemic lupus erythematosus patients (C-SLE) and healthy controls (CTRL).

Methods: This was a cross-sectional study and the sample consisted of 19 C-SLE (age between 9 and 18 years) and 15 CTRL matched by age, sex, body mass index (BMI), and physical activity levels (assessed by accelerometry). Lower- and upper-body strength was assessed by the one-repetition-maximum (1-RM) test. Isometric strength was assessed through a handgrip dynamometer. Muscle function was evaluated by the timed-stands test (TST) and the timed-up-and-go test (TUG).

Results: When compared with CTRL, C-SLE showed lower leg-press and bench-press 1-RM ($p=0.026$ and $p=0.008$, respectively), and a tendency toward lower handgrip strength ($p=0.052$). C-SLE showed lower TST scores ($p=0.036$) and a tendency toward higher TUG scores ($p=0.070$) when compared with CTRL.

Conclusion: Physically inactive C-SLE patients with very mild disease showed reduced muscle strength and functionality when compared with healthy controls matched by physical activity levels. These findings suggest C-SLE patients may greatly suffer from a physically inactive lifestyle than healthy controls do. Moreover, some sub-clinical "residual" effect of the disease or its pharmacological treatment seems to affect C-SLE patients even with a well-controlled disease.

© 2016 Elsevier Editora Ltda. This is an open access article under the CC BY-NC-ND license (<http://creativecommons.org/licenses/by-nc-nd/4.0/>).

* Corresponding author.

E-mail: gualano@usp.br (B. Gualano).

<http://dx.doi.org/10.1016/j.rbre.2016.07.012>

2255-5021/© 2016 Elsevier Editora Ltda. This is an open access article under the CC BY-NC-ND license (<http://creativecommons.org/licenses/by-nc-nd/4.0/>).

Redução na força muscular e capacidade funcional em pacientes fisicamente inativos com lúpus eritematoso sistêmico de início juvenil, apesar de doença muito leve

R E S U M O

Palavras-chave:

Força muscular
Capacidade funcional
Doença reumática
Nível de atividade física

Objetivo: Comparar a força muscular (ou seja, a força muscular dos membros inferiores e superiores) e a capacidade funcional de pacientes fisicamente inativos com lúpus eritematoso sistêmico de início juvenil LESJ com controles saudáveis (CTRL).

Métodos: Trata-se de um estudo transversal cuja amostra foi composta por 19 pacientes com LESJ (idades entre 9 a 18 anos) e 15 CTRL pareados por idade, sexo, índice de massa corporal (IMC) e nível de atividade física (avaliada através do uso de acelerômetros). A força de membros inferiores e superiores foi avaliada pelo teste de uma repetição máxima (1-RM). A força isométrica foi avaliada com o uso de um dinamômetro. A capacidade funcional foi avaliada pelo Timed-stands test (TST) e Timed-up-and-go test (TUG).

Resultados: Quando comparados aos CTRL, os pacientes com LESJ apresentaram menor força em 1-RM no leg press e supino ($p=0,026$ e $p=0,008$, respectivamente), e uma tendência a menor força de preensão manual ($p=0,052$). Os pacientes com LESJ apresentaram menores escores no TST ($p=0,036$) e uma tendência a maior tempo de execução no TUG ($p=0,070$), quando comparados ao grupo CTRL.

Conclusão: Pacientes com LESJ, fisicamente inativos, com doença muito leve mostraram redução na força muscular e capacidade funcional quando comparados a controles saudáveis pareados por níveis de atividade física. Estes achados sugerem que pacientes com LESJ podem apresentar mais efeitos deletérios por manter um estilo de vida fisicamente inativo do que controles saudáveis. Além disso, alguns efeitos “residuais” subclínicos da doença ou o tratamento farmacológico parecem afetar pacientes com LESJ, mesmo com uma doença bem controlada.

© 2016 Elsevier Editora Ltda. Este é um artigo Open Access sob uma licença CC BY-NC-ND (<http://creativecommons.org/licenses/by-nc-nd/4.0/>).

Introduction

Childhood-onset systemic lupus erythematosus (C-SLE) is an autoimmune disease characterized by B and T cells hyperactivity, formation and deposition of antibodies throughout the body, which results in chronic systemic inflammation and multi-organ involvement (e.g. skin, kidney, muscle, cardiovascular system, etc.).¹⁻⁴ C-SLE has a prevalence of 3–24 cases per 100,000 inhabitants⁵ and has been associated with a more severe disease than adult-SLE.⁶

Disease itself (e.g. systemic inflammation) and drug regimen (e.g. prolonged corticoid use) may contribute to a multitude of clinical manifestations (e.g. musculoskeletal disorders, physical dysfunction and fatigue),⁷⁻⁹ which may, ultimately, predispose patients to a sedentary lifestyle. A sedentary lifestyle, in turn, may negatively affect physical capacity, function, and health-related quality of life, in a vicious circle of physical inactivity and poor clinical outcomes.¹⁰ A few studies have shown that pediatric rheumatic populations are not engaged in sufficient levels of physical activity compared to healthy children and adolescents.¹¹⁻¹³ However, although it is plausible to assume that a sedentary behavior may affect physical capacity, this remains to be determined.

The aim of this study was to compare muscle strength (i.e. lower- and upper-body strength) and function between physically inactive C-SLE and healthy controls (CTRL). We

hypothesized that physically inactive patients with low disease activity and low cumulative damage would show similar muscle strength and function when compared to healthy controls matched for physical activity levels.

Patients and methods

Study design and patients

This was a cross-sectional study conducted in Sao Paulo, Brazil (Clinical Hospital, School of Medicine, University of Sao Paulo). The sample consisted of 19 C-SLE patients (age between 9 and 18 years) and 15 healthy controls (CTRL) matched for age, sex, body mass index (BMI), and physical activity levels (assessed by accelerometer). Aerobic capacity, health-related quality of life, and physical activity level data from part of this sample has been reported elsewhere.¹⁴ Disease activity was determined by means of Systemic Lupus Erythematosus Disease Activity Index 2000 (SLEDAI) scores,¹⁵ and cumulative damage by Systemic Lupus International Collaborating Clinics/ACR Damage Index (SLICC) scores.¹⁶ All patients fulfilled the revised American College of Rheumatology criteria for the diagnosis of C-SLE.¹⁷ Healthy subjects, recruited by local advertising at University of Sao Paulo, were free of any current or past chronic diseases, and were not engaged in any exercise training programs.

Download English Version:

<https://daneshyari.com/en/article/8742673>

Download Persian Version:

<https://daneshyari.com/article/8742673>

[Daneshyari.com](https://daneshyari.com)