Original article

Chronic low back pain in patients with systemic lupus erythematosus: prevalence and predictors of back muscle strength and its correlation with disability

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ABSTRACT

Objective: To determine the prevalence of Chronic Low Back Pain and predictors of Back Muscle Strength in patients with Systemic Lupus Erythematosus.

Methods: Cross-sectional study. Ninety-six ambulatory patients with lupus were selected by non-probability sampling and interviewed and tested during medical consultation. The outcomes measurements were: Point prevalence of chronic low back pain, Oswestry Disability Index, Tampa Scale of Kinesiophobia, Fatigue Severity Scale and maximal voluntary isometric contractions of handgrip and of the back muscles. Correlation coefficient and multiple linear regression were used in statistical analysis.

Results: Of the 96 individuals interviewed, 25 had chronic low back pain, indicating a point prevalence of 26% (92% women). The correlation between the Oswestry Index and maximal voluntary isometric contraction of the back muscles was $r = -0.4$, 95% CI [−0.68; −0.01] and between the maximal voluntary isometric contraction of handgrip and of the back muscles was $r = 0.72$, 95% CI [0.51; 0.88]. The regression model presented the highest value of R^2 being observed when maximal voluntary isometric contraction of the back muscles was tested with five independent variables (63%). In this model handgrip strength was the only predictive variable ($\beta = 0.61$, $p = 0.001$).

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Conclusions: The prevalence of chronic low back pain in individuals with systemic lupus erythematosus was 26%. The maximal voluntary isometric contraction of the back muscles was 63% predicted by five variables of interest, however, only the handgrip strength was a statistically significant predictive variable. The maximal voluntary isometric contraction of the back muscles presented a linear relation directly proportional to handgrip and inversely proportional to Oswestry Index i.e. stronger back muscles are associated with lower disability scores.

Lombalgia crônica em pacientes com lúpus eritematoso sistêmico: prevalência e preditores da força muscular nas costas e sua correlação com a incapacidade

R E S U M O

Palavras-chave:
Lúpus eritematoso sistêmico
Lombalgia crônica
Força muscular
Prevalência
Predição

Objetivo: Determinar a prevalência de lombalgia crônica (LBC) e os preditores de força muscular nas costas (FMC) em pacientes com lúpus eritematoso sistêmico (LES).

Métodos: Estudo transversal. Selecionaram-se 96 pacientes ambulatoriais com LES por amostragem não probabilística, entrevistados e testados durante consultas médicas. As medidas de desfecho foram: prevalência ocasional de LBC, Índice de Incapacidade de Oswestry, Escala Tampa para Cinesiofobia, Escala de Gravidade da Fadiga e contrações isométricas voluntárias máximas (CIVM) de preensão manual e dos músculos das costas. Usaram-se o coeficiente de correlação e a regressão linear múltipla na análise estatística.

Resultados: Dos 96 indivíduos entrevistados, 25 apresentavam LBC, o que indicou uma prevalência circunstancial de 26% (92% mulheres). A correlação entre o Índice de Incapacidade de Oswestry e a contração isométrica voluntária máxima dos músculos das costas foi de r = −0,4, IC 95% [−0,68; −0,01] e entre a CIVM de preensão manual e dos músculos das costas foi de r = 0,72, IC 95% [0,51; 0,88]. O modelo de regressão apresentou o maior valor de R^2 observado quando a CIVM dos músculos das costas foi testada com cinco variáveis independentes (63%). Nesse modelo, a força de preensão manual foi a única variável preditiva (ß = 0,61, p = 0,001).

Conclusões: A prevalência de LBC em indivíduos com LES foi de 26%. A CIVM dos músculos das costas foi 63% prevista por cinco variáveis de interesse. No entanto, apenas a força de preensão manual foi uma variável preditiva estatisticamente significativa. A CIVM dos músculos das costas apresentou uma relação linear diretamente proporcional à força de preensão manual e inversamente proporcional ao Índice de Incapacidade de Oswestry (ou seja, músculos das costas mais fortes estão associados a menores pontuações de incapacidade).

Introduction

Low back pain is defined by the presence of pain between the costal margin and the gluteal folds, it has a variable clinical presentation and is said to be chronic when persisting for more than three months.[1,2] Chronic low back pain (CLBP) is considered a public health problem associated with high economic costs in industrialized nations.[3,4] The direct costs of low back pain in the United States of America (USA), for example, are approximately $ 100 billion per year.[5] In Europe, the costs are two to four billion euros per year, however, there has been no evaluation of the societal costs of back pain in Brazil.[6,7]

Systemic lupus erythematosus (SLE) is a chronic inflammatory, autoimmune disease, which negatively affects multiple organs and systems and presents with periods of remission and exacerbation.[8] SLE more commonly affects young women of reproductive age, in a ratio of nine to ten women to one

man.[9] The incidence of SLE in Brazil is estimated to be 8.7 cases per 100.000 people per year.[10] The etiology of SLE is unclear, however, diagnostic and management criteria are available.[11–13]

SLE is a complex disease with a variable clinical presentation inflammatory arthritis, mainly affecting the small joints of the hands and knees, is the most frequent cause of musculoskeletal pain, often preceding other manifestations of the disease.[14] CLBP is common in some inflammatory arthropathies, for example a recent study reported a prevalence of 65% of CLBP in patients with rheumatoid arthritis (RA).[15] However, there is currently no information on the prevalence of CLBP in SLE.

Recent work has reported that patients with SLE have reduced muscular strength and functional capacity compared to age and sex matched health controls.[16] One explanation for reduced muscular strength in SLE is based on the use of